

Russian Society for Conservation and Studies of Birds
Kamchatka Branch of Pacific Geographical Institute FEB RAS
BirdLife International



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MARINE IMPORTANT BIRD AREAS OF THE RUSSIAN FAR EAST



МОРСКИЕ КЛЮЧЕВЫЕ ОРНИТОЛОГИЧЕСКИЕ ТЕРРИТОРИИ ДАЛЬНЕГО ВОСТОКА РОССИИ

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Marine Important Bird Areas of the Russian Far East / ed. by Yu.B. Artukhin. – Moscow: BirdsRussia, 2016. – 136 p.

The book is a catalogue of water areas of the Far-Eastern region of the Russian Federation of international importance for conservation of seabird populations. Description of 40 territories (map-scheme with the indication of boundaries and areas, physics-geographical characteristics, ornithological importance, key species status, practical use, existing threatening factors, required and accepted conservation measures) is given. The text is illustrated with photographs of the main habitats of seabirds.

The edition is destined for the specialists in environment conservation, marine biologists, nature admirers. Maps 41. Refs. 217 titles.

Key words: seabirds, bird conservation, Important Bird Areas, Russian Far East

Морские ключевые орнитологические территории Дальнего Востока России / под ред.

Ю.Б. Артюхина. – М.: РОСИП, 2016. – 136 с.

Книга представляет собой каталог природных акваторий Дальневосточного региона Российской Федерации, имеющих международное значение для сохранения популяций морских птиц. Приводится описание 40 территорий (картосхема с указанием границ и площади, физико-географическая характеристика, орнитологическая значимость, состояние ключевых видов, хозяйственное использование, существующие факторы угрозы, принятые и необходимые меры охраны). Текст иллюстрирован фотографиями основных местообитаний морских птиц.

Издание предназначено для специалистов в области охраны окружающей среды, морских биологов, любителей природы.

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Responsible Editor: Yu.B. Artukhin

Authors of text: Yu.B. Artukhin, A.V. Andreev, Yu.N. Gerasimov, N.B. Konyukhov, P.S. Vyatkin, I.M. Tiunov, Yu.V. Shibaev, A.V. Kondratyev, E.G. Lobkov, V.V. Pronkevich, V.B. Zykov, F.V. Kazanskiy, Z.V. Revyakina, E.E. Syroechkovskiy, A.M. Trukhin, N.N. Yakushev, V.E. Kirichenko

Map-schemes: V.E. Kirichenko

Translation from Russian into English: J.E. Shergalin and D.J. Shergalina

Editor of English text: N.I. Ormiston

Reviewers: Dr habil. in Biology V.A. Ostapenko, Dr habil. in Biology E.V. Rogacheva,

Dr habil. in Biology A.M. Tokranov

Computer design and layout: L.V. Ezerova

Color separation: A.M. Nechayev

Ответственный редактор: Ю.Б. Артюхин

Авторы текста: Ю.Б. Артюхин, А.В. Андреев, Ю.Н. Герасимов, Н.Б. Конюхов, П.С. Вяткин, И.М. Тиунов, Ю.В. Шibaев, А.В. Кондратьев, Е.Г. Лобков, В.В. Пронкевич, В.Б. Зыков, Ф.В. Казанский, З.В. Ревякина, Е.Е. Сыроечковский, А.М. Трухин, Н.Н. Якушев, В.Е. Кириченко

Картосхемы: В.Е. Кириченко

Перевод на английский язык: Е.Э. Шергалин и Д.Е. Шергалина

Редактор английского текста: Н.И. Ормистон

Рецензенты: д-р биол. наук В.А. Остапенко, д-р биол. наук Э.В. Рогачева,

д-р биол. наук А.М. Токранов

Компьютерная верстка и дизайн, оформление: Л.В. Езерова

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PREFACE

Birds are an important component of the planet's biodiversity and are experiencing quite a significant impact from human activity. At the same time, studies over the past decades have demonstrated that one of the most effective means of animal conservation is the protection of their habitats. The search for priority areas in bird protection has led to the establishment of the Important Bird Areas (IBA), developed in the 1980s by BirdLife International. The crux of the matter lies in establishing a protected network of environmental areas which are of greatest significance for birds as sites for breeding, moulting, overwintering and halting on migrations. The IBAs in the Far East of the Russian Federation were delineated within the framework of a project in the Asian region (BirdLife International, 2004).

In 2010, according to an initiative of the Russian Society for Conservation and Studies of Birds (BirdsRussia), Russian ornithologists joined the next phase of this global project, devoted to the discovery and description of water areas which are important to the life of seabirds. This is vital: among 346 seabird species of the world ornithofauna, almost half (43 %) are currently under threat of extinction (Croxall et al., 2012).

The importance of seabirds for humans is quite diverse. Seabirds form an important component of marine ecosystems, and actively contribute towards their stability. In the past, seabirds have served as a significant source of food, and also of material for cloth production. Moreover, fishermen have historically used seabirds in the search for concentrations of pelagic fishes, whose shoals attract numerous flocks of birds when at the water surface, owing to their visibility from a great distance. Nowadays birds have been replaced by echo sounders, but their importance is not lost as an indication of hydrobionts: seabirds serve as reliable indicators of the status of coastal ecosystems. Public interest in seeing and understanding seabirds increases annually.

The seas of the Russian Far East, which possess a high level of biological productivity, create favourable conditions for giant communities of seabirds. There are more than 700 large colonial settlements with a total number of about 30,000,000 specimens; the mass migrations and nomadic movements of not only the species breeding in the region, but also of the millions of birds from other regions of the World Ocean, also take place here. The high taxonomic diversity and number of seabird colonies determine the global ornithological value and need for nature conservation within the Far-Eastern seas of Russia.

The present book is the result of an inventory of the natural water areas of the Far-Eastern seas of international importance for the conservation of seabird populations. Its preparation was carried out within the framework of the project, "Identification of Marine Important Bird Areas in Far East Russia and Its Application in Conservation", thanks to a collaboration between the Russian Society for Conservation and Studies of Birds and the Kamchatka Branch of the Pacific Geographical Institute of the Far-Eastern Branch of the Russian Academy of Sciences and BirdLife International. The Mitsui & Co., Ltd. Environment Fund (Tokyo, Japan) has made a financial contribution towards this edition. The authors are grateful to all these organisations, and the numerous colleagues, assistants and photographers, who helped during the studies and assisted in the preparation of this edition in the name of the preservation of the Far-Eastern birds as a part of our native and world heritage.



A stylized, handwritten signature in blue ink, consisting of a large, flowing 'G' followed by a smaller 'L' and a final flourish.

*V.M. Galushin,
Dr habil. in Biology, Professor,
President of the Russian Society for Conservation and Studies of Birds*

Introduction

This catalogue contains the results of an inventory of marine Important Bird Areas (IBA) of global importance conducted between 2012-2015 in the Russian Far East. The works were carried out under the framework of a BirdLife International programme, whose aim is to organise the network of World Ocean areas that are of primary importance to the conservation of seabirds. The decision to include the Russian Federation in this global programme was taken during the "1st Asian Marine IBA Workshop" (Tokyo, 14-16 April 2010), where Russia was represented by the Russian Society for Conservation and Studies of Birds (BirdsRussia) and the Kamchatka Branch of the Pacific Geographical Institute of the Far-Eastern Branch of the Russian Academy of Sciences.

The Far-Eastern IBAs were identified and detailed by a group of experts, formed at the "Marine Important Bird Areas of the Far East of the Russian Federation" meeting (Petropavlovsk-Kamchatskiy, 20-22 February 2012). Specialists from different areas of scientific research, in addition to the country's education and nature conservation organisations comprised this group (the contact information of authors is shown on page 132).

The catalogue covers an area of 379,928,240 ha within the limits of Russian waters of the Chukchi Sea, Bering Sea, Sea of Okhotsk, Sea of Japan and north-western area of the Pacific Ocean. The characteristics of the considered territories as environments for seabirds have already been published in Russian and English in detail (Shuntov, 1998, 2000) and therefore are not repeated in the present edition. The materials in the book are presented in three sections. First, a brief description of the methodology for identifying the Far-Eastern IBAs is provided. Secondly, the results of the inventory conducted in the region are summarised. The third section consists of sketches dedicated to the designated important bird water areas.

During the entire process of preparing the catalogue, colleagues at BirdLife International – Ben Lascelles and Mayumi Sato – offered comprehensive assistance. Melanie Smith of Audubon Alaska provided cartographical materials on the Alaskan marine IBAs. Our colleagues M.A. Antipin, A.Yu. Blokhin, A.G. Dondua and V.G. Vysotskiy shared with the authors and compilers the unpublished results of studies conducted during the description of the water areas.

The book is illustrated with photographs, taken mainly by members of authors' team. A series of missing shots was provided by M.A. Antipin, A.M. Burdin, S.M. Dolganov, A.G. Dondua, N.N. Gerasimov, T. Fukuda, D.N. Kochetkov, A.A. Kochnev, F.A. Martusov, A.V. Maslov, T.A. Obozova, P.N. Romanov, I.P. Shpilenok, P.S. Tomkovich, V.V. Zykov and A.V. Petrov.

The catalogue is published in two books; in Russian and English separately. The translation from Russian was carried out by J.E. Shergalin and D.J. Shergalina, and the editing of English text by N.I. Ormiston. The layout of the book was developed by L.V. Ezerova, prepress was carried out by A.M. Nechayev. The book was kindly reviewed by V.A. Ostapenko, E.V. Rogacheva and A.M. Tokranov.

The Keidanren Nature Conservation Fund provided financial support for the Meeting of the Working Group in 2012. The catalogue was publishable owing to a grant: "The Identification of Marine Important Bird Areas in Far East Russia and Its Application in Conservation", which was provided by the Mitsui & Co., Ltd. Environment Fund.

The authors' team expresses deep gratitude to all of the aforementioned individuals and organizations.



Methodology for identifying the marine Important Bird Areas of the Russian Far East

The process of designating the Far-Eastern marine IBAs was based on a methodology developed by experts at BirdLife International (Lascelles et al., 2012). A detailed description of the practical recommendations is offered in a special manual (BirdLife International, 2010), available at the organisation's website (<http://www.birdlife.org/datazone/info/marmethods>).

Indicator bird species

The term "seabirds" has no universal determination and in different regions of the World Ocean it can be interpreted in various ways. Sixty-eight bird species are selected as identifiers of IBAs in the Far-Eastern seas of Russia, which regularly feature in our waters during breeding, nomadic movements, migrations or overwintering and are tightly connected with the marine environment during certain periods of their life cycle (Table 1). The representatives of the following families were included in this list: Anatidae (12 species), Gaviidae (4), Diomedidae (3),

Procellariidae (5), Hydrobatidae (3), Phalacrocoracidae (4), Scolopacidae (2), Stercorariidae (3), Laridae (16) and Alcidae (16). Within the catalogue's text the order of succession of taxon, English and Latin names of the species correspond to the latest "Avifauna of the states of Northern Eurasia (the former USSR): Checklist" by E.A. Koblik and V.Yu. Arkhipov (2014).

Criteria for the selection of territories

For the identification of IBAs, special criteria of world, continental and national ranks were developed, primarily based upon population estimates of the indicator bird species within the borders of the specific areas. When applying this to the marine IBAs of international rank, it was recommended to use two categories of criteria (BirdLife International, 2010).

Category A1 "Globally threatened species" (includes 1 criterion):

A1 – the territory supports the population of one or several species designated as under global threat of extinction, i.e. birds whose modern status in the

Table 1. The list of bird species, used for identification of marine Important Bird Areas of international importance in the Russian Far East

Species	IUCN status	Criteria	Estimated 1% threshold, specimens*	Number of designated IBAs
Greater Scaup <i>Aythya marila</i>	LC	A4.1	17,000 (2)	7
Steller's Eider <i>Polysticta stelleri</i>	VU	A1, A4.1	1,800 (9)	8
Common Eider <i>Somateria mollissima</i>	NT	A1, A4.1	1,500 (9)	6
King Eider <i>Somateria spectabilis</i>	LC	A4.1	5,000 (2, 9)	1
Spectacled Eider <i>Somateria fischeri</i>	LC	A4.1	3,800 (9)	1
Harlequin Duck <i>Histrionicus histrionicus</i>	LC	A4.1	3,400 (2)	6
American Scoter <i>Melanitta americana</i>	NT	A1, A4.1	4,900 (2)	2
White-winged Scoter <i>Melanitta deglandi</i>	LC	A4.1	12,000 (2)	5
Long-tailed Duck <i>Clangula hyemalis</i>	VU	A1, A4.1	18,000 (2)	7
Common Goldeneye <i>Bucephala clangula</i>	LC	A4.1	9,000 (2)	–
Red-breasted Merganser <i>Mergus serrator</i>	LC	A4.1	2,500 (2)	4
Common Merganser <i>Mergus merganser</i>	LC	A4.1	4,200 (2)	1
Red-throated Diver <i>Gavia stellata</i>	LC	A4.1	1,400 (9)	2
Black-throated Diver <i>Gavia arctica</i>	LC	A4.1	10,000 (9)	–
Pacific Diver <i>Gavia pacifica</i>	LC	A4.1	12,600 (9)	–
White-billed Diver <i>Gavia adamsii</i>	NT	A1, A4.1	240 (9)	3
Short-tailed Albatross <i>Phoebastria albatrus</i>	VU	A1, A4.2	24 (8)	3
Black-footed Albatross <i>Phoebastria nigripes</i>	NT	A1, A4.2	1,200 (8)	–
Laysan Albatross <i>Phoebastria immutabilis</i>	NT	A1, A4.2	11,800 (8)	1
Northern Fulmar <i>Fulmarus glacialis</i>	LC	A4.2	225,000 (8)	4
Mottled Petrel <i>Pterodroma inexpectata</i>	NT	A1, A4.2	15,000 (8)	–
Streaked Shearwater <i>Calonectris leucomelas</i>	NT	A1, A4.2	30,000 (8)	1
Sooty Shearwater <i>Puffinus griseus</i>	NT	A1, A4.2	200,000 (8)	1
Short-tailed Shearwater <i>Puffinus tenuirostris</i>	LC	A4.2	230,000 (8)	3
Swinhoe's Storm-petrel <i>Oceanodroma monorhis</i>	NT	A1, A4.2	1,000 (8)	1
Leach's Storm-petrel <i>Oceanodroma leucorhoa</i>	LC	A4.2	200,000 (8)	1
Fork-tailed Storm-petrel <i>Oceanodroma furcata</i>	LC	A4.2	60,000 (8)	1
Great Cormorant <i>Phalacrocorax carbo</i>	LC	A4.1	1,000 (9)	–
Japanese Cormorant <i>Phalacrocorax capillatus</i>	LC	A4.1	255 (5)	4
Pelagic Cormorant <i>Phalacrocorax pelagicus</i>	LC	A4.1	2,540 (3)	5
Red-faced Cormorant <i>Phalacrocorax urile</i>	LC	A4.1	525 (4)	2
Red Phalarope <i>Phalaropus fulicarius</i>	LC	A4.1	10,000 (9)	–
Red-necked Phalarope <i>Phalaropus lobatus</i>	LC	A4.1	10,000 (9)	–
Pomarine Skua <i>Stercorarius pomarinus</i>	LC	A4.2	16,250 (8)	–
Parasitic Skua <i>Stercorarius parasiticus</i>	LC	A4.2	52,500 (8)	–
Long-tailed Skua <i>Stercorarius longicaudus</i>	LC	A4.2	25,750 (8)	–

Table 1. (Contd.)

Species	IUCN status	Criteria	Estimated 1% threshold, specimens*	Number of designated IBAs
Black-tailed Gull <i>Larus crassirostris</i>	LC	A4.1	10,500 (9)	2
Common Gull <i>Larus canus</i>	LC	A4.1	10,000 (10)	2
Slaty-backed Gull <i>Larus schistisagus</i>	LC	A4.1	4,100 (1)	10
Vega Gull <i>Larus vegae</i>	LC	A4.1	10,000 (10)	–
Glaucous-winged Gull <i>Larus glaucescens</i>	LC	A4.1	5,700 (9)	1
Glaucous Gull <i>Larus hyperboreus</i>	LC	A4.1	2,400 (6)	–
Common Black-headed Gull <i>Larus ridibundus</i>	LC	A4.1	20,000 (9)	–
Sabine's Gull <i>Xema sabini</i>	LC	A4.1	1,000 (9)	–
Ross's Gull <i>Rhodostethia rosea</i>	LC	A4.1	1,000 (9)	1
Black-legged Kittiwake <i>Rissa tridactyla</i>	LC	A4.1	73,000 (9)	3
Red-legged Kittiwake <i>Rissa brevirostris</i>	VU	A1, A4.1	3,000 (9)	1
Ivory Gull <i>Pagophila eburnea</i>	NT	A1, A4.1	230 (8)	2
Common Tern <i>Sterna hirundo</i>	LC	A4.1	10,000 (10)	–
Arctic Tern <i>Sterna paradisaea</i>	LC	A4.1	10,000 (10)	–
Aleutian Tern <i>Sterna camtschatica</i> (= <i>aleutica</i>)	LC	A4.1	467 (7)	8
Little Tern <i>Sterna albifrons</i>	LC	A4.1	1,000 (9)	–
Common Guillemot <i>Uria aalge</i>	LC	A4.2	180,000 (8)	4
Brünnich's Guillemot <i>Uria lomvia</i>	LC	A4.2	220,000 (8)	2
Black Guillemot <i>Cepphus grylle</i>	LC	A4.2	5,500 (8)	1
Pigeon Guillemot <i>Cepphus columba</i>	LC	A4.2	2,350 (8)	2
Spectacled Guillemot <i>Cepphus carbo</i>	LC	A4.2	1,440 (8)	7
Long-billed Murrelet <i>Brachyramphus perdix</i>	NT	A1, A4.2	250 (10)	4
Kittlitz's Murrelet <i>Brachyramphus brevirostris</i>	NT	A1, A4.2	439 (8)	1
Ancient Murrelet <i>Synthliboramphus antiquus</i>	LC	A4.2	15,000 (8)	2
Japanese Murrelet <i>Synthliboramphus wumizusume</i>	VU	A1, A4.2	62 (8)	–
Crested Auklet <i>Aethia cristatella</i>	LC	A4.2	82,000 (8)	5
Whiskered Auklet <i>Aethia pygmaea</i>	LC	A4.2	1,000 (8)	3
Least Auklet <i>Aethia pusilla</i>	LC	A4.2	240,000 (8)	2
Parakeet Auklet <i>Aethia psittacula</i>	LC	A4.2	12,000 (8)	2
Rhinoceros Auklet <i>Cerorhinca monocerata</i>	LC	A4.2	13,000 (8)	1
Horned Puffin <i>Fratercula corniculata</i>	LC	A4.2	12,000 (8)	2
Tufted Puffin <i>Lunda cirrhata</i>	LC	A4.2	35,000 (8)	4

* A 1% threshold value is based on estimations of numbers from the following information sources: 1 – Zelenskaya, 2008; 2 – Krivenko, Vinogradov, 2008; 3 – Artukhin, 2011a; 4 – Artukhin, 2011b; 5 – Litvinenko, 2011; 6 – Petersen et al., 2015; 7 – Renner et al., 2015; 8 – BirdLife International, 2016; 9 – Wetlands International, 2016; 10 – calculations on expert assessments of numbers, proceeding from recommendations of Wetlands International (2006).



Short-tailed Albatross is an indicative nomadic species of the Far-Eastern seas (photo by Yu.B. Artukhin)

IUCN Red List of Threatened Species is Critical (CR), Endangered (EN) or Vulnerable (VU) regularly feature here.

Category A4 “Congregations of birds” (includes 4 criteria):

A4.1 – the territory regularly supports at least 1 % of the biogeographical population of waterbird species;

A4.2 – the territory regularly supports at least 1 % of the world population of seabird species;

A4.3 – the territory regularly supports at least 20,000 waterbirds or at least 10,000 pairs of seabirds of one or more species;

A4.4 – the territory supports a considerable number of migratory birds in the hotspots of the migratory route – the “bottle-neck” sites (where the flyway becomes narrower).

During the discussion of these recommendations, the Working Group of Russian experts reached a conclusion about the necessity for some methodological changes when taking into account the regional specifics of the bird population.

In particular, it was proposed that the list of birds should be expanded, responding to the actions of criterion A1, to include new species with a Near Threatened (NT) status within it. Such species are at real risk of declining towards a status of global threat of extinction, and therefore a similar approach for both categories is advised when the national networks of IBAs are created (Ramírez et al., 2008; Harris et al., 2011; Fric et al., 2012; Forest & Bird, 2014). According to the latest version of the IUCN Red List of Threatened Species (2015), a total of

17 bird species feature regularly in the Far-Eastern seas, which correspond to the A1 criterion – among these 5 are Vulnerable and 12 can be classified as Near Threatened (Table 1). The remaining 51 species have a status of Least Concern (LC).

It is recommended that the A4.3 criterion is entirely ignored during the identification of marine waters of international rank in Russian conditions. Congregations of waterbirds and seabirds of such size form in the breeding and migration period at many points of the Far-Eastern seas. The application of this criterion will inevitably lead to a designation of additional water areas of considerable size (especially in Koryakiya, Kamchatka and the Kuril Islands), which mask the value of the priority sites, i.e. those of world importance for the conservation of marine birds which need to be given the highest priority by the local nature conservation authorities.

A 1% level of number for 30 seabird species were determined as a rule on the average estimations of their world populations, shown in the BirdLife International database (BirdLife International, 2016; Table 1). The same 1% level for biogeographical populations of 38 waterbird species is based mainly on the last official estimates conducted by specialists from Wetlands International (2016). However, for the East Palearctic Realm, which includes the area studied by us, there are many omissions and inaccuracies in that publication. Consequently for 15 Anatidae, Phalacrocoracidae and Laridae birds we used more reliable estimates, published in recent years by Russian and foreign ornithologists. Where these studies gave an estimate of the size

of the reproductive proportion of the population we multiplied this value by a coefficient of 1.5, in order to determine the total population – as is recommended by Wetlands International (2006). For 5 species, whose number can be established only at a very approximate order of magnitude, a 1% threshold was calculated approximately, on the basis of methods developed by experts of Wetlands International (2006). In cases where, within the borders of the Far-Eastern region, the birds occur in separate populations of the species, the threshold value was calculated by summing together the numbers of these geographical populations.

Borders of territories

The methods used for determining the IBA borders are rather diverse (see for review: BirdLife International, 2010), and their adoption is to a considerable extent dependent on the study level of distribution of the seabirds in the region. It was recommended by experts that for Russian conditions, observations from coastal and sea counts of birds should be predominantly used. However, due to an insufficient volume of such materials for congregations formed around key nesting sites, the averaged data on the distance of foraging flights of the indicator bird species from the colonies, selected by specialists of BirdLife International on the basis of integrated results from studies in different parts of the World Ocean (Thaxter et al., 2012) were most commonly used. Information on how the configuration of the key water area was determined and how specifically its borders are defined in the relevant site description.

Cartography

In the catalogue, components of the Digital Topographical Map (DTM) of the Far-Eastern Federal District of the Russian Federation with a scale of 1:500,000 serve as cartographical schemes of IBAs. Some components of maps extracted from separate topographical sheets. The following layers were used: coastal line, point localities, line and polygonal hydrographic layers, and isobaths at the interval of 0-200 m. All classes of objects are projected and recorded in a standard exchange format SHP.

For a more obvious visualization of the contours of the seabed was developed an integrated digital topographic model. The combination of the depths of DTM with a scale of 1:500,000 was used over the range of 0-500 m, and for the remaining water area a set of digital models of the seabed ETOPO1 were applied (Amante, Eakins, 2009), transformed into the coordinates of the Gauss-Krüger system (zone 27) on the Krasovsky ellipsoid. The digital model itself is a raster topographic model, based on the results of different surveys from 1996-2008 with a 1-km



*Biological Station of the Institute of Biological Problems of the North FEB RAS on Talan Island
(photo by A.V. Andreev)*

resolution. After, by means of ArcGIS software, the computational grids of the geographic coordinate system were placed on the developed map schemes.

The geographical names on the map schemes and within the text are given on navigational sea maps and manuals for non-military purposes; the modern editions of sailing directions, published by the Main Department of Navigation and Oceanography of the Ministry of Defence of Russia (Sailing directions..., 1984, 2003, 2004, 2007, 2008). Commonly used synonyms are added to several names.

Data sources

Identification and assessment of the characteristics of each IBA was carried out by specialists who conducted ornithological studies on the territories, in addition to the results of personal observations and other available materials. The sources of any unpublished data are cited in the text of the account, in printed form or in electronic editions are available in the list of literature at the end of the book.



*Count of mass seabird species is a complicated task
(photo by Yu.B. Artukhin)*



Results of the inventory of marine Important Bird Areas in the Russian Far East

Results of the analysis conducted in the Russian Far East revealed 40 IBAs of global importance (Fig. 1; Table 2). The total designated water area comprises 23,528,508 ha, or 6.2 % of the region under investigation. The size of the individual territories varies greatly – from 8,200 ha (Utashud Island) to 4,865,950 ha (Wrangel and Herald Islands) – with an average of 588,213 ha. The largest 8 of the 40 Far-Eastern IBAs occupy 80.8 % of the total area of the territories. Twenty-one water areas are less than 100,000 ha in size.

The spatial distribution of the marine IBAs is fairly even. The network of identified IBAs covers all of the Far-Eastern seas, as well as practically all the coastal physiographic provinces (Rikhter, 1964) selected in the study region.

Distribution of IBAs by criteria and indicator bird species

During an inventory of the Far-Eastern marine IBAs the experts most often used criteria A4.1 and A4.2 (for 33 and 25 IBAs, respectively) as a basis

for identifying the coastal water areas important for concentrations of waterbirds and seabirds for breeding and migration, and also for nomadic movements or wintering grounds. Criterion A1 (globally threatened species) was used in identifying 20 territories. In the Far-Eastern seas the experts seldom applied criterion A4.4 (a “bottle neck” in the flyway of migratory birds) – it was used for only one territory (Table 2).

The marine Important Bird Areas were selected for 49 of 68 indicator bird species (Table 1). The territories are ranked in ornithological importance from 1 to 14, having on average 3.8 species. Two territories – the Commander Islands and Karaginskiy Island – indisputably top the list, with 14 and 12 key species, respectively. The number of mono-species IBAs, i.e. designated for the conservation of only one species, is 11, comprising 27.5 % of the total number of territories (Table 2).

Among taxa Anatidae (representatives of this group were used in 48 instances for the determination of key water areas), Alcidae (42) and Laridae (30) were

most evident. In terms of the number of IBA's in which these birds are encountered the trio of leading species consists of the Slaty-backed Gull (10), Steller's Eider and Aleutian Tern (8 for the latter two).

Marine Important Bird Areas were designated for 14 of 17 globally threatened bird species. It was not possible to designate territories in 3 cases, the Black-footed Albatross, Mottled Petrel and Japanese Murrelet, due to a lack of data on large enough concentrations of these species in Russian waters.

In the majority of the described territories (at least 33 of 40), mass concentrations of birds typically occur at nesting sites on the shores adjacent to the selected water areas. The largest nesting settlements, consisting of millions of specimens of various species of colonial seabirds, are located in the north of the Bering Sea (Ratmanova Island, Navarin Cape) and in the region of the Sea of Okhotsk (Yamskiye and the Middle Kuril Islands). There are key non-nesting concentrations of summering birds (sea ducks), which form during seasonal moulting and during movements to moulting sites within 9 designated water areas – the greatest numbers being found near the north-eastern shore of Sakhalin Island. Important stopover sites and sites of transit for migratory sea ducks, divers and gulls are known for 8 water areas. These are situated near the shores of Chukotka, Koryakiya and Kamchatka. The nomadic movements of pelagic birds (albatrosses and shearwaters) are typical in the open waters of the Commander and South Kuril Islands, and also in the region of Navarin Canyon. The mass overwintering sites of birds (sea ducks) are situated within the borders of 6 designated water areas. One territory – Lopatka Peninsula and First Kuril Strait – forms “bottle necks”, through which an active migration of waterfowl and seabirds passes.

Main types of bird habitat within the IBAs

Most of the Far-Eastern marine Important Bird Areas is situated in the shelf zone – the coastal belt of the sea, which is limited by a 200-m isobath. Excluding the Glubokaya and Keyngypilgyn Lagoons, the remaining 39 territories include a considerable area of shelf waters. Their total area amounts to 15,592,394 ha, or 66.3 % of the total area of all IBAs. The most extensive areas of shelf (more than 1 million ha) are situated within the limits of 3 territories (Wrangel and Herald Islands, Navarin Canyon, Lesser Kuril Ridge and Kunashir Island).

Eight identified IBAs with a total area of 2,054,583 ha (8.7 %) extend out to the shelf break (depths within the range 200 to 1,000 m). The waters above the continental slope zone (1,000-3,000 m) are included in 6 territories

and have a total area of 3,676,965 ha (15.6 %). The abyssal regions, stretched above the global seafloor (deeper than 3,000 m), are included within the borders of only 3 water areas which surround Karaginskiy and the Commander and Middle Kuril Islands (totalling 1,955,707 ha, or 8.3 % of the area of all IBAs). The coastal bird habitats – estuaries and lagoons – occupy only 0.3 % and 0.8 %, respectively of the total area of designated IBAs.

Factors threatening the existence of IBAs

There has been insufficient study of the threats to the status of the seabirds in the identified territories, to allow an objective estimation their significance. The existing information on this subject often relates not only to marine water areas, but also to the neighbouring land with its key nesting settlements of birds. In this regard we shall confine ourselves to listing the most frequent types of threat of anthropogenic origin.



Shipping is one of the disturbance factors for seabirds (photo by Yu.B. Artukhin)

The most widespread negative factor (seen in at least 70 % territories in one form or another) is the disturbance of birds at breeding, feeding or resting sites, because any human activity in bird habitats inevitably results in their disturbance. This threat is not evident in the less developed waters situated in relatively inaccessible regions such as Kolyuchinskaya Bay, Ratmanova Island, Iony Island and the Middle Kuril Islands, nor in some Specially Protected Nature Sites of federal importance.

The second factor to consider is the direct killing of birds by humans (through recreational hunting, the traditional taking of birds and their eggs by the local population and poaching), which is recorded regularly in 65 % of the territories. At the present time the hunting of colonial seabirds for food is no longer vital, but the hunting of waterfowl as a leisure activity has been widely developed.

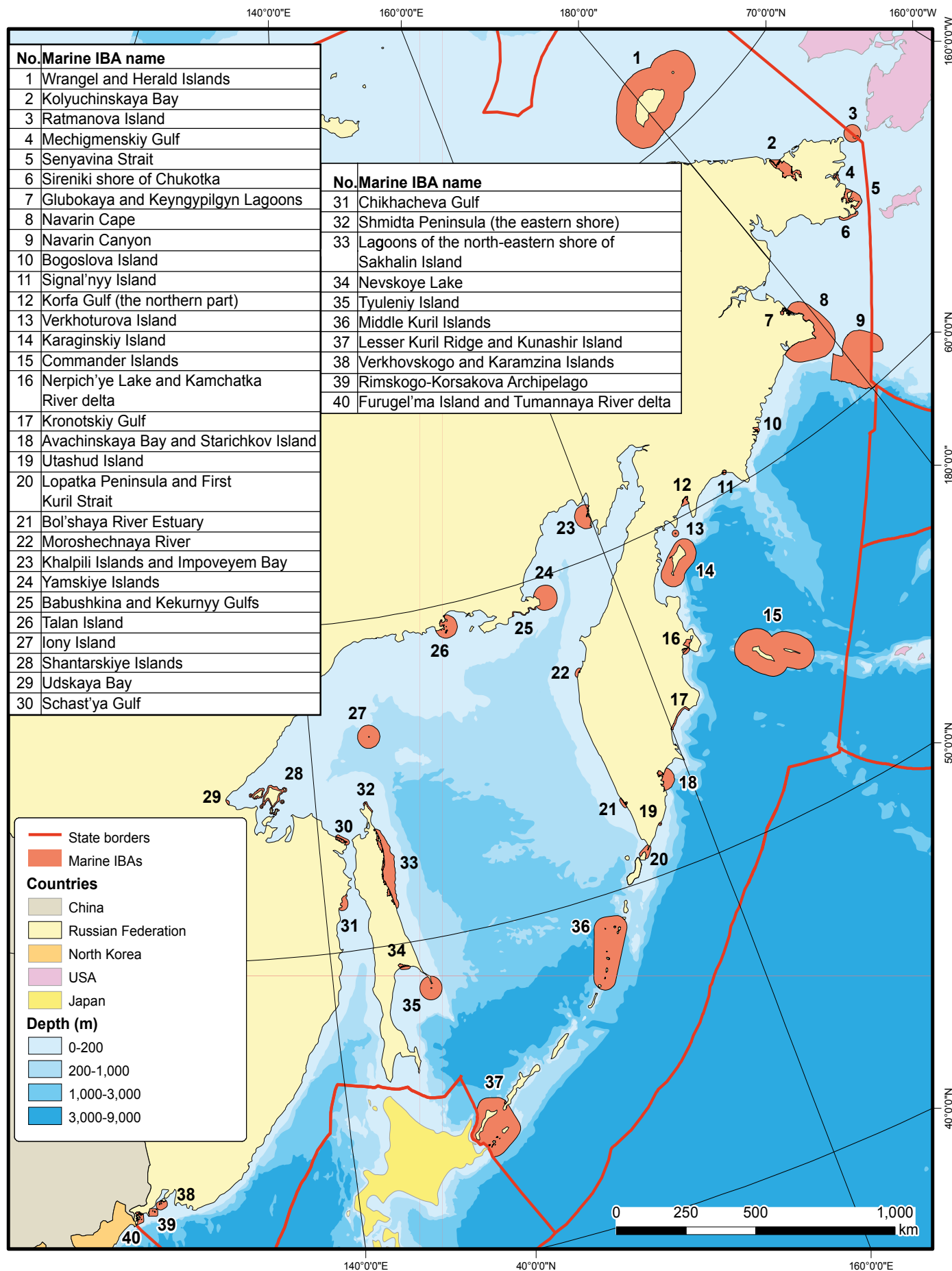


Fig. 1. The scheme of location of marine Important Bird Areas of international importance in the Russian Far East

Table 2. The list of marine Important Bird Areas of international importance designated in the Russian Far East

No.	Marine IBA name	Area, ha	Number of key bird species	Criteria			
				A1	A4.1	A4.2	A4.4
1	Wrangel and Herald Islands	4,865,950	4	■	■	■	
2	Kolyuchinskaya Bay	306,880	3	■	■		
3	Ratmanova Island	136,799	3			■	
4	Mechigmenskiy Gulf	20,489	1		■		
5	Senyavina Strait	200,122	3	■	■	■	
6	Sireniki shore of Chukotka	65,547	5	■	■	■	
7	Glubokaya and Keyngypilgyn Lagoons	29,784	1		■		
8	Navarin Cape	1,957,731	4		■	■	
9	Navarin Canyon	2,241,105	1	■		■	
10	Bogoslova Island	16,690	1		■		
11	Signal'nyy Island	13,247	1		■		
12	Korfa Gulf (the northern part)	51,405	3	■	■		
13	Verkhoturova Island	43,048	2		■		
14	Karaginskiy Island	1,129,167	12	■	■		
15	Commander Islands	3,463,300	14	■	■	■	
16	Nerpich'ye Lake and Kamchatka River delta	73,856	8	■	■		
17	Kronotskiy Gulf	63,070	4	■	■	■	
18	Avachinskaya Bay and Starichkov Island	266,016	6	■	■	■	
19	Utashud Island	8,200	1		■		
20	Lopatka Peninsula and First Kuril Strait	92,220	4	■	■	■	■
21	Bol'shaya River Estuary	39,230	7	■	■		
22	Moroshechnaya River	30,863	9	■	■		
23	Khalpili Islands and Impoveyem Bay	362,312	3	■	■	■	
24	Yamskiye Islands	506,676	5			■	
25	Babushkina and Kekurnyy Gulfs	16,524	1		■		
26	Talan Island	376,758	4		■	■	
27	Iony Island	500,064	3			■	
28	Shantarskiye Islands	277,269	3	■	■	■	
29	Udskaya Bay	12,440	1		■		
30	Schast'ya Gulf	81,165	2	■	■	■	
31	Chikhacheva Gulf	104,604	3		■	■	
32	Shmidta Peninsula (the eastern shore)	27,569	1			■	
33	Lagoons of the north-eastern shore of Sakhalin Island	818,665	5	■	■	■	
34	Nevskoye Lake	49,470	1		■		
35	Tyuleni Island	497,491	1			■	
36	Middle Kuril Islands	2,348,599	6			■	
37	Lesser Kuril Ridge and Kunashir Island	2,182,905	8	■	■	■	
38	Verkhovskogo and Karamzina Islands	95,482	3	■	■	■	
39	Rimskogo-Korsakova Archipelago	71,129	2		■	■	
40	Furugel'ma Island and Tumannaya River delta	84,668	3		■	■	



*Fishery has an impact on seabird populations
(photo by Yu.B. Artukhin)*

Approximately half of the designated water areas are exposed to recreational pressures, but with the development of the tourist industry, the growth in numbers of IBAs involved in the sphere of its interests, is to be anticipated. The current negative consequences for the bird populations primarily appear in the territories close to large settlements and towns as a result of visits to the habitats for various recreational purposes.

Contamination of the environment through chemical agents is regularly seen in 30 % of the territories. Oil spills occurring in emergency situations present the greatest danger for the birds. This factor is a potential danger in the shelf located in the northeast of Sakhalin Island, where oil is extracted and shipped (in particular, on the De-Kastri terminal) and in the regions of intensive shipping.

In the region under consideration the impact of extracting marine hydrobionts represents a significant problem; the Far-Eastern Fishery Basin plays a key role in the Russian harvest of marine bioresources. About 90 % of the stock source for domestic fishery are concentrated here (Bocharov, 2004). The impact of marine harvesting upon the food source of birds in the Russian Far East has not been studied, but overall today it does not seem a major issue. Seabird mortality in fishing gears represents a more pertinent threat. The highest bycatch took place during salmon fishing with driftnets in the Exclusive Economic Zone of the Russian Federation – this was a contributing factor to its complete closure in 2016. A considerable number of seabirds – including rare species – perish on hooks during longline bottom fishing and, locally, in gillnets during coastal salmon fishing. According to preliminary data, there is a significant mortality of seabirds during large-scale trawl fisheries as a result of entanglement in gears and collisions with the rigs of vessel decks. Overall, a quarter of designated IBAs are situated in zones of active marine fisheries or coastal net fisheries, which is a threat to the bird population.

The industrial development of water areas, which leads to a decline in the living space of seabirds, is most evident on the North-Eastern Sakhalin shelf in the regions where hydrocarbons are produced, and also in several other territories associated with the development of infrastructure, nodal ports and at sites of field development of mineral resources on the shore.

Finally, the actions of federal and regional authorities in reforming the Russian system of Specially Protected Nature Sites – and their subsequent degradation – should be recognised as a real threat to the existence of IBAs. Thus, in the region studied by us in the 2000s, the “Tumanskiy”, “Karaginskiy Island” and “Moroshechnaya River” Game Reserves (which played an important role in the conservation of waterfowl and seabirds) were legislatively liquidated. The amendments of the Federal Law “On the Specially Protected Nature Sites” in 2013 provided an opportunity to establish national parks by conversion of the state nature reserves. On this basis the Ministry of Natural Resources and Ecology of the Russian Federation plans to downgrade the status of the Commander Nature Biosphere Reserve to the level of a national park. The policy, approved by the Government of the Russian Federation, of involving Specially Protected Nature Sites in different forms of practical and recreational activity (Concept..., 2012), inevitably leads to a weakening of the nature protection regime and the growth of an anthropogenic impact on the ecosystems of these territories – including the protected marine IBAs.

The modern stage of Russia’s development, focussing on the East, envisages the transformation of the Far-Eastern Federal District into one of the centres of the social-economical development of the country and its integration into the Asian-Pacific region. Among the strategic projects, the intensive exploitation of new shelf oil and gas deposits is of the highest priority. “Rosneft” – the leader of the Russian oil industry – has already begun to put into practice the intended plans in the Chukchi Sea and near the Magadan shelf. In the very near future such factors as the industrial development of water areas, oil contamination and continued disturbance will present an even more serious threat for birds. The warming up of the climate in the Arctic provides new opportunities for commercial shipping in the Bering Strait, which in the foreseeable future could become the nodal point of the Northern Sea Route (Humphries, Huettmann, 2014) and such factors will increase the risks for marine Important Bird Areas situated in the region.

Table 3. The distribution of Specially Protected Nature Sites through marine Important Bird Areas of the Russian Far East

No. IBA	Marine IBA name	Specially Protected Nature Site name	Protected area within the borders of IBA	
			Abs., ha	Portion, %
1	Wrangel and Herald Islands	State Nature Reserve "Wrangel Island"	4,865,950	100.0
2	Kolyuchinskaya Bay	National Park "Beringia"	257,720	84.0
4	Mechigmenskiy Gulf	National Park "Beringia"	3,783	18.5
5	Senyavina Strait	National Park "Beringia"	41,852	20.9
15	Commander Islands	Commander State Nature Biosphere Reserve	3,463,300	100.0
17	Kronotskiy Gulf	Kronotskiy State Nature Biosphere Reserve	63,070	100.0
18	Avachinskaya Bay and Starichkov Island	Nature Monument "Starichkov Island"	8,400	3.2
19	Utashud Island	South-Kamchatka State Nature Game Reserve	8,200	100.0
20	Lopatka Peninsula and First Kuril Strait	South-Kamchatka State Nature Game Reserve	24,570	26.6
24	Yamskiye Islands	State Nature Reserve "Magadanskiy"	10,800	2.1
26	Talan Island	Nature Monument "Talan Island"	50	0,01
27	Iony Island	Nature Monument "Iony Island"	88,000	17.6
28	Shantarskiye Islands	National Park "Shantarskiye Islands"	277,269	100.0
30	Schast'ya Gulf	Nature Monument "Schast'ya Gulf with Kevor and Chayachnyy Islands"	26,100	32.2
33	Lagoons of the north-eastern shore of Sakhalin Island	Nature Monument "Lun'skiy Gulf"	22,110	2.7
34	Nevskoye Lake	State Nature Reserve "Poronayskiy"	2,645	5.3
35	Tyuleniy Island	State Nature Reserve "Poronayskiy"	4,665	0.9
36	Middle Kuril Islands	State Nature Game Reserve "Kraternaya Bay"	15	0.001
37	Lesser Kuril Ridge and Kunashir Island	State Nature Reserve "Kuril'skiy", State Game Nature Reserve "Lesser Kurils"	73,900	3.4
39	Rimskogo-Korsakova Archipelago	Far-Eastern Maritime Biosphere State Nature Reserve	71,129	100.0
40	Furugel'ma Island and Tumannaya River delta	Far-Eastern Maritime Maritime Biosphere State Nature Reserve, Nature Park "Khasanskiy", Nature Monuments "Pos'yeta Gulf bays (Novgorodskaya, Ekspeditsii, Reid Pallada)" and "Part of Ogorodnaya Lagoon and Bol'shoie Krugloe Lake"	41,197	48.7

Protection status of the identified IBAs

Among the 40 marine IBAs across the entire area the official status of Specially Protected Nature Sites exists only in 21 IBAs (52.5 % of the total number). In total, the legislatively protected area within the borders of the key designated waters comprises 9,354,725 ha (39.8 % of the area of all IBAs). Six IBAs have complete territorial protection, which came about due to pre-existing federal Specially Protected Nature Sites. Of the remaining 15, a maximum of 84.0 % of the areas are under protection (Table 3).

The nature conservation mode is most effective in the Specially Protected Nature Sites of federal rank (6 state nature reserves, 2 national parks, 2 state game reserves and 1 nature monument), whose territories overlap with 16 IBAs with a total area of 9,209,065 ha. This is because they are provided with resources, though insufficient, for the formation of full-time inspection services with technical equipment. The protection of the regional Specially Protected Nature Sites (1 nature park, 1 state game reserve and 6 nature monuments), occupying a total of 145,660 ha within the borders of 6 IBAs, is in reality only a theoretical concept due to an absence of funds in local budgets for their activity.

At the present time 19 of 40 IBAs (47.5 % of the total number and 60.2 % of the area of all IBAs) have no nature conservation status. Unfavourable conservation circumstances exist for IBAs on a major part of the Bering Sea region, where from the southern shore of the Chukotskiy Peninsula to the Kamchatskiy Gulf there is not a single protected marine water area. A similar picture is observed in the north-eastern mainland shore of the Sea of Okhotsk and to a considerable extent in the Great Kuril Ridge.

A series of marine IBAs of the Russian Far East have received international recognition. As such, IBAs in the territory of the Kronotskiy, Commander and Far-Eastern Maritime Nature Reserves are included in the World Network of the Biosphere Nature Reserves according to the UNESCO programme "Man and Biosphere". The waters, situated within the borders of the State Nature Reserve "Wrangel Island" and the South-Kamchatka State Game Reserve, are included in the UNESCO List of World Heritage Sites. The Government of the Russian Federation has approved two territories (Karaginskiy Island and Moroshechnaya River) as wetlands of international importance, designated within the framework of the Ramsar Convention (but they have an official status of "Specially Protected Nature Site"); another 13 territories are included in the shadow list of Ramsar habitats.

The regional network of the Far-Eastern marine IBAs, established on the basis of globally accepted methodological approaches, is being integrated into the world network of IBAs. We would like to note that 4 IBAs (Ratmanova Island, Navarin Canyon, Lesser Kuril Ridge and Kunashir Island, Furugel'ma Island and Tumannaya River delta) are trans-border formations that necessarily result in close collaboration between neighbouring countries for the purpose of further study and the provision of efficient protection of these territories.

Birds are one of the most significant components, determining the integrity of marine and coastal ecosystems. Experience from past decades demonstrates the important role of seabirds in the identification, planning, setting and monitoring of the Marine Protected Areas' status (Ronconi et al., 2012). Across the world the results of inventories of regional networks of IBAs are already valued for the extension and optimisation of activity of the national systems of Specially Protected Nature Sites. In Russia the recommendations for protecting Important Bird Areas have also been taken into account during the preparation of the "Scheme of the prospective development of the system of federal Specially Protected Nature Sites" (Krever et al., 2009). According to this document, 58 potential Specially Protected Nature Sites of federal rank were designated within the borders of the Far-Eastern region under consideration; the establishment of 34 new territories is foreseen and the restoration of several liquidated areas is also envisaged, along with an extension of the areas, and upgrading of the status, of a series of existing Specially Protected Nature Sites. However, of all these proposals the Government of the Russian Federation has approved the inclusion, in the planned implementation of the "Concept of the development of the system of Specially Protected Nature Sites of federal importance for the period until 2020" (Concept..., 2012), the setting up of only three federal Specially Protected Nature Sites: National Parks "Beringia" and "Shantarskiye Islands" (established in 2011 and 2012, respectively) and the Middle-Kuril State Nature Reserve (according to the plan, in 2018).

Thus, the provision of protection of the identified marine IBAs of the Far East has yet to materialise. The decision to bring this about would be in line with the fulfilment of the international obligations of the Russian Federation, flowing from requirements of the Convention on Biological Diversity and a series of other agreements on environment conservation.



Review of the marine Important Bird Areas of the Russian Far East

In this section the map scheme and text characteristics are given for each of the designated marine IBAs according to the following plan:

Area and Location

(the geographical coordinates of the central and 4 endpoints of the water area).

Site Description

(general information both about the bird environment and comments on the location of the water area boundaries).

Ornithological Importance

A conclusion is offered on the role of the territory in the conservation of seabird populations. For each of the indicator species responding to the criteria of international rank, a brief description of the status (number and dynamics) and any peculiarities of distribution and biology is provided. Data on the status of the key species are summarised in the form of a table with an indication of a series of indices:

- status (B – breeding, B? – probably breeding, N – non-breeding/summering, Ps – presents during spring migration, Pf – presents during autumn migration, W – overwintering, W? – probably overwintering, Vn – nomadic movements);
- survey year (period of time, to which the data on the population are related);
- population (estimation of the species number by specimens within the limits of the territory in relation to the displayed status);
- accuracy of population estimates (A – reliable, possible error at no greater than 10 %, B – incomplete, possible error of up to 50 %, C – weak, possible error of greater than 50 %, U – unknown);
- Criteria corresponding to the status of the species (A1, A4.1, A4.2 or A4.4).

Use, Management

(characteristics of the territory transformation by humans).

Existing Threats

(negative factors of anthropogenic origin, representing a danger to the wellbeing of seabirds in this territory).

Nature Conservation Status

(information on the existing Specially Protected Nature Sites within the borders of the designated waters, and on the inclusion into the lists of valuable territories and other forms of conservation).

Necessary Conservation Measures

(measures aimed at the long-term safety of seabird populations).

WRANGEL AND HERALD ISLANDS

1

Mean Coordinates:

71° 13' 16" N 178° 41' 33" W

Marine Area:

4,865,950 ha

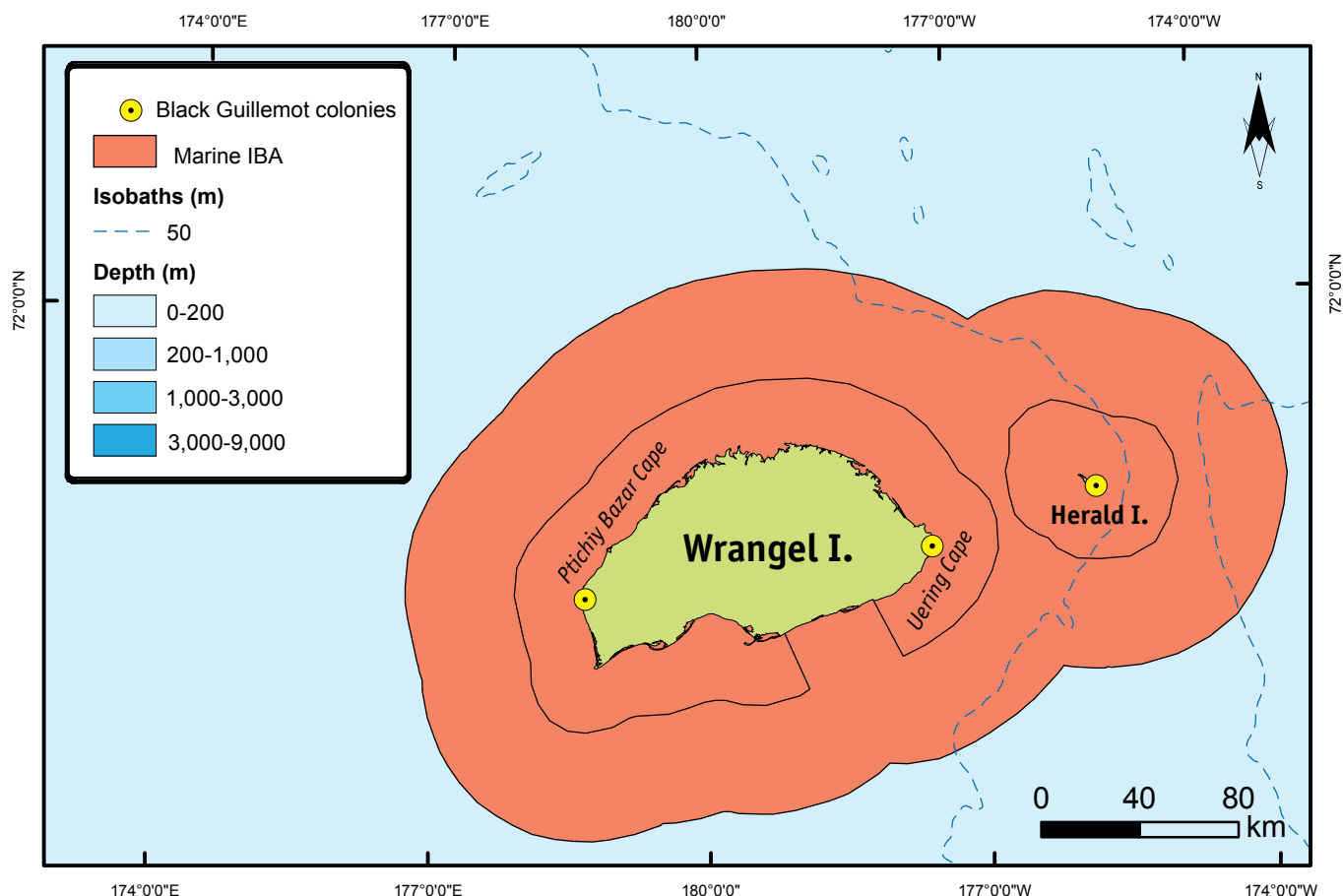
Geographical Coordinates:

72° 12' 51" N 179° 22' 03" W

71° 20' 13" N 173° 25' 05" W

70° 09' 08" N 178° 44' 47" E

71° 03' 41" N 176° 38' 24" E



Site Description

Vrangelya/Wrangel and Gerald/Herald Islands are situated in the Arctic Ocean on the border of the East Siberian Sea and the Chukchi Sea. The 180th meridian travels through Wrangel Island, dividing it into almost equal parts. The island is separated from the mainland – the northern shore of Chukotka – by Longa Strait, with a width of 140 km in its narrowest part.

Wrangel Island has an area of about 7,670 km², and its surface is significantly disfigured. The mountains, occupying a major part of the island, form 3 parallel chains – the Severnyy, Sredniy and Yuzhnyy mountain ridges, terminating on the western and eastern shores by rocky cliffs. The most prominent among them is the Sredniy Ridge, which is clearly disfigured by numerous valleys. The highest point of the island is situated here – Sovetskaya mountain (1,096 m). The Severnyy Ridge is the lowest, transforming into a wide swampy plain under the name of Tundra Akademii. The Yuzhnyy Ridge is not very high and passes near to the seashore. The rock formations in the north and south are bordered by accumulative plains, formed predominantly by alluvial deposits. The coastal perimeter of the island is mainly made up of lagoons and is characterized by an abundance of sandy-pebble spits and bars.

There are valleys with numerous rivers located between the mountain ridges. In total on the island there are more than 140 rivers and brooks with lengths of greater than 1 km and 5 rivers with lengths longer than 50 km. There are 900 lakes on the island, which mainly feature in the northern areas, in Tundra Akademii. The average depths of the lakes do not exceed 2 m. The lakes are primarily small, and only 6 of them have an area of greater than 1 km². Most are thermokarst or bayou lakes, situated in large river valleys and glacial, dammed and lagoon regions.

Herald Island, located 60 km east of Wrangel Island, is a granite gneiss inselberg, ending by the sea at all sides with steep rocky shoulders. The area of the island is 11,3 km², and its maximal height is 380 m a.s.l.

There is an Arctic climate in the region of the islands. The average annual air temperature comprises –11.3 °C. The coldest month is February (–24.9 °C), and the warmest is July (+2.5 °C). Winters are long and characterized by stable

frosty weather and strong northerly winds. Snowstorms are frequent with a wind speed of 40 m/s and higher. Summer is cold, with frosts and snowfall. The centre of the island, shielded from the sea by mountains, is warmer and drier in summer because of higher air temperatures and foehn winds. The average relative humidity of the region is about 83 %, and the annual amount of precipitation reaches roughly 135 mm. The polar day lasts from the second ten-day period of May until the third ten-day period of July, and the polar night – from the second ten-day period of November until the end of January.

The underwater insular slope of Wrangel Island has the form of an ellipse, in which the island itself is shifted to the west. This part of the shelf is the narrowest (up to 5 km), and the base of the slope has a depth of 25-30 m. The slope is expanding to the north and south of the island, while its base is already traced at greater depths and slope decreases. On the southern side the slope reaches depths of about 40 m with an average width of 35 km. On the northern side it reaches depths of 45 m with width of 60 km, and the eastern area of slope has depths of about 50 m and a width of approximately 90 km.

As warm Pacific waters reach the Chukchi Sea, they warm its surface up to +4 °C. Water circulation in the region of the islands is determined by the Bering Sea currents. In this region warm Pacific waters rich in mineral substances mix with cold, oxygen rich waters from the Central Arctic Basin, which increases the productivity of the water area.

The inner border of the considered territory travels along the coastline of the Wrangel and Herald Islands, and the outer border coincides with the border of the protected marine zone of "Wrangel Island" Nature Reserve.

Ornithological Importance

This is the greatest area in the Chukchi Sea for breeding concentrations of colonial seabirds: there 9 Arctic species with a total number of 250,000-300,000 specimens (Stishov, 2004). The islands are the northernmost point of breeding for the Pelagic Cormorant, Common Guillemot, Horned Puffin and Tufted Puffin. Wrangel Island is a key habitat for the Pacific population of the Common Eider. The flight paths of Ross's Gulls and Ivory Gulls pass through the waters around these islands.

Common Eider. A numerous species, breeding in coastal regions and on the inner water bodies of Wrangel Island. During the breeding period it stays in its greatest numbers on the banks of lagoons and lower parts of the lowland rivers. The density of feeding eiders on lagoon waters compiles 15-30 specimens/km², and in silty deltas and the estuaries of large rivers this figure increases to 30-40 specimens/km². During September, after the breeding period, large flocks of eiders concentrate on the coastal shores and in the lagoons and bays on the southern side of the island (Stishov et al., 1991). The indigenous population is estimated at 8,000-10,000 specimens (Krechmar, Kondratyev, 2006).

Ross's Gull. Usually observed near the coasts of Wrangel Island during September – October, when passing by the side of the Bering Strait. The first birds appear in the second ten-day period of September, and the mass migration occurs from the end of September until the second ten-day period of October. The extent to which the Ross's Gulls are present in this region depends on the



Herald Island (photo by A.A. Kochnev)

ice situation. In the sea the birds avoid extensive spaces of open water, gravitating to rarefied ice or coasts, where they feed near the water boundary. When the island is surrounded by ice, the gulls disperse across a vast water area, while on the shore they are registered in insignificant numbers and during particularly icy years they may not appear at all. During years in which ice is present at the north-west of the island, the gulls fly alongside its edge and then flock to the island. A considerable proportion of the world population of this species flies through over a period of 2-3 weeks under such a situation along the southern shore. Thus, 60,000-70,000 Ross's Gulls were counted in 1995 from the south-western edge of Wrangel Island, migrating to the wintering grounds in the eastern direction (Stishov, 2004).

Ivory Gull. Recorded on Wrangel Island and Herald Island during autumn, but is more seldom than the Ross's Gull. In particularly icy years they appear in the same dates as the Ross's Gulls, and disappear when the waters freeze over. During years in which the sea has not frozen over, the Ivory Gulls either appear together with drifting ice and recently formed ice, or do not appear at all. During floods the birds feed in the sea, and when this freezes the birds move in to feed on marine waste, dumps and Walrus corpses within colonies (Stishov, 2004).

Black Guillemot. A common breeding species of Wrangel Island and Herald Island, inhabiting practically all of the rocky coasts. In spring it arrives in the third ten-day period of April, and it departs when the coastal waters are entirely frozen over. They are initially scattered across the sea at a radius of 50-100 km from the islands, but in mid-summer the species predominantly stays near the main settlements situated on Herald Island, on Cape Uering and on the western edge of Wrangel Island. According to observations from the 1970-1980s, the Black Guillemot population in the colonies is subject to strong seasonal and inter-annual fluctuations. The average population size in this period is estimated at 10,000 specimens (Stishov et al., 1991). The colony situated on Herald Island is likely the largest in the world: in 1992, 60,000-70,000 birds of this species were counted on the island (Stishov, 2004).



Common Eiders (photo by N.B. Konyukhov)

Use, Management

By the 1980s military troops left Wrangel Island, and in 1992 the radar station was closed and the only settlement – Ushakovskoye – was left on the island. This settlement was practically empty by 2003. However, in 2010 the activity of a meteorological station was restored, where 6 individuals were working. In 2014, marines constructed a base for the Russian Pacific Navy; a military camp was built here that serves the radar post and post for air traffic controllers.

During July – September icebreaker cruises occur in the waters and tourists can land on the shores of Wrangel Island and Herald Island.

In the territory of the Nature Reserve, the limited hunting of pinnipeds is permitted to ensure the needs of the indigenous people of the Ushakovskoye settlement (within the limits of prescribed quotas). Regulation over the numbers of Reindeer, brought onto the island in the 1940s, is also permitted in quantities determined by the scientific council of the Nature Reserve.

Existing Threats

At the present time threats are minimal. Local contamination is possible due to oil spills from old packaging barrels in the territory of the former military base and meteorological station.

Nature Conservation Status

The State Nature Reserve “Wrangel Island” was established in 1976 for the purpose of protecting the natural conditions of Wrangel Island and Herald Island with all their aggregate components. This is the northernmost of all nature reserves of the Far East, in whose composition is included (besides the land) extensive waters with a total surface area of 4,865,950 ha (1,430,000 ha – in the Nature Reserve’s composition, 3,435,950 ha – in the protected zone). The island on area at 767,000 ha is included in the shadow list of Ramsar habitats (Krivenko, 2000). In 2004 Wrangel Island was included in the UNESCO List of World Heritage Sites.

Necessary Conservation Measures

While the protected regime of the Nature Reserve is adhered to, additional measures are not required.

Author-compiler: Konyukhov N.B.

Species	Status	Survey year	Number	Estimation precision	Criteria
Common Eider	B	1980s	8,000-10,000	A	A1, A4.1
Ross’s Gull	Pf	1995	60,000-70,000	A	A4.1
Ivory Gull	Pf	1980s	100s-1,000s	U	A1, A4.1
Black Guillemot*	B	1992	60,000-70,000	A	A4.2

* Numerical data only provided for Herald Island.



Ross's Gulls (photo by Yu.B. Artukhin)

KOLYUCHINSKAYA BAY

2

Mean Coordinates:

66° 46' 46"N 174° 23' 17"W

Marine Area:

306,880 ha

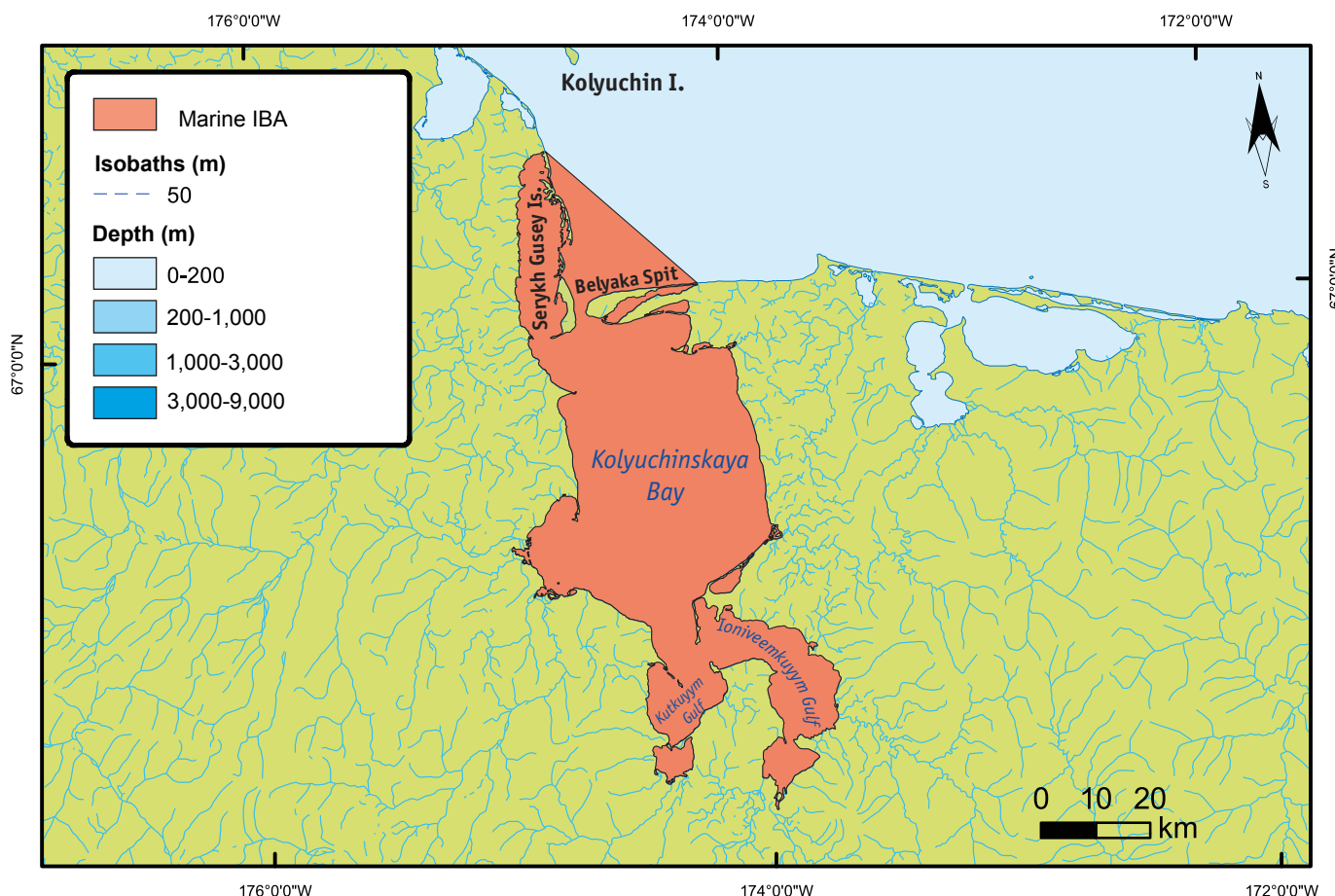
Geographical Coordinates:

67° 18' 35"N 174° 45' 41"W

66° 25' 42"N 173° 41' 12"W

66° 13' 27"N 173° 58' 46"W

66° 40' 08"N 174° 59' 10"W



Site Description

The area covers the waters of Kolyuchinskaya Bay of the Chukchi Sea, including extensive shallow gulfs in the southern part of the bay with young deltas from several tundra rivers (Kal'garvyvaam, Penvel'veem, Ioniveem, Ulyuveem). The northern part of the bay is separated from the Chukchi Sea by the Serykh Gusey Islands' system in the west and by the Belyaka Spit in the east. On the Belyaka Spit and on Yuzhnyy Island, the largest island between the Serykh Gusey Islands, lie sandy dunes and lichen-detrus ridges alternating with wet meadow sites, which are surrounded by small saline lakes. There are additional small islands off the ridge of the Serykh Gusey Islands which are narrow sandy-pebble formations of alluvial origin. Kolyuchinskaya Bay is protruding into the Chukotka shore at a depth of 90 km, and its width at the middle is 40 km. In the central part of the bay from the west and east the separate alluvial spits – Yamrykkay, Ryrkalen and Van'yakytryn – are penetrating its waters. In the southern part of the bay there are two large gulfs – Kutkuyym and Ioniveemkuyym. The gulfs and shallow bays in its southern areas are separated from the rest of the water by low alluvial sandy-pebble spits. In separate plots of the bay's southern shore there are rocky capes which serve as a breeding site for Black-legged Kittiwakes.

The water area border goes through the bay's contour, at the sea mouth in a direct line, connecting the bases of sea spits.

Ornithological Importance

It is an important stopover site for Steller's Eiders during their summer migration before they moult their remiges, and a key region for summer gatherings of Common Eiders of the Pacific population. In the coastal tundra the White-billed Diver breeds regularly. In waters of the southern part of the bay the Kittlitz's Murrelet is constantly present, and its breeding is not excluded from the nearby mountains.

Steller's Eider. Kolyuchinskaya Bay serves as a regular mass stopover site for Steller's Eiders on their journey to the moulting sites. Steller's Eiders (almost exclusively males) arrive here from the west and concentrate in the



Part of Kolyuchinskaya Bay adjoining its mouth, view from Belyaka Spit (photo by A.G. Dondua)

north-western part of the bay along the Serykh Gusey Islands. The beginning of the pre-moult concentrations of males is recorded from the first days of July, but the most intensive concentrations occur in the middle of this month. Their maximum number (according to data from ground and aerial surveys), of up to 10,000 specimens in one flock, is recorded at the end of July – beginning of August near the southern edge of Yuzhnyy Island (Krechmar, Kondratyev, 2006), and also along the southern coast of Belyaka Spit (4,500-6,000 specimens at the end of July 2005; A.G. Dondua, unpublished data). The smaller concentrations of Steller's Eiders are recorded within the limits of the entirety of the bay waters at the end of July – beginning of August. These concentrations mainly gravitate to shallow waters near sandy-pebble spits, on which eiders come out to rest. However, in separate cases the eider flocks have been sighted on lakes in the Ioniveem River delta. On the 26th July 2002, during an aerial investigation of the Kolyuchinskaya Bay waters, over 17,000 Steller's Eiders were counted (Krechmar, Kondratyev, 2006). In the middle of August the eiders leave Kolyuchinskaya Bay so their numbers decline significantly. The moulting of remiges begins in a very small number of specimens (not more than one hundred birds) and the mass replacement of remiges does not occur in the Steller's Eiders in Kolyuchinskaya Bay.

Common Eider. The most numerous breeding species of Anseriformes of the vicinities of Kolyuchinskaya Bay. On Belyaka Spit the breeding density in the mid-1970s compiled of a little more than 1 nest per 1 ha (Krechmar

et al., 1978). The eider flocks moult across bay waters during July and August. Their largest concentrations (of up to 500-700 birds) are recorded near the shores of the Serykh Gusey Islands and the southern coast of Belyaka Spit, and also in the Ioniveemkuyym Gulf (data from aerial surveys of 2002; Lappo et al., 2003). The total number of moulting eiders during aerial surveys on 26th July 2002 in the Kolyuchinskaya Bay waters compiled 1,470 females and 1,170 males (Krechmar, Kondratyev, 2006).

White-billed Diver. The species commonly breeds and its population is spread quite evenly across large lakes both near the northern and southern coasts of the bay (Krechmar et al., 1978). On the Belyaka Spit on an area covering about 40 km² in 1973-1974 roughly 6 to 8 pairs nested, and in 2002 7-8 pairs were counted (Tomkovich, Soloviev, 2012).

Kittlitz's Murrelet. Supposedly breeds in mountains that surround Kolyuchinskaya Bay, in any case – its southern part (Krechmar et al., 1978). The species stays in solitary units and in pairs in the southern part of bay, where mountain slopes are close to its coasts. In 1974, a total of 12 specimens were counted over a 50-km part of the eastern coast of the bay (Krechmar et al., 1978). In 1984 in the bay waters 6 specimens were counted (Kondratyev, 1986).

Besides the Steller's Eider and Common Eider in the Kolyuchinskaya Bay waters, the King Eider can also be found. The latter is more common near the entrance of the bay and in waters of the Chukchi Sea. In the bay itself the number of single King Eiders is not great and does not

exceed 200 specimens, which predominantly stay near the coasts of Belyaka Spit (Krechmar et al., 1978, Lappo et al., 2003). During autumn migrations in September, together with the mass passages of King Eiders in the eastern direction along the Chukchi Sea shore, part of the group have been observed to flock across Kolyuchinskaya Bay waters in the south-eastern direction towards to the Ioniveem River mouth (Krechmar et al., 1978).

The territory is important as a breeding site for larids, among which the Black-legged Kittiwake is prevalent in its numbers – it is a numerous breeding species of Kolyuchin Island and rocky capes of the southern shore of Kolyuchinskaya Bay. Sizeable concentrations of Black-legged Kittiwakes feeding are observed upon entry into Kolyuchinskaya Bay – near the Serykh Gusey Islands coasts (more than 400 specimens) and near Belyaka Spit (more than 1,000 specimens), according to unpublished data of an aerial survey in 2002. It is likely that these birds belong to a breeding colony of Kolyuchin Island. The largest concentration of the Black-legged Kittiwakes (1,000 specimens), which breed, supposedly, within the limits of the bay waters, was recorded near rocky capes in the southern part of the Kutkuyym Gulf. The total number of Black-legged Kittiwakes in Kolyuchinskaya Bay in July – August 2002 compiled 6,880 specimens (unpublished data of aerial surveys in 2002). The Vega Gull is evenly spread across the Kolyuchinskaya Bay shores and breeds both on sandy-pebble spits and on islands of the coastal lakes in lowlands around the bay. The total number can be estimated at 1,400-1,500 specimens. The Glaucous Gull is common in the northern part of the bay (on Serykh Gusey Islands), its total number is estimated at about 5,000 specimens. The Arctic Tern is the common breeding species of sandy-pebble spits on Serykh Gusey Islands, on Belyaka Spit and on separate spits in the southern part of the bay, its total number is estimated at 330 specimens.

An intergradation zone of the Eurasian and North-American species of Bewick's Swans lies through the shores of Kolyuchinskaya Bay (Kischinskiy et al., 1975). The White-fronted Goose breeds in small numbers in the tundra that surrounds the southern part of Kolyuchinskaya Bay. During the moulting period the geese sometimes form considerable concentrations in the southern part of the gulf. According to the data of aerial surveys conducted in July – August 1992, up to 2,000 Emperor Geese and up to 1,500 Brent Geese stayed here (Eldridge et al., 1993). The aerial survey data also suggested that in July – August 2002 in the northern part of Kolyuchinskaya Bay about 4,000 Emperor Geese moulted (Krechmar, Kondratyev, 2006). The Spoon-billed Sandpiper reportedly nested earlier, on the lagoon banks of Belyaka Spit.



White-billed Diver (photo by P.S. Tomkovich)

Use, Management

Due to its remoteness in relation to human settlements, the territory is practically unused. On Belyaka Spit and in the southern part of the bay there are old constructions (houses), which are periodically used by inhabitants of the Vankarem and Neshkan settlements for short stays and fishing. Tourism and hunting are practically absent at the present time.

Existing Threats

Not revealed.

Conservation Status

Almost the entirety of the bay waters (excluding the territory to the north-west of Yuzhnyy Island), and also coastal parts of land along the eastern and southern shores, are included in the composition of "Beringia" National Park. Kolyuchinskaya Bay is included in the shadow list of Ramsar habitats (Krivenko, 2000), while the "Belyaka Spit" and "Southern shore of Kolyuchinskaya Bay" are included in the catalogue of wetlands of the North-East of Russia (Andreev, 2001).

Necessary Conservation Measures

There is no need for special measures. Support in minimising potential disturbance in the period of summer concentrations of sea ducks in the bay waters and also a ban of any practical activity in the future is necessary.

Author-compiler: Kondratyev A.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Steller's Eider	N	2002-2005	10,000-17,000	A	A1, A4.1
Common Eider	B, N	2002	2,640	A	A1, A4.1
White-billed Diver	B	2002	10s	U	A1

RATMANOVA ISLAND

3

Mean Coordinates:

65° 52' 29"N 169° 20' 08"W

Marine Area:

136,799 ha

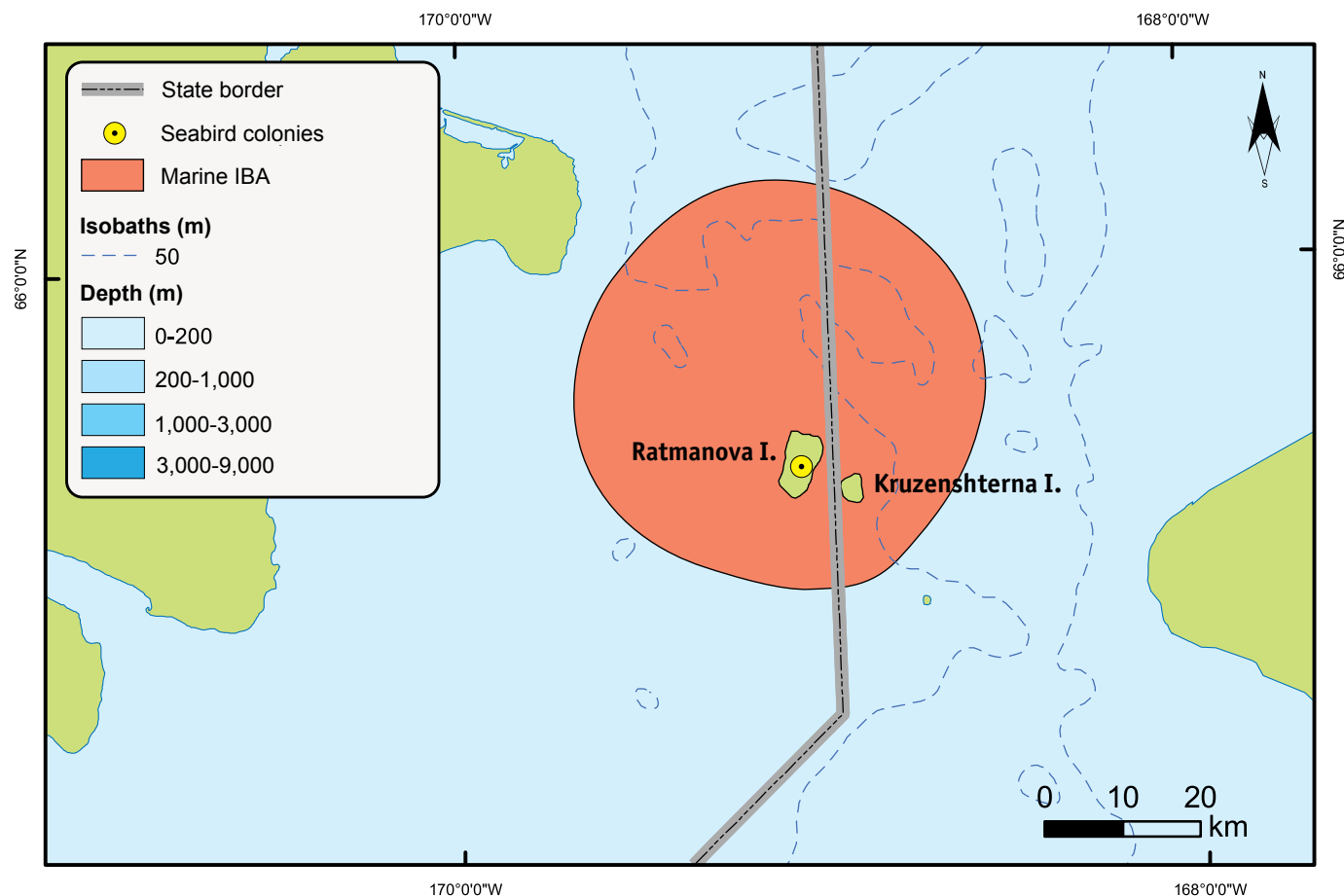
Geographical Coordinates:

65° 38' 24"N 168° 58' 34"W

65° 51' 27"N 169° 41' 11"W

65° 38' 24"N 169° 00' 57"W

66° 06' 08"N 169° 07' 50"W



Site Description

Ratmanova/Big Diomed Island is included in the composition of the group of Diomed Islands in the Bering Strait – the easternmost point of the Russian Federation territory. The second largest island of the archipelago – Kruzenshterna/Little Diomed Island – is situated 3.8 km east of it and belongs to the USA. The Russian-American state border travels along the centre of the strait between the islands. At the present time there are no permanent inhabitants on Ratmanova Island, excluding the staff of a meteorological station and military personnel of the border station.

The length of the island from north to south reaches 8.7 km, and it is 4.7 km from east to west, with a surface area of 29 km². The highest point, the peak of Krysha mountain (505 m), is situated slightly south of the centre of the island. The shore is rocky, with boulder scree and a narrow belt of coastal beach; only the northern coast is comparatively gently sloping. There are several rivers, two of which flow from the centre of the island to the north, and one river which flows from the top of Krysha mountain to the south-east.

The region has an Arctic climate with significant impact from cyclonic activity. The cold Arctic air of low temperatures and little moisture predominates for a major part of the year. During summer warmer air with increased moisture emerges from the Bering Sea. The average annual temperature is –5.5 °C. The coldest month is February with an average temperature of –16.2 °C, while the warmest is August (averaging +9.9 °C).

The depths near the shore of the island reach 43 m. The major current on the island is directed into the Arctic Ocean. The latter brings plankton from the Bering Sea – the main source of food for millions of auklets breeding on the Diomed Islands; the birds feed in the stratification zone of the sea, which is located closer to the Russian coasts. The tides are semi-diurnal in the Bering Strait, to not more than 0.3 m, but wind-surge water level fluctuations on Ratmanova Island can reach 2.8 m.

The borders of the territory under consideration were determined by American specialists during the identification of marine Important Bird Areas of Alaska. The method was conducted on an analysis of the regularity

of the pelagic distribution of different bird species, represented in the "North Pacific Pelagic Seabird Database" (Smith et al., 2012, 2014). Geographical coordinates and area are only provided for the Russian part of the general territory.

Ornithological Importance

The Diomed Islands support the northernmost colonies of the Crested Auklet, Least Auklet and Parakeet Auklet. One of the largest colonies of seabirds in the region is located on Ratmanova Island, with a total number of up to 3,000,000 specimens. In total, 11 species belonging to 3 families are recorded here: 1 species of Phalacrocoracidae, 2 of Laridae and 8 of Alcidae. The most numerous are the Least Auklets and Crested Auklets (Zubakin et al., 1992; Konyukhov et al., 1998).

Crested Auklet. Breeds on the coastal taluses and in the cavities of rocky walls (though it has a preference for taluses). Consequently surveys are extremely difficult to conduct, and attempting to gauge the population numbers in a single trip can result in significant error. One estimation of the total number of Crested Auklets, counted using different methods on a visit of the islands in 1991 varied within the limits of 320,000-2,200,000 specimens, but the most probable estimate is around 1,000,000.

Least Auklet. The most common seabird on the island. Besides the coastal taluses, it uses other taluses and heaps of stones scattered across the entire surface of the island. The Least Auklet's population (according to counts utilising



Diomed Islands, Ratmanova Island is in the foreground (photo by A.V. Andreev)

the same methods as those for the Crested Auklets) ranges from 650,000 to 4,400,000 specimens, but the most probable is around 2,000,000.

Parakeet Auklet. Prefers to breed in the cavities of rocky walls. During two investigations around the island in 1991, from 10,000 to 60,000 specimens were counted. However, the daily cycles of bird behaviour significantly affect the precision of estimates of the Parakeet Auklets in the colonies and therefore these counts based upon single attempts can only offer a preliminary indication.

Use, Management

The easternmost meteorological station and border station in Russia are situated on Ratmanova Island. There is no practical human activity on the island.

Existing Threats

The border station and meteorological station, situated on the northern edge of the island, have almost no impact upon the breeding birds. Border control ensures that access to the island and the coastal area is strictly regulated.

Conservation Status

None.

Necessary Conservation Measures

Not required.

Author-compiler: Konyukhov N.B.



Least Auklets (photo by Yu.B. Artukhin)

Species	Status	Survey year	Number	Estimation precision	Criteria
Crested Auklet	B	1991	1,000,000	B	A4.2
Least Auklet	B	1991	2,000,000	B	A4.2
Parakeet Auklet	B	1991	10,000-60,000	B	A4.2

MECHIGMENSKIY GULF

4

Mean Coordinates:

65° 26' 28"N 172° 06' 45"W

Marine Area:

20,489 ha

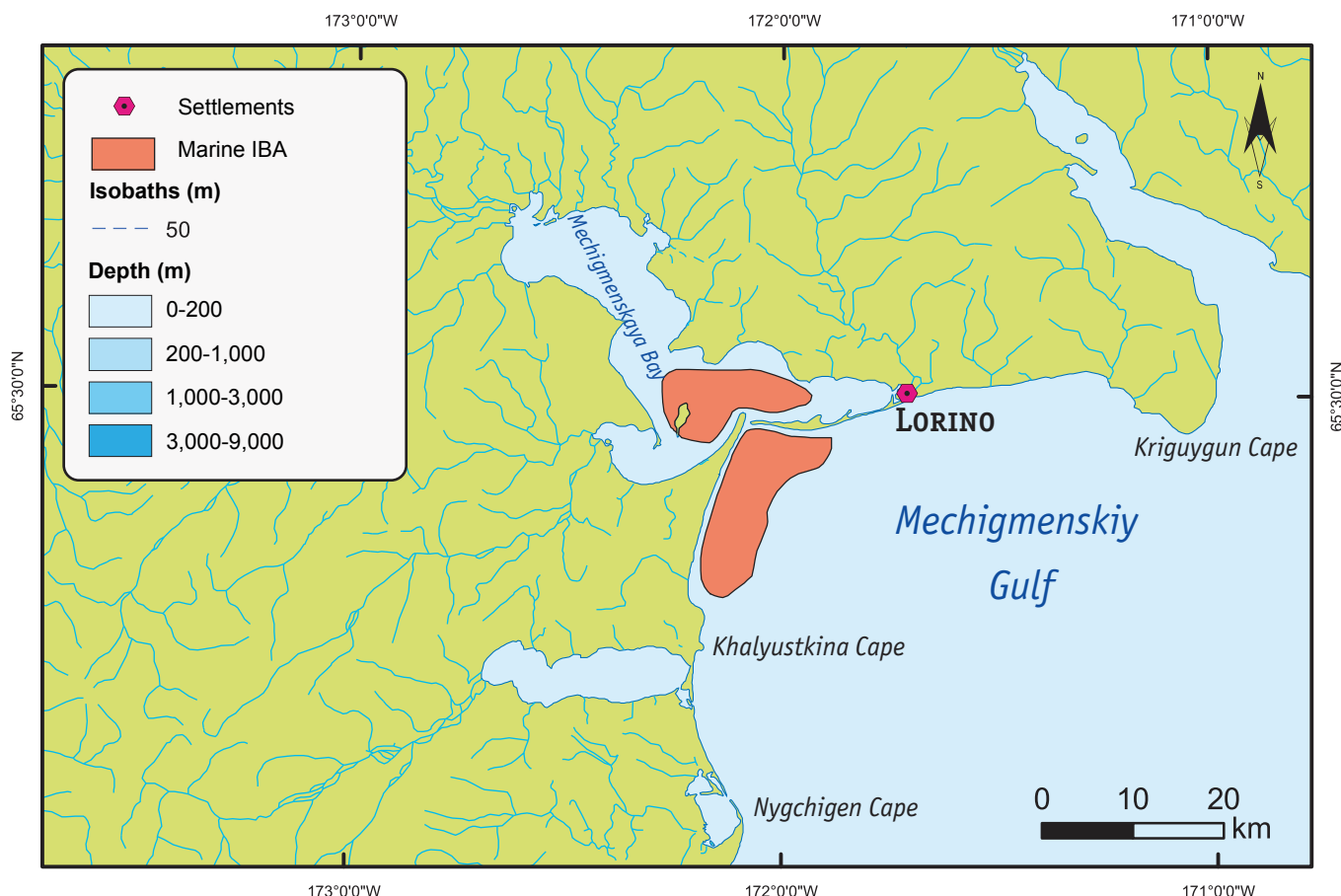
Geographical Coordinates:

65° 30' 49"N 172° 16' 55"W

65° 31' 44"N 172° 04' 34"W

65° 27' 35"N 171° 53' 11"W

65° 18' 30"N 172° 08' 10"W



Site Description

Mechigmenskiy Gulf and Mechigmenskaya Bay are situated in the central part of the eastern shore of the Chukotskiy Peninsula. The gulf is bordered by Nygchigen Cape from the south and Kriguygun Cape from the north, and the direct distance between them is approximately 65 km. The gulf is relatively shallow: its depths are predominantly less than 20 m deep, and only closer to the sea does it reach depths of up to 34 m.

Mechigmenskaya Bay is situated in the south-eastern edge of the Kolyuchinsko-Mechigmenskiy tectonic deflection. It is separated from the Bering Sea by two pebble spits – Raupelyan (with a length of 17 km) and Mechigmen (13 km), divided by the strait with a width of about 500 m. The bay is indented into the land by roughly 33-35 km. Its depth in the southern areas reaches 6-9 m, but in larger waters – it reaches about 4 m. In the southern part of the bay lies the Ilir rocky islet with a height of 55 m, a length of 3.5 km and a width of 1.8 km. During ebbs in the bay shoals, wide spaces of silt open up.

The climate by the sea is subarctic. The average annual air temperature is -6.6°C (in January -17.5°C , in July $+6.6^{\circ}\text{C}$). The gulf is covered by ice from the end of October, which melts in the middle of June.

In Mechigmenskaya Bay the tide does not exceed 0.2 m, but the fluctuating water levels reach 1.7 m. The tidal currents at the bay's entrance reach speeds of about 4-5 knots. The ebbing current, after departing the bay, moves along the spit in a southern direction.

The territory is represented by 2 areas of seawater, located opposite each other near the mouth of the bay and in the coastal zone of the gulf. Their borders were based on the results of visual observations on distributions of moulting eider populations.

Ornithological Importance

It is a key habitat for the Spectacled Eider, which forms large moulting concentrations in Mechigmenskaya Bay and on the adjacent waters of the gulf.

Spectacled Eider. Considerable numbers of this species gather for moulting in the southern part of the Mechigmenskiy Gulf between Khalyustkina Cape and the narrow entrance into Mechigmenskaya Bay. At the end of August 1985 in this location, about 7,000 moulting eiders were counted across an area of 3.5 km, among which 80-85 % were Spectacled Eiders (the rest were King Eiders). Both species stayed in mixed flocks with 200-250 specimens in each. At the beginning of August 1987 a group of 200 Spectacled Eiders was recorded in the Mechigmenskaya Bay mouth; the number of birds may have been greater, but poor weather conditions prevented the completion of the survey (Konyukhov, 1998).

The tundra in the vicinities of Mechigmenskaya Bay is an important habitat for waterfowl. The Snow Goose commonly passes through here. In the southern part of the bay the Emperor Goose and Brent Goose moult here in small numbers. In the past these species have been so numerous that the local people would catch them in their nets (Portenko, 1972; Konyukhov, 1998).

On the Mechigmenskiy Gulf shore there are 3 settlements of colonial seabirds. The largest of them was spotted on Khalyustkina Cape, where in different years 17,000 to 35,000 birds of 9 species were counted. The most numerous were the Common Guillemot and Brünnich's Guillemot (12,400-28,000 specimens), Black-legged Kittiwake (3,000-4,500) and Pelagic Cormorant (1,500-2,000). On Kriguygun Cape 710 Pelagic Cormorants, 150 Black-legged Kittiwakes, and two tens of Pigeon

Guillemots and two tens of Horned Puffins breed. In the colony on Nygchigen Cape there are about 700 specimens of 7 species, including 400 Brünnich's Guillemots and 250 Black-legged Kittiwakes (Konyukhov et al., 1998).

Use, Management

Mechigmenskaya Bay is a territory of the traditional management, used by local population of the Lorino settlement who is situated on the northern shore of the gulf. The community of marine mammal hunters constantly hunt cetaceans and pinnipeds in the gulf waters. Besides that the local people bag seabirds and collect eggs in the colony on Khalyustkina Cape.

Existing Threats

Hunting (shooting birds and egg-collecting), poaching, and disturbance factors.

Conservation Status

The south-western shore of the Mechigmenskiy Gulf and Mechigmenskaya Bay including a part of bay waters are included in one of the parts of "Beringia" National Park. Mechigmenskaya Bay is included also in the catalogue of wetlands of the North-East of Russia (Andreev, 2001).

Necessary Conservation Measures

Educational measures for local people about the importance of this water area for the conservation of the Spectacled Eider.

Author-compiler: Konyukhov N.B.

Species	Status	Survey year	Number	Estimation precision	Criteria
Spectacled Eider	N	1985	6000	U	A4.1



Spectacled Eiders (photo by P.N. Romanov)

SENYAVINA STRAIT

5

Mean Coordinates:

64° 36' 28"N 172° 23' 28"W

Marine Area:

200,122 ha

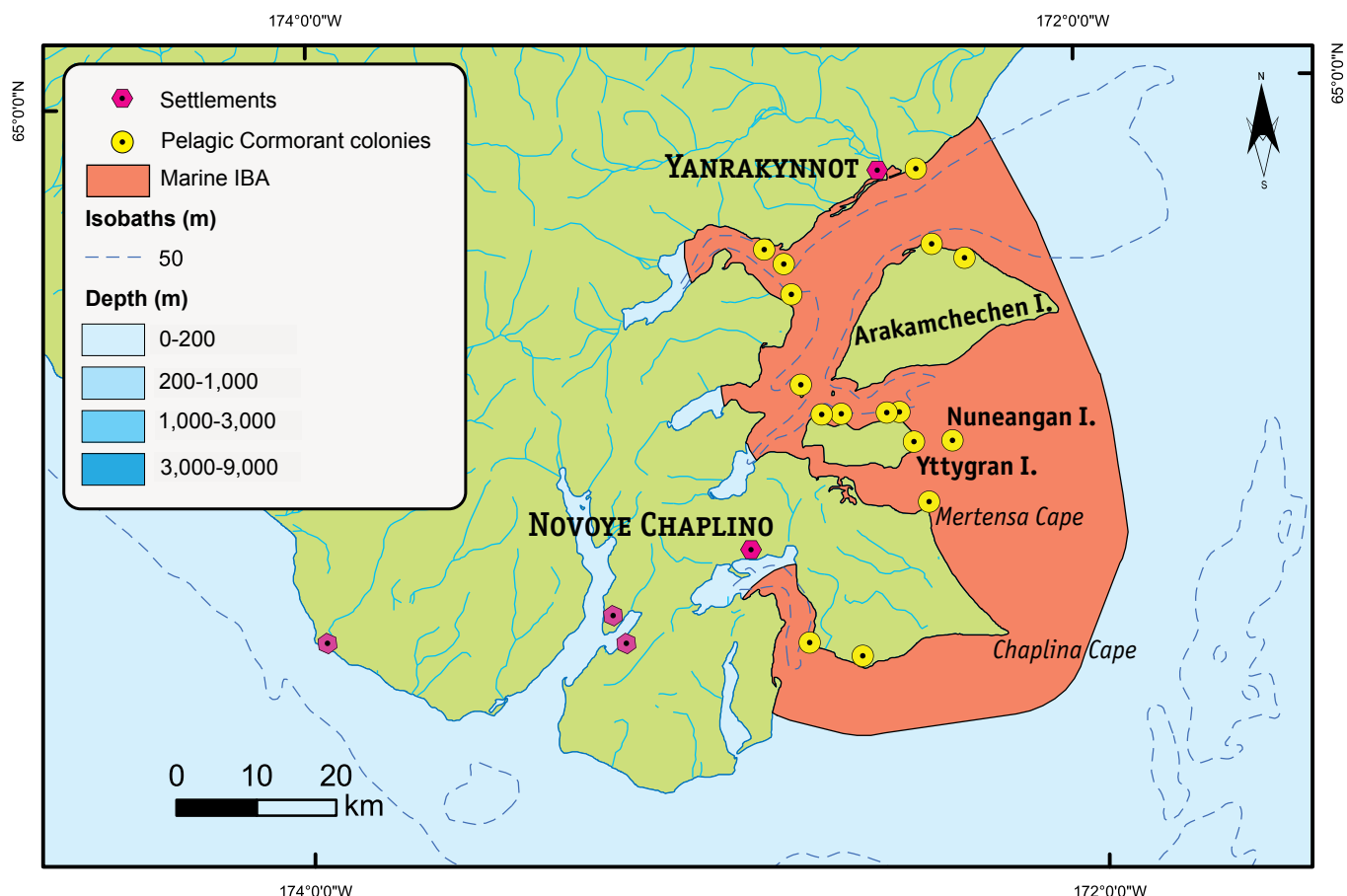
Geographical Coordinates:

64° 58' 14"N 172° 15' 23"W

64° 30' 27"N 171° 54' 53"W

64° 17' 45"N 172° 35' 18"W

64° 49' 37"N 173° 01' 30"W



Site Description

The Senyavina Strait is situated on the south-eastern shore of the Chukotskiy Peninsula. It separates the islands of Arakamchechen, Yttygran, Nuneangan and Kynkay from the mainland coast. The northern entry into the strait is located between Nygchigen Cape and Kygynin Cape (by the eastern edge of Arakamchechen Island), while the southern entry is located between Kygynin Cape and Chaplina Cape.

In this area of the shore the coastal line spans out in a wide arc to the west, providing space for islands and forming a series of fjord bays with complicated configurations. The sizes of the islands in the strait vary from 1 (Nuneangan) to 17 (Yttygran) and 35 km² (Arakamchechen). The highest point in this region, Afos mountain (613 m), is located on Arakamchechen Island. The coasts mainly consist of steep, stony scree and plots of the shores are made up of pebble spits.

The width of the straits between the islands and the mainland coast ranges from 1.7 (to the south of Yttygran Island) to 9 km (to the north of Arakamchechen Island). The depths of the coastal waters are usually 30-40 m, although in Penkigngey Bay they reach up to 90 m. The tides are semidiurnal and water level fluctuations can reach 1.0-1.5 m. The nearest settlement, Yanrakynnot village, is located in the northern part of the Senyavina Strait.

The climate in the strait is cool, oceanic, and comparatively mild. The annual air temperature is around -4.9 °C (-15.2 °C in January, +7.7 °C in July). There is no frost on the ground for a total of 68 days. Fogs and storms are frequent in summer, and in winter it is not unusual for snowstorms to occur, and for ice to form on the sea. The local climate varies, and is determined by the locations of the mountains, wind directions and fog frequencies. The total annual precipitation reaches 530 mm. There is a great amount of snow during winter, and snow cover remains for 248 days per year.

The ice forms in December but is often destroyed by storms, or carried away by currents. During winter months in the vicinities of the Senyavina Strait, an open stretch of water behind fast shore ice is permanently forming. The deterioration of ice occurs during mid-June.

The territory under consideration includes the waters of the Senyavina Strait and the nearby Penkigngey Bay, Abolesheva Bay and Rumilet Bay and the coastal belt from Chaplina Cape to the entry of Tkachen Bay. The



Kittlitz's Murrelet (photo by Yu.B. Artukhin)

territory borders are drawn through the coastal lines and along a 10-km circumference from the Pelagic Cormorant colony and by tangent to them, and on the eastern side by the edge of the region of moulting eider concentrations.

Ornithological Importance

The waters of the Senyavina Strait support high concentrations of breeding seabirds and trans-continental migrants. This is a key region of the King Eider during its moulting period.

On the rocky coasts of the bays and islands within the territory limits, roughly 77,000 colonial seabirds breed. The largest bird colonies are situated on Nuneangan Island (37,000 specimens of 9 species), Yttygran (14,000) and Arakamchechen (13,000). The Brünnich's Guillemot, Common Guillemot and Black-legged Kittiwake dominate the composition of colonies. Other birds breeding in this area include: the Pelagic Cormorant, Vega Gull, Glaucous Gull, Pigeon Guillemot, Horned Puffin and Tufted Puffin (Bogoslovskaya et al., 1988; Konyukhov et al., 1998).

King Eider. Forms moulting concentrations in the southern part of the Senyavina Strait waters, between the islands of Arakamchechen, Yttygran and Chaplina Cape. These concentrations reach up to 10,000 birds (Konyukhov, 1998). During September 2015, in the south-eastern part of the Senyavina Strait (in the region of Mertensa Cape) this species was observed in numbers of up to 6,000 specimens (M.A. Antipin, unpublished data).

Pelagic Cormorant. Breeds in practically all seabird colonies. The total number in 1985 compiled 5,000-6,000 specimens, including 2,800 on Nuneangan Island, 1,000 on Makoguvan Cape (Arakamchechen Island) and 700 on Mertensa Cape.

Kittlitz's Murrelet. In summer this species is very common in the coastal belt near Chaplina Cape, and in the waters east of Yttygran Island. It breeds in the neighbouring mountains; in this region its nest was found 6 km from the sea (Artukhin et al., 2011).

In August – September within the territory borders (and in adjacent water areas) the mass migrations of Short-tailed Shearwaters occur (Konyukhov et al., 1998).

Use, Management

During summer in the strait waters, the hunting of marine mammals is conducted by inhabitants of the Novoye Chaplino settlement and Yanrakynnot. Local populations carry out egg-collecting in the colonies of Nuneangan Island.

Existing Threats

Catching (egg-collecting), poaching in colonies, disturbance factor at the breeding sites.

Conservation Status

The waters of the Senyavina Strait, and its neighbouring bays and straits to the north and south of Yttygran Island, are included in the territory of "Beringia" National Park. The Senyavina Strait is included in the catalogue of wetlands of the North-East of Russia (Andreev, 2001).

Necessary Conservation Measures

In connection with the increased stream of tourists, the number of unorganized visitors of the seabird colonies should be limited.

Author-compiler: Konyukhov N.B.

Species	Status	Survey year	Number	Estimation precision	Criteria
King Eider	N	1980-e	6,000-10,000	B	A4.1
Pelagic Cormorant	B	1985	5,000-6,000	A	A4.1
Kittlitz's Murrelet	B	1985-1991	100s	U	A1, A4.2

SIRENIKI SHORE OF CHUKOTKA

6

Mean Coordinates:

64° 19' 02"N 173° 38' 38"W

Marine Area:

65,547 ha

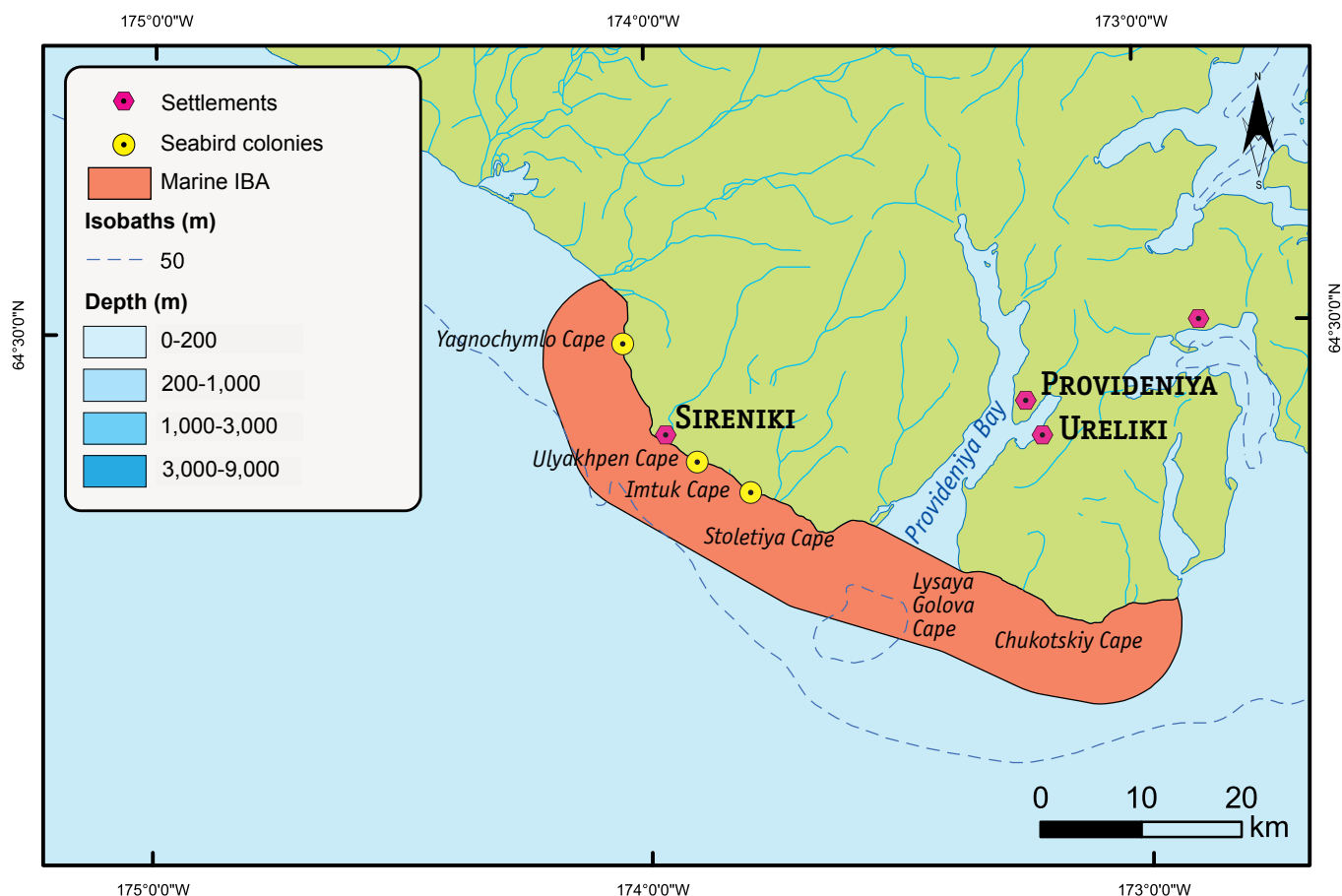
Geographical Coordinates:

64° 14' 39"N 172° 55' 50"W

64° 32' 54"N 174° 05' 26"W

64° 29' 09"N 174° 12' 42"W

64° 10' 07"N 173° 04' 44"W



Site Description

A complex territory on the southern shore of the Chukotskiy Peninsula, encompassing important habitats of seabirds in different times of the year. Its base is formed by the waters of the Sireniki coastal permanent polynya that does not freeze over during winter. The size of the polynya depends on the weather conditions of the season. The ice constantly drifts under the influence of the wind and sea currents: the southern winds cover the coastal waters by ice, while northern ones release it. The north winds predominating in winter prevent ice from forming on the seashore, whose width usually consists of a number of meters, which allows seabirds to feed in small depths in the direct area from the coast. Only when the southerly winds push pieces of ice into the coast can the seashore ice form a width of several kilometres. The Sireniki polynya spreads from Cape Beringa in the west to Cape Chukotskiy in the east, and to a width of 60-70 km towards the sea – but in warm winters it can be united with the polynya near Saint Lawrence Island.

The seashore is mountainous, with Provideniya Bay deeply indented into the mainland. The nearest settlements are Sireniki, Provideniya and Ureliki.

The average monthly air temperature during the coldest period of year from January to March compiles –11 to –12 °C, but can drop to –28 °C. The ice cover in the Anadyrskiy Gulf, separating the polynya from the open water of the Bering Sea, deteriorates in the first half of June. The average monthly air temperature of the warmest months of the year (July – August) is within the limits of +10 to +12 °C, the warmest temperatures reach +26 °C. The winds are also important for this region. In the period from October until April the winds from northerly directions predominate with an average speed of 6-8 m/sec on the shore and 8-13 m/sec in the open sea. From May – June until August the southern winds are blowing (Sailing directions..., 2004).

In its northern areas, the Bering Sea is shallow – less than 100 m in depth. Its isobath, equalling 50 m, cuts through at about 10-20 km from the southern shore of the Chukotskiy Peninsula. The main current in this area travels from the west to the east with an average speed of 1-2 km/hour. It was formed by the Anadyr water mass, and is characterised by low temperatures and oceanic salinity levels of 33 ‰ and above (Coachmen et al., 1979), and also

by plankton compositions – typical for an open sea (Hunt, Harrison, 1990; Hunt et al., 1990). In summer the average temperature of the surface water equals around +4 to +8 °C (Sailing directions..., 2004).

The tides are predominantly irregular semidiurnal, and the average size of water level fluctuations reach 0.2 to 0.9 m.

The territory under consideration includes the coastal belt of Sireniki polynya, with a width of 8 km from Chukotskiy Cape in the east to Yagnochymlo Cape in the west. Within these limits the observations of wintering birds were conducted.

Ornithological Importance

The Sireniki polynya has a great importance for seabirds. Lyudmila S. Bogoslovskaya and Leonard M. Votrogov (1981) were the first to highlight this area as a wintering site of marine mammals and seabirds. In its waters 11 seabird species spend winter, and they belong to 4 families: 1 species of Phalacrocoracidae, 5 of Anatidae, 2 of Laridae and 3 of Alcidae (Konyukhov, 1990); the species composition of wintering birds is similar to those of other permanent Arctic polynyas (Brown, Nettleship, 1981; Pratch et al., 1981).

Within the polynya borders on the southern shore of the Chukotskiy Peninsula, 14 seabird species of 4 families breed: Procellariidae (1 species), Phalacrocoracidae (1), Laridae (3) and Alcidae (9). The total number of birds breeding in this location compiles more than 1,100,000 specimens (Konyukhov et al., 1998). The unique mainland colonies of the Crested Auklets and Least Auklets are situated on the shore (usually these birds breed on islands, as a rule, without any terrestrial predators).

Common Eider, Long-tailed Duck. In March – April 1989 in the Sireniki polynya in the area from Yagnochymlo Cape to Stoletiya Cape, 9,000-13,000 Common Eiders were recorded, approximately 10,000-12,000 Long-tailed Ducks,



Long-tailed Duck male (photo by Yu.B. Artukhin)

and also up to 300 Spectacled Eiders (Konyukhov, 1990).

Ivory Gull. Winters between pack ices of the Anadyrskiy Gulf and adjacent waters (Trukhin, Kosygin, 1987). On the southern shore of the Chukotskiy Peninsula it was observed only during spring migration. In the coastal waters it appears from the beginning of April, an intensive migration occurs at the end of May, until the beginning of June. To begin with only the adult specimens fly, but eventually by the end the immature birds fly too. Concentrations of up to 53 specimens were recorded on shores near the settlements. Birds were observed feeding on the remains of marine mammals left by hunters. Single gulls and small flocks of 2-4 specimens which flew to the east were also



Imtuk Cape (photo by N.B. Konyukhov)



Ulyakhpen Cape (photo by N.B. Konyukhov)

observed in the sea (Konyukhov et al., 1998).

Pigeon Guillemot. Breeds along the entire shore, mainly occupying holes and cavities in rocky walls, and also cavities in large-blocked taluses. Just these taluses are represented on Ulyakhpen Cape and Imtuk Cape, where the largest colonies of this species are situated – 2,700 and 3,500 specimens, respectively (Konyukhov et al., 1998).

Crested Auklet. The most prevalent species among seabirds of the southern shore of the Chukotskiy Peninsula. The key colonies, in which more than 1 % of the world population of this species are found, are located on the capes of Yagnochymlo and Ulyakhpen. The species breeds in taluses near the bottom of slopes, and on Cape Yagnochymlo it breeds also higher up on the slope's taluses. In the colonies on the capes of Ulyakhpen, Imtuk and Lysaya Golova it settles together with the Least Auklets, whose population on Ulyakhpen Cape compiles about 30 % of the total number of auklets, and about 60-70 % on Lysaya Golova Cape (Konyukhov et al., 1998).

The auklets of both species fly to feed in the strait towards Saint Lawrence Island in the zone of water stratification.

The northernmost colonies of the Northern Fulmar in the Pacific Ocean are located on the shore under consideration (Bogoslovskaya, Konyukhov, 1987). Owing to the polynya these birds, whose nesting period is very long, can fly here at the end of March – beginning of April to breed successfully. The Northern Fulmar colonies are grouped in two clusters in which 13,100 and 81,500 specimens were counted.

Observations of the Kittlitz's Murrelet in the considered waters in April – May 1989 (Konyukhov, 1990) provide a basis for inferring that this proportion of the species' population spends winter within the limits of its breeding range in the Sireniki polynya.

Use, Management

The local people of the settlements located on the shore hunt the coastal marine mammals; the inhabitants of the Sireniki settlement hunt all year round.

Existing Threats

The local population traditionally collects the eggs of the fulmars, cormorants and guillemots, which is only done by hunters of marine mammals, because colonies are not accessible from the land. Egg collecting occurs at the beginning of the incubation period but it does not significantly affect the bird population. Insignificant numbers of the Crested Auklets are also trapped by nets on Cape Ulyakhpen.

Conservation Status

An area of terrestrial coastal plots is included in the composition of "Beringia" National Park, but its waters do not have a protected status.

Necessary Conservation Measures

Since practically all colonies of seabirds are unavailable from the land, and are situated on the protected territory, no additional measures are required.

Author-compiler: Konyukhov N.B.

Species	Status	Survey year	Number	Estimation precision	Criteria
Sireniki polynya					
Common Eider	W	1989	9,000-13,000	C	A1, A4.1
Long-tailed Duck	W	1989	10,000-12,000	C	A1
Ivory Gull	Ps, W?	1980's	100s	U	A1, A4.1
Yagnochymlo Cape					
Crested Auklet	B	1985	600,000	A	A4.2
Ulyakhpen Cape					
Pigeon Guillemot	B	1985, 1987	2,700	A	A4.2
Crested Auklet	B	1985, 1987	90,000-100,000	A	A4.2
Imtuk Cape					
Pigeon Guillemot	B	1985, 1987	3,500	A	A4.2

GLUBOKAYA AND KEYNGYPILGYN LAGOONS

Geographical Coordinates:

63° 40' 42"N 178° 38' 54"E

63° 34' 45"N 178° 16' 42"E

63° 22' 03"N 178° 42' 37"E

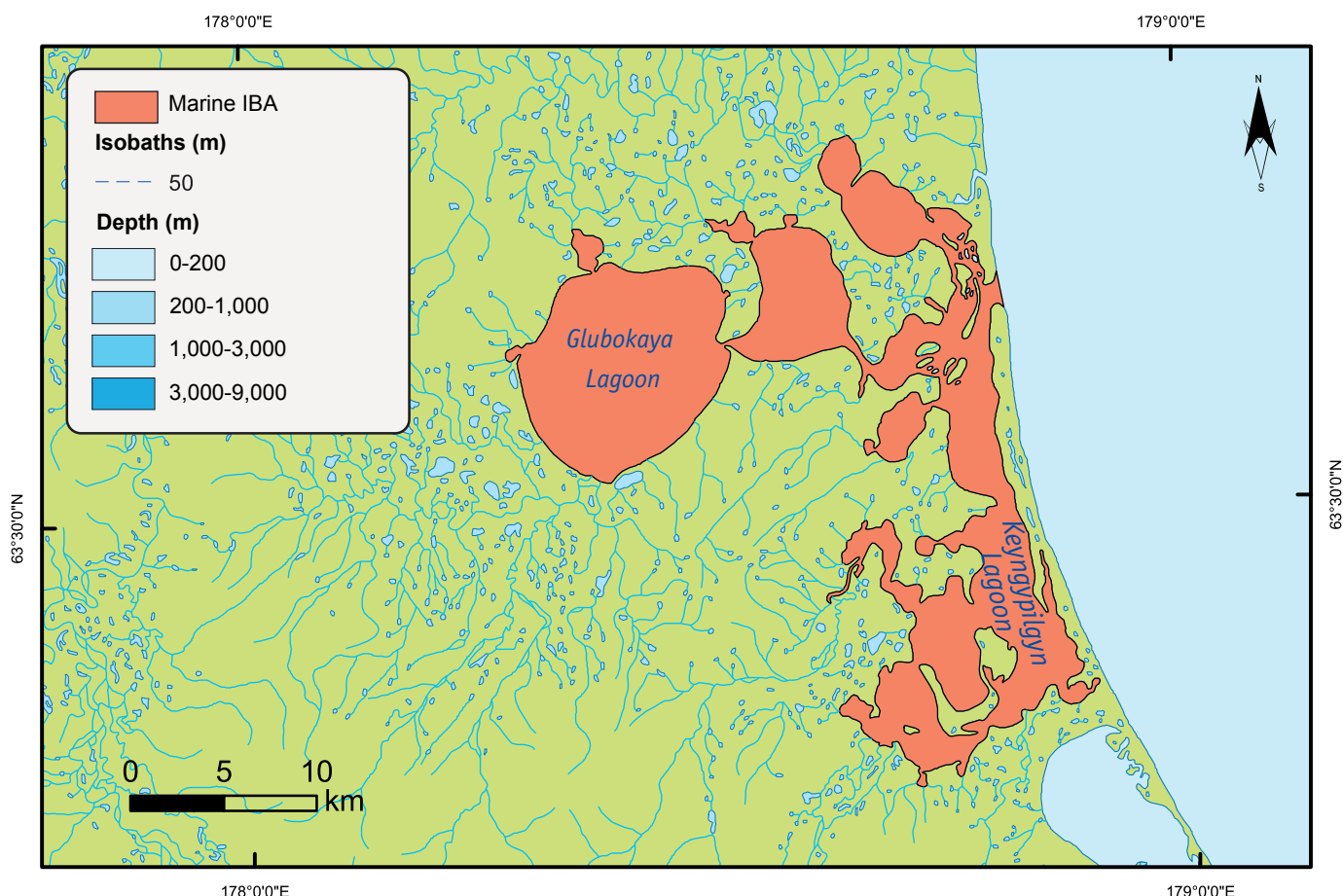
63° 24' 54"N 178° 54' 01"E

Mean Coordinates:

63° 32' 18"N 178° 36' 54"E

Marine Area:

29,784 ha



Site Description

A system of deeply indented shallow lagoons of the Bering Sea, with numerous branches and narrow isthmuses. Northern (Chimchineykuin), western (Glubokaya) and southern (Keyngypilgyn) lagoons are connected with the sea through one joint narrow entrance into the Anadyrskiy Gulf, within whose limits there is a network of alluvial sandy-pebble islands (Ptich'i, Gusinyy, Dlinnyy), where larids breed. In the southern part of the Keyngypilgyn Lagoon lies the large, irregularly shaped Molchalivyy Island, which has both freshwater and saline-water lakes. Gulfs within the lagoon system are separated from each other by narrow isthmuses, in which an intensive appearance of tidal currents is recorded. Different sizes, depths, and characteristics of the grounds of separate gulfs form a complicated and dynamic hydrological system.

The border of the territory goes through the costal contour of the entire set of lagoons by a narrow entrance into the gulf on its exit into the sea (in a direct line), connecting the margins of the sea spits.

Ornithological Importance

During summer, this is the region of mass concentrations of the Greater Scaup in its moulting period.

Greater Scaup. The Greater Scaup males gather while moulting their remiges in July – August on the water surface of the lagoons. The birds stay in separate flocks across different areas of the gulfs throughout the entire system of lagoons. Flocks as a rule consist of 200-1,200 specimens. The maximum population of birds (up to 18,000 specimens) was recorded at the end of July 1991. In connection with a high disturbance level during oil prospect drilling in 2001, the Greater Scaup population on the lagoons disappeared. After the completion of these works, the bird population in the moulting sites began to restore and in 2002 there were more than 15 flocks with a total number of 7,800 registered specimens (Krechmar, Kondratyev, 2006). The current status of the moulting sites is unknown.

Besides scaups, more than 350 Common Eider females gather for moulting in the wet areas of the lagoons. The lagoon banks and the spits separating them from the sea serve as breeding spots, and there are summer concentrations

of moulting geese (over 300 Emperor Geese and 900 White-fronted Geese). Larids breed in high numbers on the spits and islands: there are more than 1,600 specimens of Vega Gull and more than 250 Arctic Terns (Lappo et al., 2003).

Use, Management

The territory is used insignificantly. The nearest settlement – Alkatvaam – is situated 30 km to the south and does not practically affect this territory. In summer, the temporary camps of fishermen (fishing salmon approaching their spawning grounds) can be formed on the spits separating the lagoon from the sea. The region previously belonged to a prospective oil deposit. The prospect drilling was carried out on Molchalivyy Island in the Keyngypilgyn Lagoon in 2001. However, the development of the project was recognized as unprofitable, and in 2002 the drilling devices were dismantled. An anthropogenic presence has not been restored in the time since.

Existing Threats

The potential for a continuation of oil drilling and the industrial development of the territory, and in connection with these the contamination of water by oil products and the disturbance factor of helicopters flying over the area represents a potential threat.

Conservation Status

It is currently absent. The lagoons were previously included in the composition of the Game Reserve “Tumanskiy” of regional importance, which was cancelled in the year 2001.

Necessary Conservation Measures

A restriction of anthropogenic disturbance during the moulting period from the beginning of June until the end of August.

Author-compiler: Kondratyev A.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Greater Scaup	N	1991 and 2002	18,000 and 8,000	A	A4.1



Concentration of the Greater Scaup males (photo by Yu.B. Artukhin)

NAVARIN CAPE

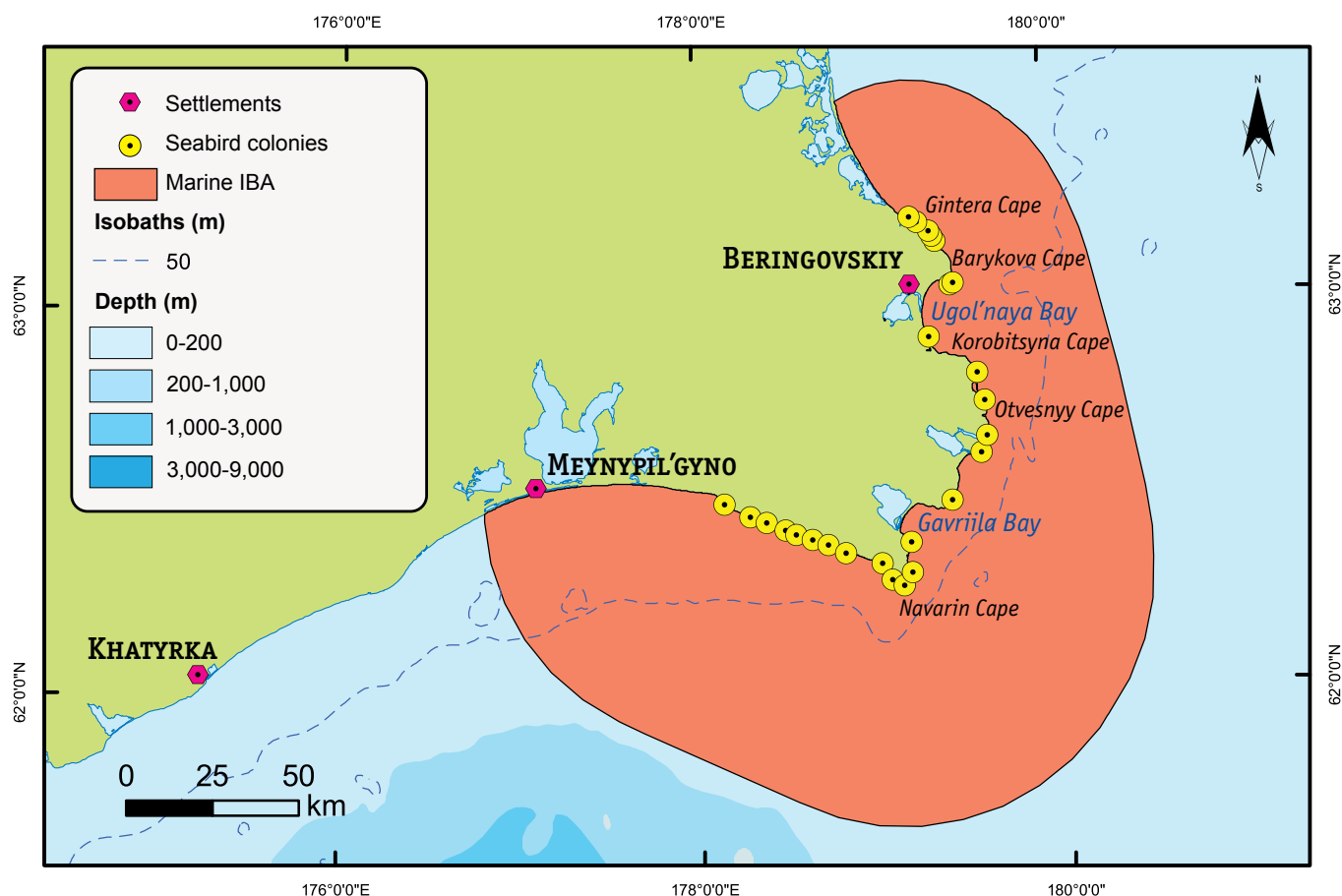
Mean Coordinates:
62° 24' 31"N 179° 02' 41"E

Marine Area:
1,957,731 ha

Geographical Coordinates:

63° 34' 59"N 179° 12' 03"E
62° 24' 25"N 179° 29' 22"E
61° 39' 42"N 179° 10' 33"E
62° 27' 49"N 176° 48' 07"E

8



Site Description

The water area is spread across the shelf zone of the Bering Sea from Vaamychgyn Lake to Navarin Cape and further to Keyngypilgyn Lagoon. There are seabird colonies on the cliffs between the Pika River mouth and Navarin Cape almost without interruption, and more intermittently to the north up to Gintera Cape.

The geological structure of the area results in an uneven distribution of seabird colonies; abraded outcrops are not located along the entire length of the coastline. The mountain ridges of the Koryakskoe Upland (with altitudes of 300-500 m) are stretched from north-west to south-east and are divided by wide valleys. As a result, the area from Pika River to Gavriila Bay, orientated in the same direction, is practically a solid rocky wall, divided only by narrow brook valleys and mountain rivers. The height of the precipice here varies from 20 to 300 m, and the slopes themselves are of varying gradients or are represented by strongly indented holes and couloirs (funnel shaped gullies in the rock) which can be twice as deep as they are wide. The coastal rocks (greater than 100 m in height) occupy a sufficient part of the shore. North of Bezmyannyy Cape, rocky massifs are divided by lagoons and bays, and the largest of them is Ugol'naya Bay. The stony wall travels to the north from Barykova Cape to Gintera Cape, i.e. where the coastline is parallel to the mountain massifs.

The colonies of seabirds residing here are of the northern type, and they predominantly breed on the ledges of rocky walls. The largest seabird colonies are situated on capes that are protruding into the sea: south of Gintera Cape, on Korobitsyna Cape and on Otvesnyy Cape. The seabird colonies which are situated on the capes inside the bays are of a smaller size. The distribution of birds from the Pika River mouth to Navarin Cape is more even. Several kilometres to the east of the Pika River mouth there is a Walrus colony, numbering up to 10,000 specimens; temporary colonies of several thousand specimens form annually on the Meynypil'gyno sea spits. The coastal water area is one of the largest sites of foraging and summer concentrations of Grey Whales in Russia, numbering thousands of specimens simultaneously. Killer Whales, White Whales and other cetaceans are regularly recorded here. To date, the first and most comprehensive description of seabird colonies in this territory was carried out by the BirdsRussia expedition between 2006-2011.

The inner border of the territory under consideration passes along the coastline, and the outer border is determined by the average distance of the foraging dispersion of the key bird species (70 km from the fulmar colonies on



Navarin Cape, view from the north-eastern side (photo by Yu.B. Artukhin)

the southern shore and 40 km from the kittiwake and guillemot colonies on the eastern shore).

Ornithological Importance

The seabird colonies of the described territory are the largest in Chukotka and are also one of the largest breeding concentrations of seabirds in the Bering Sea and in the Russian Far East. Over 1 % of the world population of 4 seabird species breed here: the Northern Fulmar, Black-legged Kittiwake, Common Guillemot and Brünnich's Guillemot.

Northern Fulmar. A numerous breeding and summering species. The main breeding colonies are situated in areas from the Pika River mouth to Gavriila Bay. Further to the north-east, only several small colonies are known of (tens to a few hundreds of nests), north of the colony on Voennykh Topografov Cape, described by I.V. Dorogoy (2013). Data on the biology of the species are poor: they appear at the breeding sites in June, and at the beginning of August birds are still incubating. Their distribution over the territory of the colonies is even, and the maximal amount of birds are associated with the largest areas of rocky walls to the east of the Pika River mouth and to the west of Navarin Cape. The majority of Northern Fulmars fly out from the colonies in a southern direction, while to the west and north the number of registered species is sharply declining. According to results of censuses from 2008 about 500,000 adult birds stayed in the area from the Pika River mouth to Navarin Cape, while the total estimated population throughout all colonies compiles more than 1,500,000 specimens.

Black-legged Kittiwake. A numerous breeding and summering species throughout all the seabird colonies from the Pika River mouth to Gintera Cape. The Black-legged Kittiwake breeds later than the rest of the gulls: the first clutches appear at the middle of June, and a considerable part of the birds do not participate in the breeding. During feeding, resting, the stocking of materials for constructing nests and even for mating

behaviour they willingly gather in dense flocks, usually consisting of several hundreds. Sometimes up to 30,000 specimens gather, particularly in the Meynypil'gyno channel. Considerable concentrations of this species are formed in bays and lagoon mouths during the Capelin migration. The breeding Black-legged Kittiwakes primarily feed at a distance of 0.5-1 km from the coast and 3-8 km from the colony edges. The single birds or those which have lost their clutches reportedly participate in intensive, long distance periodical flights along the sea coast. Within the limits of the extensive seabird colonies the kittiwakes usually settle by mono-species colonies or jointly with guillemots, but separate from the Northern Fulmars. The total species number across the entire length of seabird colonies compiles about 1,000,000 specimens.

Common Guillemot and Brünnich's Guillemot. A numerous breeding and summering species, present across the entire length of the bird colonies. The birds begin to nest from the middle of June, but data on nesting biology are fragmentary. Both species breed in one and the same colonies, sometimes in a direct neighbourhood, but always separately. The proportion of Common Guillemots in different colonies fluctuates from 10 to 80 % of the total number, but it is only about half as numerous as the Brünnich's Guillemot. The distribution of birds in the territory is uneven: the largest breeding colonies are situated on the areas of coast that jut into the sea (between Gintera Cape and Barykova Cape, Razboynik Cape and Otvesnyy Cape), while on rocks inside the bays the guillemot number is far lower. The counts, conducted in 2006-2008 have revealed that across the areas from the Pika River mouth to Gintera Cape there are 700,000 Brünnich's Guillemots and 350,000 Common Guillemots.

On the water area adjacent to the colonies, dozens of Kittlitz's Murrelets were regularly reported by ships. These birds undoubtedly bred in the coastal mountains, especially between the Khatyrka and Meynypil'gyno settlements where earlier in 2004 the foraging concentrations of this species were observed in the sea (Artukhin et al., 2011).

Use, Management

At present the practical activity in the territory of the seabird colonies and adjacent waters is minimal, excluding Barykova Cape and near the Beringovskiy settlement, where intensive (by local scales) ship movements take place. However, plans regarding the development of this territory could substantially change this situation.

Plans to conduct explosions on the rocks by the seabird colony on Barykova Cape discussed in the 1980s (to create a deep-water harbour) could have resulted in catastrophic consequences, but fortunately this project was not realized. In the case of the development of the Amaam and Alkatvaam coal deposits, the anthropogenic load level on foraging waters of the seabirds could also change substantially. The construction of a deep-water harbour (which will require the draining of Arinay Lagoon) is planned in the direct neighbourhood of the largest seabird colonies and an assessment of the potential damage of this process has not been conducted.

Commercial fishery takes place in the vicinities of Navarin Cape and to the west. On uninhabited shores to the east of the Pika River mouth the unsanctioned landings of fishery vessels are commonly registered. The regular illegal shooting of Walruses by individuals of the Beringovskiy settlement and visiting fishers also takes place.

A large bulk carrier "Ryazan" sunk in 2000, several hundred meters from the central part of the Pika-Navarin seabird colonies, but an assessment of any unfavourable consequences of this shipwreck on the seabirds was not conducted.

Oil spills occur regularly during the overloading of fuel-lubricating materials from tankers to the land. We personally witnessed one such incident in the summer of 2007; an oil spot with a length of more than 1 km and a width of several hundred meters, drifting directly in front of the seabird colonies of Barykova Cape. The largest oil-spills that we have sighted occurred in the Meynypil'gyno channel.

The historical practice of egg-collecting in the Beringovskiy settlement on an industrial scale (in the 1960-1970s tens of thousands of eggs were annually collected), in addition to the hunting of guillemots, has now completely ended because a major part of the seabird colonies is difficult to access. The impact of hunting on the sea of Anseriformes is minimal. Illegal egg collecting, initiated in the "hungry" 1990s near the Beringovskiy and Meynypil'gyno settlements, significantly undermined the local population status of the Common Eider and to a certain extent – the Emperor Goose.



Northern Fulmar (photo by Yu.B. Artukhin)

Existing Threats

The development of infrastructure on the territory, industrial development, loss in fishing gear during coastal gill net fishery for salmon and bottom longline fishery.

Conservation Status

The territory of these seabird colonies, the largest in the Chukotka and its waters, has no nature conservation status.

Necessary Conservation Measures

The territory of the seabird colonies and adjacent water areas should be conserved under the composition of the Nature Park "The Spoon-billed Sandpiper Land", which is planned to be set up in the Southern Chukotka. Educational work is required regarding the minimization of disturbance factors towards seabird colonies during the breeding period, including the release of relevant departmental documents, instructions for nature users and explanatory work among the local population. Measures should be taken to avoid oil-spills, and strategies should be put in place to combat oil pollution in regions where future industrial activity is predicted. Measures should be provided for regulating the impact of disturbance factors on the colonies during the development of ecological tourism. On vessels, carrying out longline fishing, it is necessary to use the special equipment (for example, the streamer lines) for avoiding bird catching by longline hooks.

Authors-compilers: Syroechkovskiy E.E., Yakushev N.N.

Species	Status	Survey year	Number	Estimation precision	Criteria
Northern Fulmar	B, N	2006, 2008	500,000-1,500,000	B	A4.2
Black-legged Kittiwake	B, N	2006, 2008	1,000,000	B	A4.1
Common Guillemot	B, N	2006, 2008	350,000	B	A4.2
Brünnich's Guillemot	B, N	2006, 2008	700,000	B	A4.2

NAVARIN CANYON

9

Mean Coordinates:

60° 58' 43"N 179° 48' 08"W

Marine Area:

2,241,105 ha

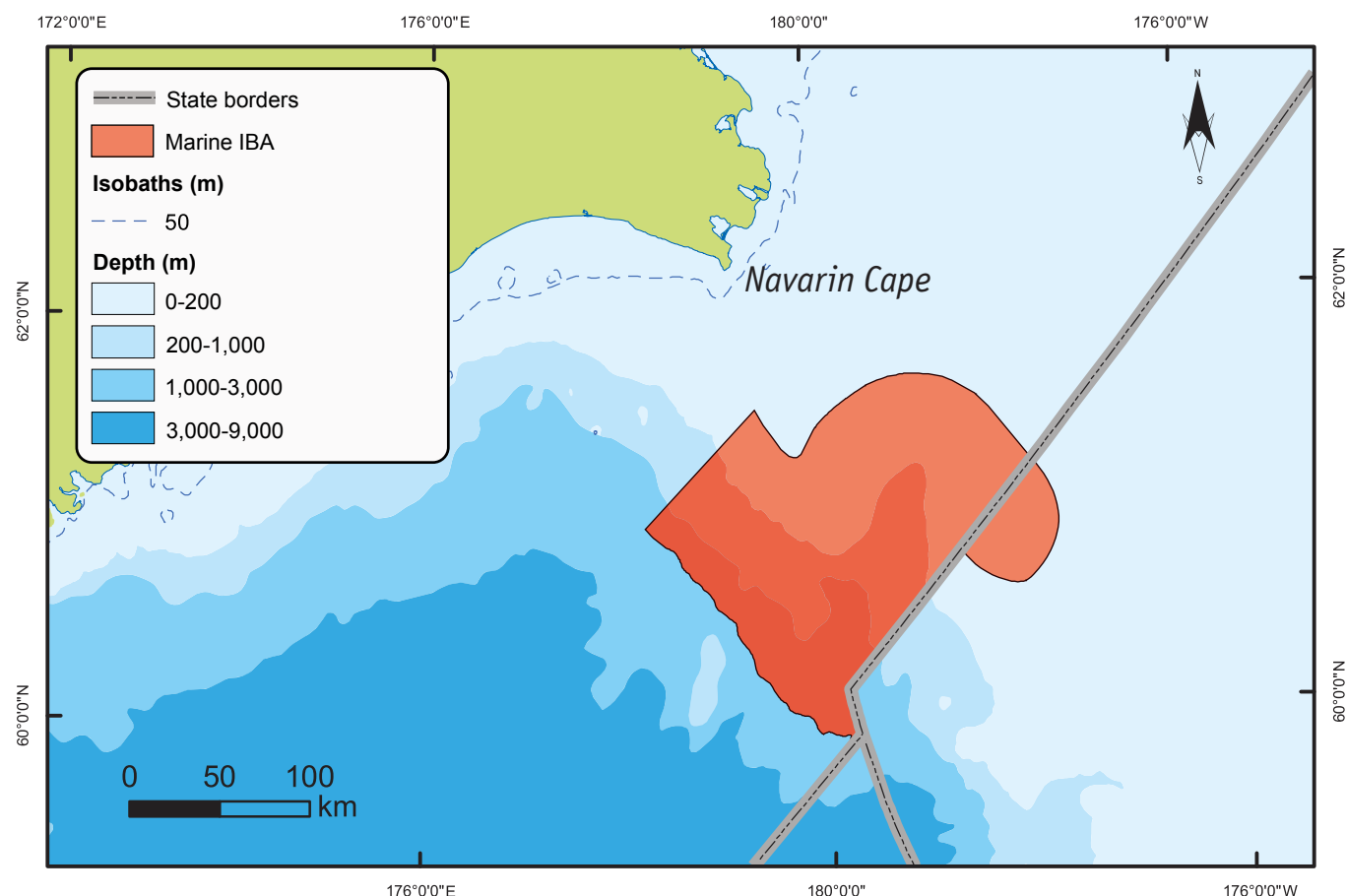
Geographical Coordinates:

61° 43' 42"N 179° 03' 55"W

61° 16' 14"N 177° 49' 52"W

59° 55' 41"N 179° 45' 53"W

61° 00' 48"N 178° 13' 51"E



Site Description

Navarin Canyon is situated on the continental slope of the north-western part of the Bering Sea. The 1990 delimitation line of the marine space between the Russian Federation and the United States of America passes through the water area. This is one of the largest canyons of the World Ocean. Its width on the shelf-break is about 100 km, its area is 14,600 km², and the volume of water within it is 5,400 km³. The canyon cuts through the continental slope of the Bering Sea in a south-western direction; its length measuring 220 km at the 150-m isobath with a maximum depth of 3,000 m (Carlson et al., 1982; Normark, Carlson, 2003).

The shelf zone in the region of the canyon is characterized by a levelling off of the seabed. The continental slope is complicated by different morphological factors in the form of erosion, tectonic and other geological processes. The canyon is asymmetrical and its slope is strongly disfigured. This is especially noticeable at the south-western end where its gradient varies from 5-7 to 11-17° (Evsyukov, Volokitina, 1985).

The waters of the territory under consideration are formed by the Pacific Ocean water masses, uninterruptedly flowing along the continental slope together with the Bering Slope Current. The region is characterized by heavy seas and deep cyclones, especially in autumn. In winter ice cover prevents the development of waves. The ice cover forms in January – February and deteriorates in April.

Navarin Canyon is situated in the Bering Sea Green Belt – a region of high bioproductivity, passing alongside the outer edge of the Bering Sea shelf around the deep-water zone. Primary production levels in the waters of the canyon reach 175-275 g C/m² per year (Springer et al., 1996). As a result, considerable concentrations of different marine hydrobionts form here, including upper-trophic level consumers (Suryan et al., 2011). In this region commercial fishery is intensively developed.

The considered water area covers the Navarin Canyon region, situated between the isobaths 100 and 2,000 m; its eastern border passes along the delimitation line of the marine spaces of the Russian Federation and the USA, the western border passes parallel to it at a distance of 140 km. In the north-eastern part the water area includes the polygon selected during the identification of marine Important Bird Areas of Alaska on the basis of the bird surveys from the “North Pacific Pelagic Seabird Database” (Smith et al., 2012, 2014). The geographical coordinates and area are given only for the Russian part of the territory.

Ornithological Importance

In the region of Navarin Canyon considerable numbers of nomadic Short-tailed Albatrosses regularly congregate – this is the largest concentration of this species in Russian waters.

Short-tailed Albatross. According to observations from vessels (Piatt et al., 2006; Artukhin, 2011c; Kuletz et al., 2014; Yu.B. Artukhin, unpublished data) and data from satellite tracking (Suryan et al., 2006, 2007; O’Connor, 2013; Deguchi et al., 2014), the nomadic movements of this species in the Bering Sea predominantly pass along the shelf-break and in adjacent waters of the shelf and continental slope. The number of recorded specimens considerably increased from the 2000s onwards, which was caused by a stable growth of the population. Visual recordings occurred from June until September in the waters of Navarin Canyon; the results of annual observations of immature specimens from satellite transmitters also show that in this region the birds mainly concentrate during the summer-autumn period but occasionally visit the region during winter and spring too.

The rough estimates of the albatross population wandering in the waters of Navarin Canyon are based on data collected in July 2013 from the board of a middle-tonnage vessel during bottom longline fishing of the Black Halibut. Congregations of albatrosses were constantly observed around the vessel (from 4 to 41 specimens per day), which fed on discarded catches and fish processing waste. The proportion of albatrosses was photo-identified by individual natural markings and by rings, from chick ringing in the nests. Using these data, markings resighted showed that 53 birds passed through the waters of the canyon over a 17-day period of observation, and the total population number in the region for this period was estimated at 310 specimens (Yu.B. Artukhin, V.G. Vysotskiy, unpublished data).

Besides the Short-tailed Albatross in the water area of Navarin Canyon, other species of seabirds are also present in a number. In particular, within the borders of the polygon (453,600 ha) selected by American specialists, the number of Fork-tailed Storm-petrels, Red Phalaropes and Crested Auklets satisfies the criteria of global importance for marine Important Bird Areas (Smith et al., 2012, 2014).



Concentration of the Short-tailed Albatrosses and Northern Fulmars (photo by Yu.B. Artukhin)

Use, Management

The waters around the shelf and continental slope in the region of Navarin Canyon are a traditional area of work of the Russian fishing fleet (primarily trawling and longline); the most valuable fish are the Walleye Pollock, Pacific Cod and Black Halibut (Terentiev, Vasilets, 2005).

Existing Threats

Longline and trawl fisheries are a source of bird loss due to interactions with fishing gear and collisions with deck rigging of vessels. Out of 6 known incidents where Short-tailed Albatrosses were trapped in fishing gear in the Russian Far East, two occurred on longline fishing vessels that worked in the Navarin Canyon waters (Artukhin, 2011c; Yu.B. Artukhin, unpublished data).

Conservation Status

None.

Necessary Conservation Measures

The study of the mortality issue relating to the Short-tailed Albatross and other seabirds from trawlers in the Western-Bering Sea Fishery Zone. On vessels carrying out longline fishing, it is necessary to use special equipment (for example, streamer lines) to avoid catching birds with longline hooks.

Author-compiler: Artukhin Yu.B.

Species	Status	Survey year	Number	Estimation precision	Criteria
Short-tailed Albatross	Vn	2013	100s	U	A1, A4.2

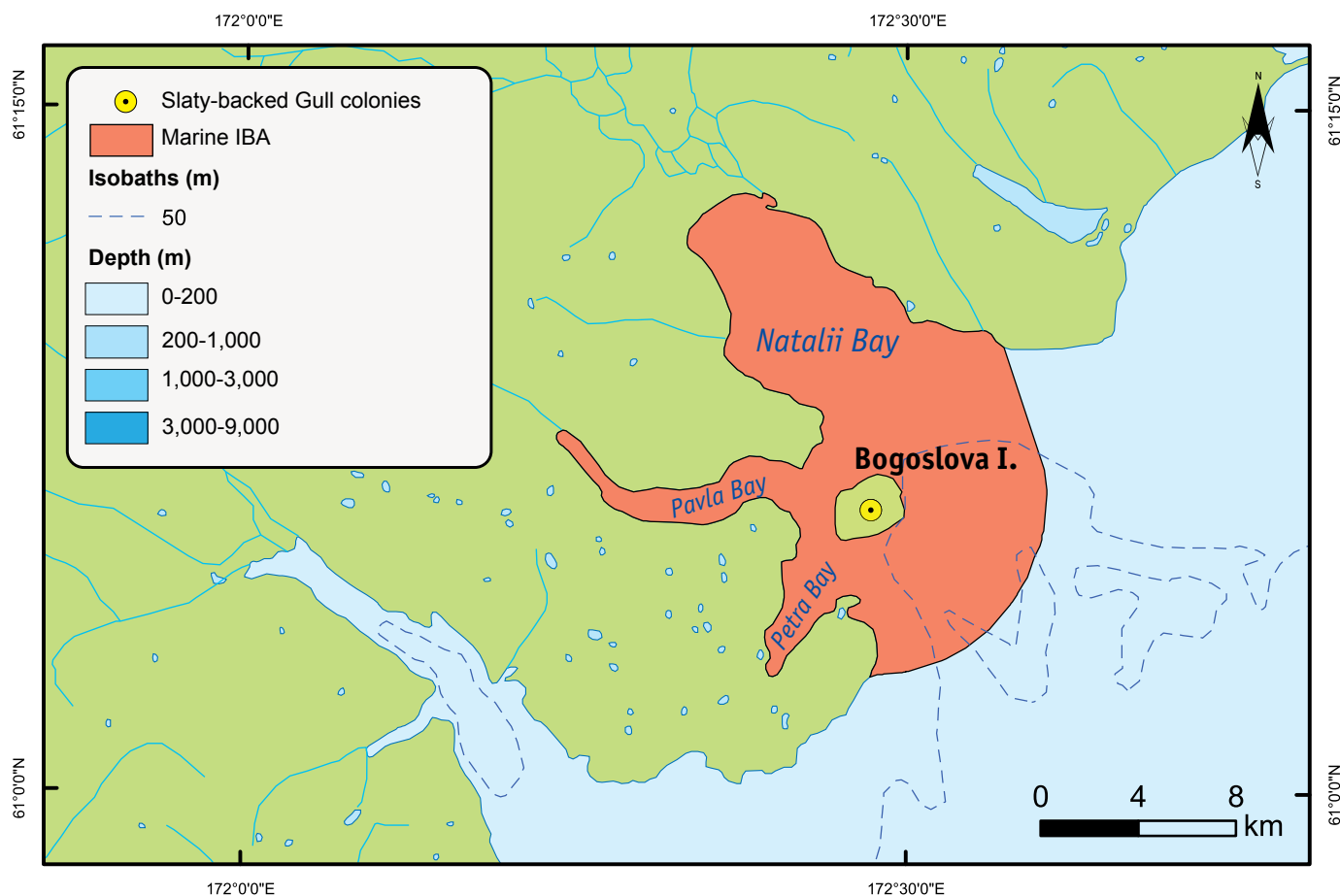
BOGOSLOVA ISLAND

Mean Coordinates:
61° 07' 39"N 172° 28' 18"E

Marine Area:
16,690 ha

Geographical Coordinates:
61° 13' 11"N 172° 23' 26"E
61° 06' 35"N 172° 36' 21"E
61° 02' 34"N 172° 28' 21"E
61° 07' 46"N 172° 14' 07"E

10



Site Description

A small mountainous island of the Bering Sea, situated on the south-eastern shore of the Koryakskoe Upland near the entrance into Natalii Bay, Pavla Bay and Petra Bay. The island lies at a distance of about 2 km from Cape Otvesnyy, dividing Pavla Bay and Petra Bay. The island's size is approximately 1.5 by 2.5 km, and its highest altitude is 516 m. The terrain is mountainous, and four remarkable peaks tower upon it. The eastern slopes decline steeply to the water's edge, forming a high precipitous coast with scree of a dark grey colour. The western slopes are less steep, and end in some rather low, rocky cliffs. There is a stretch of low coast at the centre of the north-western side. Exposed pillar rocks, and submerged stones are scattered around the island. The island is covered by grassy and dwarf shrubby vegetation.

The bays leading out towards Bogoslova Island resemble fjords and represent U-shaped glacial valleys, which flooded as the ice retreated. The mountains surrounding the bays are up to 846 m high, forming a precipitous coast with stony scree on the edge of the sea. The lowland valley extends out to Natalii Bay. In this valley the Vatyina River flows with several tributaries. Before flowing into the bay the river forms a lagoon, which is separated from the sea by a low, sandy spit.

The southern and north-eastern coasts of Bogoslova Island are bordered by deep sea, while the sea is shallow around the south-eastern and north-western coasts. The depth near the mouth of the bay is 20-40 m, gradually declining to landward, while seawards it increases to 100 m and more. Tides are irregular diurnal; their maximum amplitude is around 2-2.7 m.

The climate in the territory is moderately cold and maritime. Northern winds predominate for most of the year; in June – August, southern and south-westerly winds predominate, but they are less persistent and weaker. The wind speed in summer reaches on average 4 m/s, but during storms this increases to up to 30 m/s. Fogs are more frequent from May to September, and in July there can be as many as 25 foggy days.

The water area under consideration includes the entire area of Petra Bay, Pavla Bay and Natalii Bay (together with the estuary of the Vatyina River); the eastern border is drawn at a distance of 6 km from Bogoslova Island (the average distance of foraging flights of the Slaty-backed Gull).



Bogoslova Island (photo by Yu.B. Artukhin)

Ornithological Importance

This is a site of mass breeding of colonial seabirds (150,000 specimens of 9 species). In one species – the Slaty-backed Gull – the total number of birds breeding within this territory amounts to more than 1 % of its world population.

Slaty-backed Gull. During the first investigation of Bogoslova Island in June 1984, 600 specimens of this species were counted. By the time of the next visit in July 1994 the numbers had increased to as many as 4,500 specimens, and another 1,000 gulls were counted on the shores of Natalii, Pavla and Petra Bays (Vyatkin, 1986,

2000). During salmon spawning migrations the Slaty-backed Gulls feed busily in the estuary of the Vatyra River.

Among other seabirds on Bogoslova Island the most numerous are the Common and Brünnich's Guillemots (in total 96,000 specimens), Black-legged Kittiwake (40,000) and Tufted Puffin (3,000). The Common Eider, Pelagic Cormorant, Pigeon Guillemot and Horned Puffin breed in their dozens – or in their hundreds if we include those breeding on the neighbouring shores (Vyatkin, 2000).

Use, Management

Due to its remoteness from settlements the territory has a limited practical use. In summer it is occasionally visited by tourist groups on cruise ships and by ships passing in transit.

Existing Threats

Poaching, recreational pressures, disturbance factors.

Conservation Status

In 1983 Bogoslova Island was declared a Nature Monument of regional importance, in order to protect the Pacific Walrus colony and the breeding sites of seabirds. At the present time the water area has no nature conservation status. The Fishery Rules for the Far-Eastern Fishery Basin govern the harvesting, in a 3-mile coastal zone from Vitgenshteyna Cape to Khatyrka Cape, of all marine bioresource species (excluding coastal fisheries).

Necessary Conservation Measures

Monitoring of adherence to the protection regime of the Nature Monument. As tourists' cruises are developed, measures must be put in place to limit disturbance of bird colonies.

Author-compiler: Vyatkin P.S.



*Slaty-backed Gull
(photo by Yu.B. Artukhin)*

Species	Status	Survey year	Number	Estimation precision	Criteria
Slaty-backed Gull*	B	1994	5,500	A	A4.1
* Total numbers on Bogoslova Island and Natalii, Pavla and Petra Bays.					

SIGNAL'NYY ISLAND

11

Mean Coordinates:

60° 32' 42"N 169° 16' 05"E

Marine Area:

13,247 ha

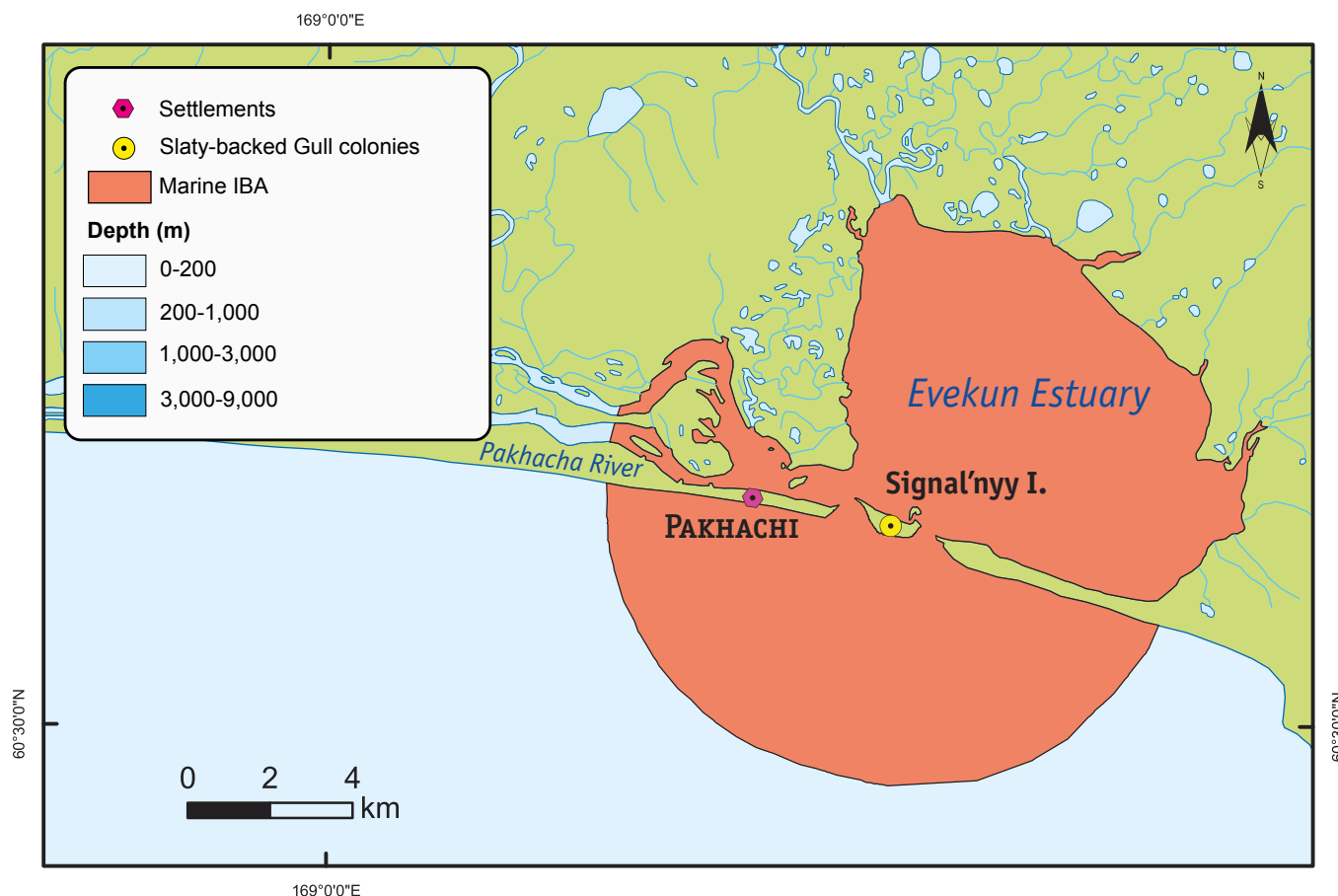
Geographical Coordinates:

60° 36' 55"N 169° 15' 00"E

60° 33' 54"N 169° 24' 47"E

60° 29' 14"N 169° 14' 46"E

60° 33' 10"N 169° 07' 21"E



Site Description

A small flat island near the top of Olyutorskiy Gulf in the Bering Sea – actually, it is very much a crumbling fragment of sandy spit, that separates the Pakhacha River and Evekun Estuary from the gulf. The island is in a region of washed out alluvial-marine plain with low accumulative coasts. The Pakhacha River meets the sea west of Signal'nyy Island with a mouth 0.5 km wide. The eastern channel that flows from the estuary is only half as wide. The settlement of Pakhachi is situated west of the channel on the spit.

The Pakhacha River, 300 km in length and with a catchment area of 13,400 km², forms near its mouth a network of channels with islands of different sizes and 2 large estuaries – Pakhachinskiy and Evekun. The river floodplain is formed by alluvial sediments of the Holocene period, represented mainly by pebbles, gravel, sands, boulder fields, loams and sandy loams. The Evekun Estuary, 7.5 by 11 km in size is shallow with extensive silty-sandy shoals. The depth of the Olyutorskiy Gulf coastal waters, within the borders of the territory under consideration, reaches 10-13 m. Tides are irregular diurnal.

The area of Signal'nyy Island (measured in 2012 using GPS-device) is 56 ha with a maximal length of 1.9 km and width 0.5 km. The island is being intensively eroded by the sea, and as a result of that during the last 10-year periods its outlines and area have changed markedly. According to the 1987 sea chart "Pakhacha River mouth" (No. 69236B, printed by the Main Department of Navigation and Oceanography of Ministry of Defence, scale 1:25,000) the area of Signal'nyy Island was 97 ha. The gradual destruction of the coastline is clearly visible on the south-western side, where the width of the channel at the river mouth is increasing, with a thinning of the north-western edge of the island (at the narrowest, from 200 m in 1994 to 50 m in 2012).

Most of Signal'nyy Island is covered in coastal *Leymus* grass meadow, surrounded by a perimeter of sandy beach. At some sites, usually on the edge of the plateau, there are spots of herb-grasses vegetation. On the eastern edge the *Leymus* grass tufts thin out, but on most of the remaining area they are dense. At approximately 150 m from the sea along the coast stretches a bank up to 5 m high, formed by sand and washed up rubbish, densely overgrown by *Leymus* thickets. Behind it the ground level falls. In the middle of the island in a number of sites there are wet denuded areas, which attract a number of gulls. The plateau descends to the beach by friable shifting precipices which can reach up to 2-2.5 m in the channels, where they tend to be undermined by water; on the northern shore the height of the "steps" is

up to 0.5-0.7 m, but on the southern shore these features are absent. The beaches have developed to their greatest extent – up to a width of 100 m – on the southern side of the island. Their upper sections are abundantly littered by floating rubbish and seaweeds.

The climate in this region is maritime with prolonged cold winters and short cool summers, with considerable cloud coverage and frequent prolonged fogs. The average duration of the frost free period is 130-145 days. Winds are typically powerful, predominantly from the north and north-east.

The water area under consideration includes the entire region of the Evekun Estuary, the Pakhacha River delta and the coastal zone of the Olyutorskiy Gulf within a radius of 6 km from Signal'nyy Island (the average distance of foraging flights of the Slaty-backed Gull).

Ornithological Importance

Signal'nyy Island – the largest of the known nesting sites of the Slaty-backed Gull in the entire range of this species.

Slaty-backed Gull. According to interrogatory data, received from the inhabitants of Pakhachi settlement, the colony of gulls on Signal'nyy Island is greater than during any time since at least the 1970s. Estimations of its numbers were carried out for the first time during a visit to the island on the 16th July 1994 (P.S. Vyatkin, unpublished data). The transect method of counting the nests was employed, with subsequent extrapolation of the average nesting density over the entire suitable area for bird distribution (90.3 ha), which was determined by means of a chart of the scale 1:25,000. The count transects (1.2 ha, or 1.4 % of the colony territory) were laid only in the western half of the island (4 per plateau and 1 on the beach). The calculated number of nests on the islands amounted to about 20,000 (Vyatkin, 2000).

During the next investigation of the colony, carried out on the 13th July 2012 (Yu.B. Artukhin, P.S. Vyatkin, unpublished data), it was discovered that the number had almost halved – to 11,185 nests. Estimations were based on the results of the nest count in transects, evenly distributed across the entire island surface (the total area 6.0 ha, or 10.7 % of the colony territory, whose borders were determined by means of a GPS-device); extrapolation was conducted separately for the main nesting habitats – the plateau (50.9 ha) and beach (4.6 ha).

The average nesting density in grassy thickets on the plateau did not show significant changes: 250 and 200 nests/ha in 1994 and 2012, respectively. The main reason for the total decline in numbers was the reduction in the colony area as a result of continuing erosion of the island surface. Another factor was the sharp decline in gull breeding density on the beaches (from 1,309 to 215 nests/ha).

Within the limits of the territory under consideration the Slaty-backed Gull, in addition, breeds on islands in the Pakhacha River delta (in 2012, 6 colonies with a total number of 1,860 specimens were discovered). Besides the



*Slaty-backed Gull colony on Signal'nyy Island
(photo by Yu.B. Artukhin)*

natural habitats in the vicinity of their colonies, the gulls use the Pakhachi settlement for feeding, by collecting household waste and fish processing remains from the fishery factories.

Among other seabirds on Signal'nyy Island, the Common Eider breeds regularly (72 and 120 specimens in 1994 and 2012, respectively) as do several Common Terns.

Use, Management

Within the territory borders is the Pakhachi settlement, whose development was historically caused mainly by the actions of the companies of the fishing industry. In the 1950-1960s Signal'nyy Island served as a base during winter fishing on the Evekun Estuary, where half-destroyed wooden buildings still remain. In the post-Soviet period there was a fall in production capacity with an exodus of the inhabitants (reducing the settlement to 410 people on the census of 2015). At the present time the water area is used by the fishing industry, for navigation and for recreation by the local population.

Existing Threats

Poaching, disturbance factors, pollution by household waste. According to interrogatory data, Signal'nyy Island is visited by the inhabitants of Pakhachi, Sredniye Pakhachi and Apuka settlements for collecting gull and eider eggs annually at the beginning of June. The challenging navigational conditions around the river mouth pose risks of contamination by oil products as a result of shipping misadventures.

Conservation Status

None

Necessary Conservation Measures

Attachment of a nature monument status of regional importance to Signal'nyy Island should be provided by the "Scheme of development and disposition of Specially Protected Nature Sites of regional and local importance of the Kamchatka Territory until 2030" – as developed in 2010 by the Kamchatka Branch of the Pacific Geographical Institute of the Far-Eastern Branch of the Russian Academy of Sciences. However this scheme has not yet been approved, nor adopted by the local Ministry of Nature Resources and Ecology.

Authors-compilers: Artukhin Yu.B., Vyatkin P.S.

Species	Status	Survey year	Number	Estimation precision	Criteria
Slaty-backed Gull	B	2012	22,370	A	A4.1

KORFA GULF (the northern part)

12

Mean Coordinates:

60° 20' 22"N 166° 06' 55"E

Marine Area:

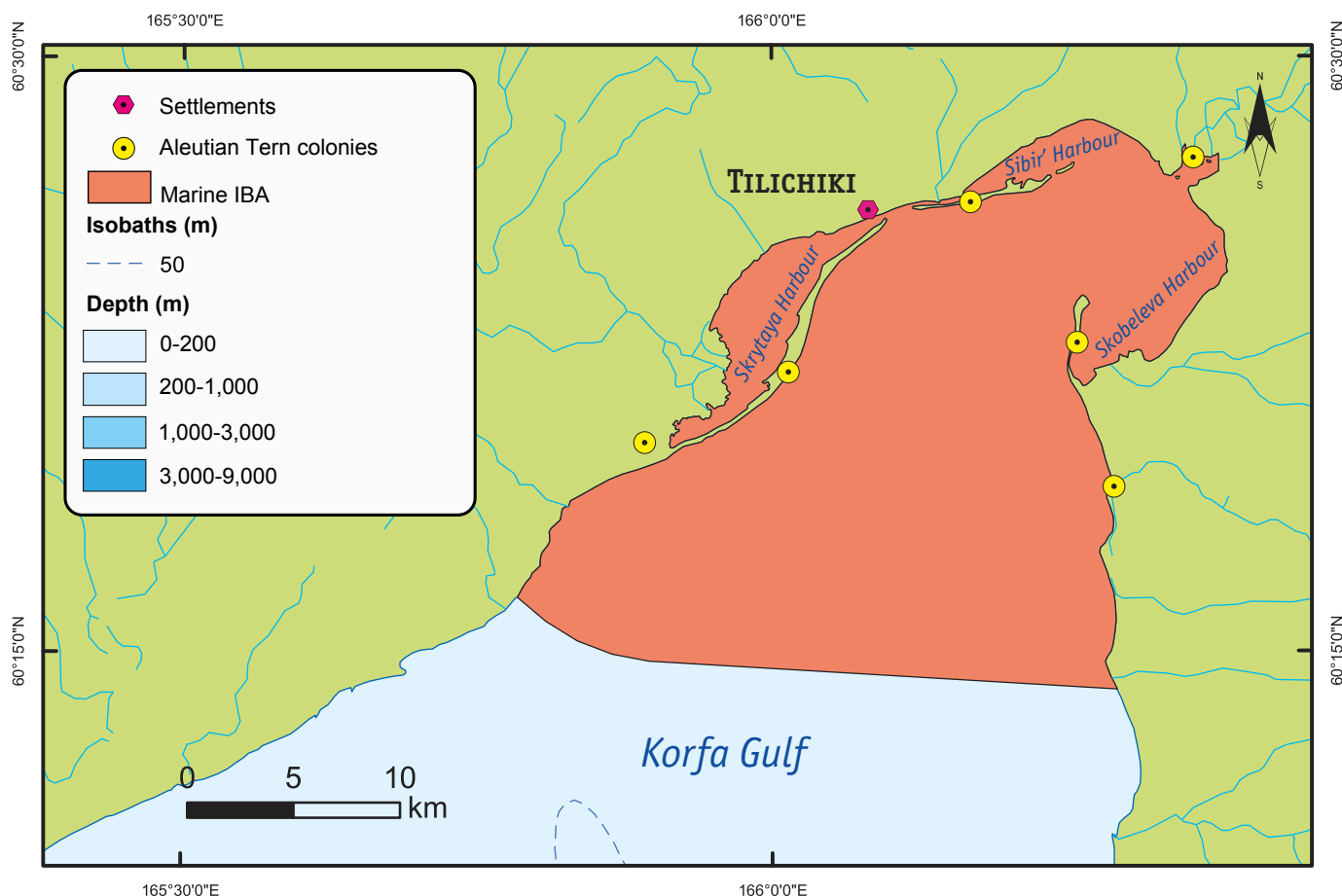
51,405 ha

Geographical Coordinates:

60° 28' 26"N 166° 16' 07"E

60° 16' 25"N 165° 47' 03"E

60° 14' 04"N 166° 17' 29"E



Site Description

Korfa Gulf is situated on the southern shore of mainland Koryakiya near Kamchatkan isthmus. The territory under consideration is a top area of sea gulf deeply indented into the land with 3 inner lagoons, each of which is separated from the sea by a narrow sandy-pebbled spit. The longest of these spits (Korfskaya Spit) is 18 km long. The seabed in the gulf is flat, the depth gradually decreasing towards the coastline. Tidal currents are clearly evident in the lagoons. At low tide in the shallow areas, mud shoals appear, and the beaches widen. The shallow parts of the lagoons are to a greater or lesser extent overgrown by aquatic vegetation and are a spawning ground for the Pacific Herring.

The northern part of the Korfa Gulf is fed by two comparatively larger rivers and a number of small rivers and brooks. The gulf coasts are represented by a belt of low, plain coastal terraces that end by a high coastal cliff. In the mouth of the largest watercourses the low sites are swamped by small tundra lakes. The swamped tundra occupies the largest areas in the Kultushnaya River mouth – near the top of the gulf.

The most important breeding and moulting sites of waterbirds are the coastal lagoons, sea spits and swamped lowlands with lakes. The waters serve as foraging habitats for birds which breed on land and as mass concentration sites for migratory waterfowl, while beaches and shoals serve as sites of mass concentration for shorebirds (waders).

The territory border travels through the gulf contour in the south and on the circumference with a radius of 10 km, drawn from two uttermost colonies of the Aleutian Tern.

Ornithological Importance

An important breeding and resting site of waterbirds during their migrations. In the gulf waters and on costal lagoons, ducks (often around 15 species), geese (3 species), swans (1 species), and also divers and grebes pause here on their passage. The dates in which different species are present in maximum numbers do not coincide, at any one time in spring, total concentrations of Anseriformes are estimated within the range of 35,000-40,000 to 50,000 specimens (Gerasimov et al., 2000; Krivenko, 2000; Gerasimov, 2002a; Lobkov et al., 2014).

Greater Scaup. The species makes numerous passages through here and commonly breeds. During spring migrations it passes through the area from the second ten-day period of May until the first ten-day period of June, but most prevalently during the third ten-day period of May. In 1998, on 23rd and 24th May, at least 25,000 Greater Scaups resided in the Korfa Gulf. Almost all of these birds concentrated in the north-eastern and shallowest corner of the gulf. In the following days the Greater Scaup numbers gradually declined, but 4,000-5,000 specimens remained until the final day of observations on 31st May. This region is one of the largest concentration sites for the species in Kamchatka during the spring migration. By the end of August the Greater Scaup and other ducks are seen actively wandering between wetlands in the coastal belt (Gerasimov, 2002a).

Steller's Eider. Also makes numerous passages through the region. On the 5th May 1998, 1.5 km to the east of the Tilichiki settlement, a flock of about 200 Steller's Eiders resided in the sea. On the next day in this region, hundreds of birds were recorded per 5 km of shore. Large concentrations of Steller's Eiders (up to 5,000 specimens) remained in the north-eastern part of the Korfa Gulf between 24th and 30th May 1990; during this time separate flocks with sizes of up to 1,000 specimens were recorded. The Steller's Eider population in this region only declined considerably after 31st May (Gerasimov, 2002a; Lobkov et al., 2014).

Aleutian Tern. In the northern part of the gulf is situated one of the most prevalent breeding settlements of 3 tern species in Kamchatka (Common, Arctic and Aleutian) with a total number of about 9,000-10,800 specimens, including 1,560-1,800 Aleutian Terns concentrated mainly on sea spits (Lobkov et al., 2014). One of the largest colonies of this species is situated on the Korfskaya Spit



Muddy shoals appear in the spring during ebb-tides in Skrytaya Harbour (photo by E.G. Lobkov)

(around 900-1,100 specimens). According to several counts, the Aleutian Tern population has increased in the Korfa Gulf over the last 36 years: in 1977 the birds were present but their breeding patterns were not established; in 1990-1991, 100-140 specimens nested here, in 1998-2002 – 1,100, in 2008-2009 – 1,400-1,500, in 2013 – 1,600 (Lobkov et al., 2015a).

Korfa Gulf – a regular wintering site for the Long-tailed Duck: one population count in 1970 revealed that from 12,000 to 15,000 specimens were residing here (Yakhontov, 1972), however as of 2013 – no more than 2,000 remain (E.G. Lobkov, unpublished data).



Tilichiki settlement, Korfskaya Spit is far away (photo by E.G. Lobkov)



Ducks during spring migration in the inner part of Skrytaya Harbour (photo by E.G. Lobkov)

Tens of thousands of waders (regularly 20 species) stop by the shallow shores that open during tides in the days of their spring migrations (Gerasimov, 1999; Lobkov et al., 2014). Only on the shoals of Skobeleva Harbour and the Kultushnaya River mouth in 1998 20,000-25,000 specimens were counted, among them 10,000-15,000 Dunlins (Lobkov et al., 2014).

Use, Management

On the northern coast of the Korfa Gulf the regional centre of the Olyutorskiy Municipal District of Kamchatka Territory – Tilichiki settlement – is situated. As a result, the coastal belt is continuously opening up and urbanising, and the gulf waters are actively used by ships for the purposes of transport communication. In the coastal lagoons fishing takes place as a form of traditional nature management by the local inhabitants, which operate out of number of small native nations in the North. An airport is situated on the Korfskaya Spit. The traditional habitats for hunting are located in the territories more remote from the settlement. Thus, the entire territory under consideration is used in certain forms of management, the most intensively and diversely are the Korfskaya Spit and the shores of Skrytaya Harbour and Sibir' Harbour. These practical uses are directed to support the development of infrastructure, whilst also providing better living conditions for the local population.

Existing Threats

Further development of the infrastructure on the land, pollution, hunting, fishing, collection of tern eggs within the colonies, poaching, and disturbance factors.

Conservation Status

The northern part of the Korfa Gulf has not received an official protection status, but it is listed (on an area of about 10,000 ha) in the shadow list of Ramsar habitats (Krivenko, 2000). It was also recorded (Gerasimov, 2002a), that this district responds to requirements, submitted to the territories that have international importance for waders.

Necessary Conservation Measures

Greater control over the hunting regulations and struggles with poaching. Conducting mass explanatory work on ecological education (concerning bird conservation, in particular) among the local population. The organisation of such a work has great potential to be successful, especially as the Department of the Koryakskiy State Nature Reserve is situated in the Tilichiki settlement. One of the most important tasks of the Nature Reserve is administering ecological education.

Authors-compilers: Lobkov E.G., Gerasimov Yu.N.

Species	Status	Survey year	Number	Estimation precision	Criteria
Greater Scaup	Ps	1998	25,000-35,000	A	A4.1
Steller's Eider	Ps	1998	5,000-7,000	A	A1, A4.1
Aleutian Tern	B	2008-2009	1,560-1,800	A	A4.1

VERKHOTUROVA ISLAND

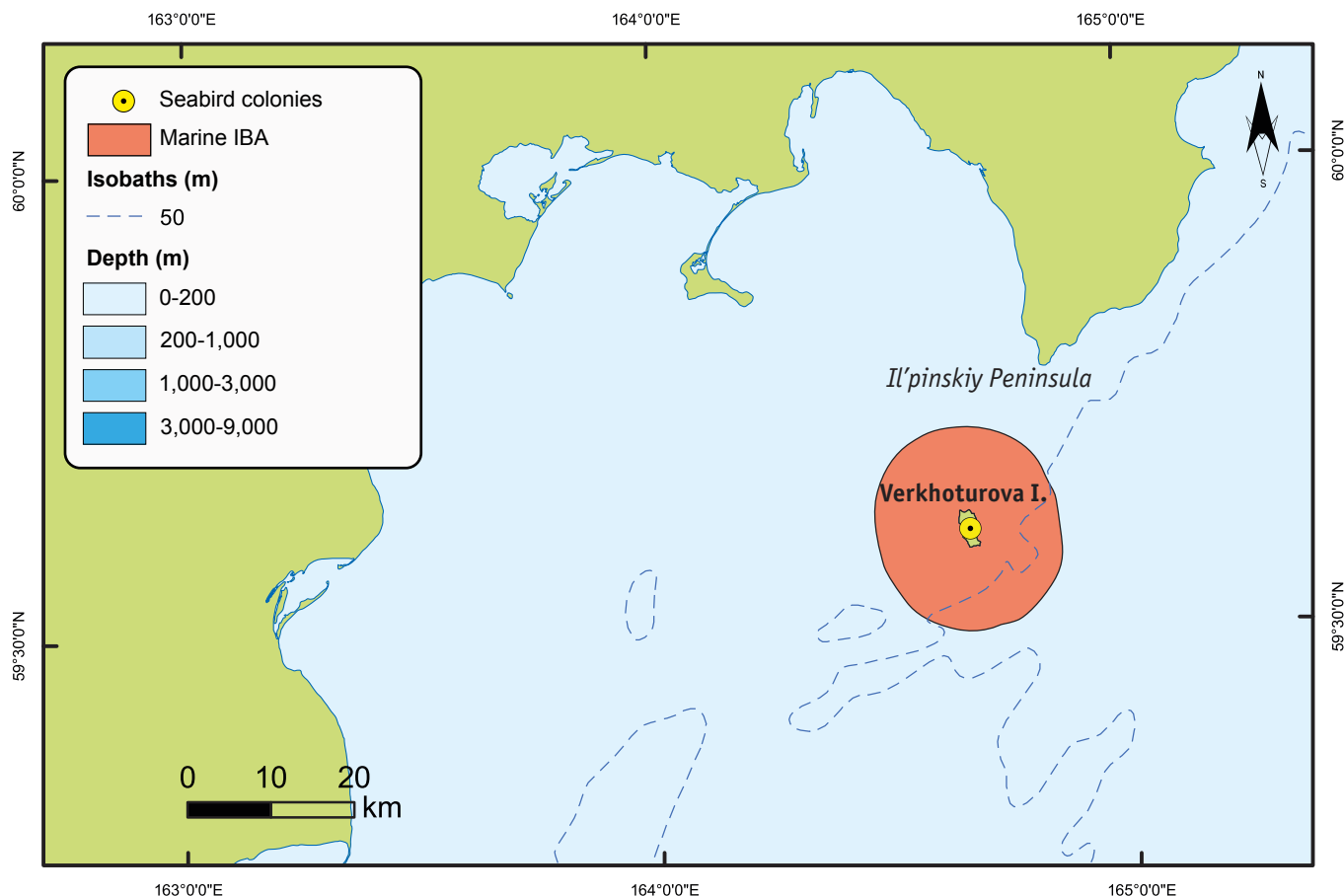
13

Mean Coordinates:
59° 36' 32"N 164° 39' 55"E

Marine Area:
43,048 ha

Geographical Coordinates:

59° 43' 05"N 164° 39' 31"E
59° 35' 16"N 164° 51' 43"E
59° 29' 56"N 164° 39' 53"E
59° 37' 19"N 164° 27' 51"E



Site Description

A small mountainous island in the Bering Sea, located in the northern part of the Litke Strait between the Il'pinskiy Peninsula (at a distance of about 20 km) and Karaginskiy Island (about 40 km). The length of the island is 3.5 km, its width reaches 0.5 km, and it has a surface area of 800 ha.

The island is mountainous and there are 3 peaks on it – the highest point is 367 m a.s.l. The surface of the island is slightly indented. Its coasts are predominantly rocky and precipitous, and the eastern and southern sides are occupied by seabird colonies. In the southern part of the island a low plateau is situated. The northern shore is low, with sandy-pebble beaches. There are pillar rocks near the capes that jut out from the island, from which rows of reefs are stretched. The foot of the coastal cliffs and steep slopes is usually met by a narrow strip of sandy-pebble beach. At some sites the beach is littered with rock fragments of varying sizes. The littoral zone is primarily stony.

The depths around the island are uneven; 1.5 km from the coastline they reach 6-20 m, and the seabed is stony. From the north-western edge a shoal (less than 10 m deep) stretches out by over 3 km.

There is a cold, maritime climate in the region. Strong winds, low temperatures and frequent fogs are an obstacle to the development of tree thickets on the island – its surface is primarily covered by grassy and shrubby vegetation.

The inner border of the marine territory passes through Verkhoturova Island, and the outer border passes at a distance of 10 km from the coastline (the average distance of foraging flights of the Pelagic Cormorant).

Ornithological Importance

Verkhoturova Island is a site of mass breeding of colonial seabirds (287,000 specimens of 14 species). According to the data of counts conducted in July 1994, 65 colonies were present in the island (Vyatkin, 2000). For 2 species, the Pelagic Cormorant and Slaty-backed Gull, the total population within the colonies exceeds 1 % of the world population of these birds.

Pelagic Cormorant. The species' status on the island can vary greatly. In 1975, during the first investigation of the colonies, 9,000-10,000 specimens were counted, yet during the next visit in 1994 about 4,800 were observed. The probable explanation for this decline in numbers was an epizootic in the 1980s between cormorants on the entire eastern shore of Kamchatka (Vyatkin, 1986, 2000).



*Seabird colonies on Verkhoturova Island
(photo by P.S. Vyatkin)*

The dates of the breeding season of the Pelagic Cormorants on the island are significantly lengthened. Fresh clutches appear within 2 months, beginning in the first ten-day period of May. However, the first clutches are often taken by raptorial birds (gulls, Ravens and Oriental Carrion Crows), therefore the nestlings usually appear in the nests from the end of June (Kharkevich, Vyatkin, 1977).

Slaty-backed Gull. Over the past 4 decades the population of this species has increased by many times. In 1975 300 specimens nested on the island, and by 1994 this figure had increased to 9,500 (Vyatkin, 2000). During the last visit to Verkhoturova Island (20th June 2010) all colonies of Slaty-backed Gulls were photographed from a boat during moving around the island along the coastline. Further investigation showed that the number of gulls on the island had increased even more; the birds had nested on a major part of the insular shore, occupying many plateau-like areas and grassy slopes. The visual count of the gulls (during the investigation of the island) and an analysis of the photographs provides a modern estimate of the total population at about 20,000 specimens (P.S. Vyatkin, unpublished data).

Among other seabirds on the island the most numerous birds are the Common Guillemot and Brünnich's Guillemot (in total 134,000 specimens), Black-legged Kittiwake (96,000), Crested Auklet (24,000), Parakeet Auklet (10,000), Tufted Puffin (6,000) and Horned Puffin (2,200). The Northern Fulmar, Pigeon Guillemot and Least Auklet breed in their dozens. The breeding of separate pairs of Common Eiders and Spectacled Guillemots is also recorded (Vyatkin, 2000). In 1994, during counts in the colonies around the island, 250 Harlequin Ducks and 80 Common Eiders were observed in the sea (P.S. Vyatkin, unpublished data).

From the 1970s until the 1990s the number and area of the colonies increased not only for the Slaty-backed Gull, but also for the alcids which breed in burrows and

other shelters (Crested Auklets, Parakeet Auklets and Tufted Puffins). This likely occurred as a result of the disappearance of terrestrial predators (Arctic Fox and Ermine) from the island by the end of this period.

Use, Management

Due to its remoteness the territory is of limited economical use. In the summer period it is occasionally visited by tourist groups on cruise ships.

Existing Threats

Contamination of the seawater by oil products, poaching, recreational pressure, disturbance factor.

Conservation Status

The island (together with the surrounding sea to a 2-mile radius) was declared a Game Reserve of regional importance in 1976, for the conservation of its unique ecosystem (flora, nesting sites of colonial seabirds, insular populations of the Arctic Fox, haulouts of Walruses, Steller Sea Lions and Larga Seals). At the present time only the land territory of Verkhoturova Island is under protection by its status as a Nature Monument of zoological profile. The removal of all species of water bioresources in the inner waters of the Russian Federation near Verkhoturova Island is prohibited by the Fishery Rules for the Far-Eastern Fishery Basin.

Necessary Conservation Measures

Ensuring adherence of the protection regime of the Nature Monument. During the development of tourism cruises it is necessary to provide regulatory measures for the impact of disturbance factors on seabird colonies.

Author-compiler: Vyatkin P.S.



Pelagic Cormorants (photo by Yu.B. Artukhin)

Species	Status	Survey year	Number	Estimation precision	Criteria
Pelagic Cormorant	B	1994	4,796	A	A4.1
Slaty-backed Gull	B	2010	20,000	B	A4.1

KARAGINSKIY ISLAND

14

Mean Coordinates:

58° 42' 38"N 164° 04' 37"E

Marine Area:

1,129,167 ha

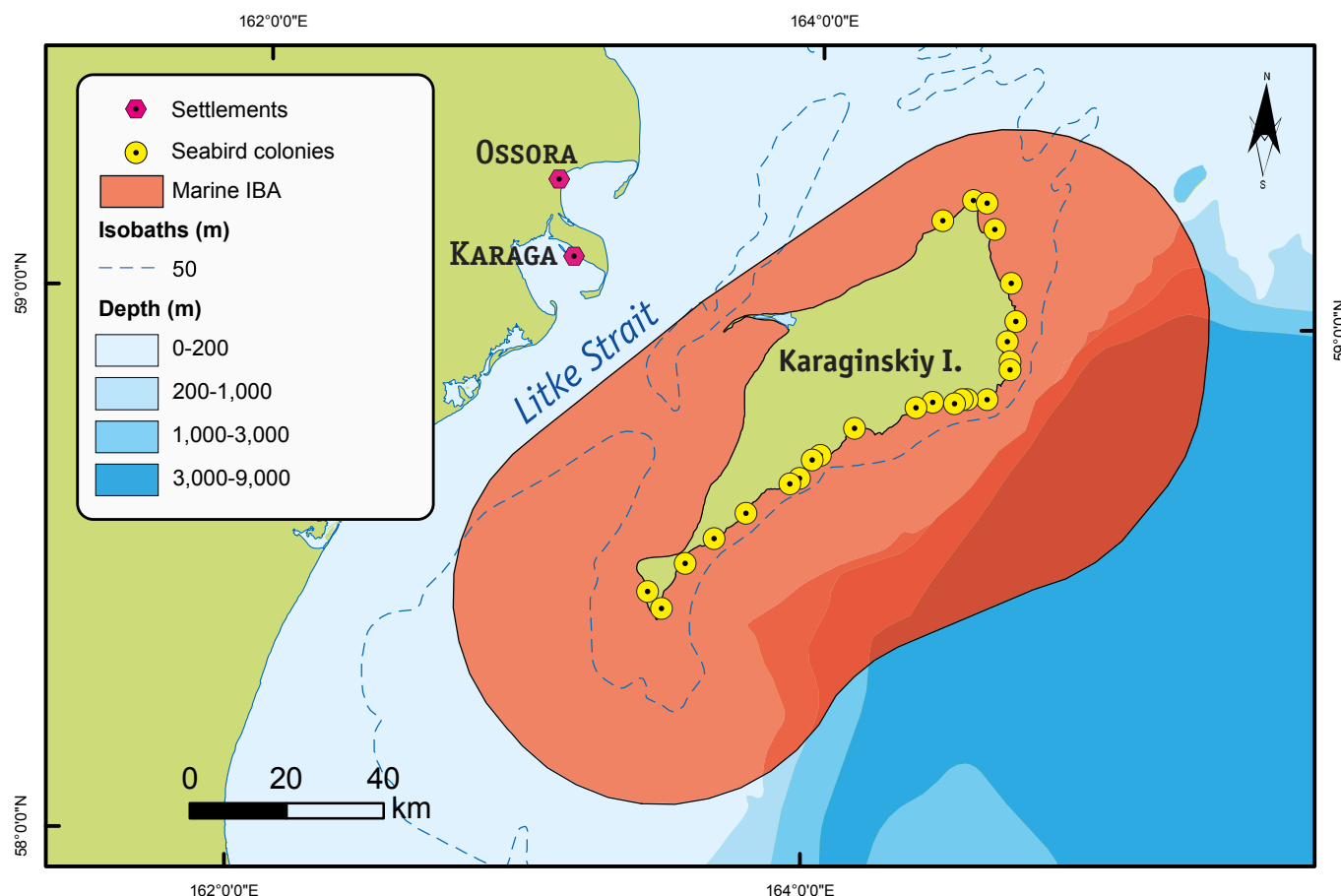
Geographical Coordinates:

59° 22' 03"N 164° 46' 30"E

58° 06' 15"N 163° 26' 31"E

59° 02' 25"N 165° 24' 28"E

58° 30' 46"N 162° 45' 01"E



Site Description

Karaginskiy Island is situated in the western part of the Bering Sea near the north-eastern coasts of the Kamchatka Peninsula. It is separated from the mainland coast by the Litke Strait, whose width ranges from 40 to 70 km. The length of the island is 111 km, at its largest the width is 45 km, and the surface area is 2,000 km².

The island is made up of two distinct topographical areas, approximately equal in area: a western plain and a mountainous area to the east. The former is a plain of marine origin and consists of a number of terraces of varying heights. This is divided by river valleys into a series of flat-topped hills whose height, as a rule, is less than 100 m a.s.l. The plain slopes quite steeply down towards the western shore, with variable gradients ending in cliffs at the Litke Strait. Near the northern perimeter of the island the rocky precipices reach a height of 40-45 m. Much of the island's shore is formed by friable strata, bathed by the Litke Strait, and mostly extending no more than 10 m above the tidal zone. The coastline of the north-western and western shores of the island is smooth and, apart from Lozhnykh Vestey Bay (formed by the Lekalo Spit), is not broken by any sharp indentations or gulfs. A strip of sandy beach, whose width is quite constant regardless of the sea level, extends along the entire coast of the Litke Strait.

The contours of the eastern and south-eastern shores of the island are winding and form a row of small bays and gulfs. However, only the largest of bays – Severnaya – allows ships to approach the land closely. This shore is mainly formed by monolithic rocks. The coastal rocks rise above a narrow belt of the beach, sometimes directly above the sea, in a vertical wall at a height of 15-30 m, and at some sites up to 100 m. This site has the most favourable conditions for the breeding of colonial seabirds.

Karaginskiy Gulf is comparatively shallow (primarily with depths of 20-40 m), and the bottom is predominantly formed by a sandy and sand-pebble base. In July – August this is a site for the growth of Pacific Sand Lances, which become abundant and form an important part of the seabird and marine mammal diet.

The inner border of the water area under consideration passes along the perimeter of Karaginskiy Island, and the outer border is determined by the average distance of foraging flights of the key bird species (10 km from the Pelagic



South-eastern shore of Karaginskiy Island (photo by A.V. Maslov)

Cormorant colonies on the northern edge of the island and 40 km from the Black-legged Kittiwake colonies on the eastern and southern shores).

Ornithological Importance

Karaginskiy Island lies along the route of the mass passage of waterfowl and colonial seabirds. Rich coastal seawaters of the island provide the numerous bird community with food during the migratory, moulting and wintering periods. In spring more than 600,000 waterbirds fly through the island territory and its coastal waters (10,000 – divers, 30,000 – cormorants, 30,000 – dabbling ducks, to 200,000 – diving ducks, to 100,000 – waders, and 250,000 – larids). The island has a special importance as a breeding site for more than 400,000 colonial seabirds. Besides that, tens of thousands of waterfowl breed, moult and winter here (Gerasimov, 2016).

Greater Scaup. A common breeding and numerous migratory species. The spring migration occurs in the second half of May – first half of June. In 1976-1983 the number of migratory birds was estimated at 25,000-30,000 specimens.

Steller's Eider. A common migratory species which moults in the island's waters and occasionally overwinters. The spring migration occurs during May, and in total in the

1970s about 20,000 specimens flew through the coastal area. The Steller's Eiders begin to gather for moulting in the second half of June in waters near the island, and concentrate in mass numbers here in the first and second ten-day periods of July. They prefer to reside in a 200-m coastal zone along the rocky eastern shores and are not present near the lowland western shores. In 1969-1970 the total number of moulting Steller's Eiders in the island's waters exceeded 5,000 specimens. Immature males comprised up to 80 % of the birds, 2-2.5 % were adult males and about 20 % were females (Gerasimov, Vyatkin, 1972; Gerasimov, 2016).

Common Eider. A common breeding and wintering species, which is less numerous. The spring migration occurs from the end of April until the second ten-day period of May. In the 1970s up to 15,000 specimens flew through coastal waters of the island during spring (Gerasimov, 2016). The total number of this species, which stayed in the island's waters during the summers of 1969 and 1970, compiled 2,500-3,000 with an equal ratio of males and females. The birds preferred to stay along a 100-m coastal belt (Gerasimov, Vyatkin, 1972). Taking into account interrogatory data, the number of breeding eiders on island was estimated at 700-800 specimens.



Steller's Eiders (photo by P.N. Romanov)

In autumn (by the end of October) the majority of eiders wander to the south.

Harlequin Duck. A common breeding species. The spring migration takes place in the second half of May, and at this time 10,000-15,000 specimens fly through the coastal waters. In the breeding period this species is the most numerous breeding duck on the island (4,000-5,000 specimens). Up to 3,000 Harlequin Ducks (almost exclusively males) moult in summer in the coastal area. They primarily reside within the limits of 50 m from the coast near the river mouths (Gerasimov, 2016).

American Scoter. A common breeding and numerous migratory species. The spring migration happens during May towards the beginning of June. The total number of birds, flying through the coastal area during spring, was estimated at 20,000-25,000 in the 1970s.

White-winged Scoter. A common summering and numerous migratory species. The spring migration occurs during May; a total of 20,000-25,000 White-winged Scoters fly through the coastal waters. The moulting groups consist exclusively of males. In the island's waters up to 6,000 specimens moulted during 1966-1972; the largest concentration (almost 5,000 specimens) was observed in the strait opposite the southern edge of the island. The White-winged Scoters prefer to stay at a distance of 500-1500 m from the coast (and beyond) during the moulting period.

Long-tailed Duck. A limited breeding, numerous migratory and common overwintering species. During spring (in May) about 50,000 specimens migrate through the coastal areas of the island, and 10,000 overwinter here (Gerasimov, 2016).

Red-breasted Merganser. A common breeding and migrating species. The spring migration goes on in the second half of May, at a number of 8,000 specimens.

Common Merganser. Likely a breeding species, moults in the island's waters, overwinters as individual specimens. It begins to moult in mass in estuaries and in the sea by the coast. At the beginning of the moulting period the Common Mergansers are more or less evenly scattered in the Litke Strait along the entire western shore, staying within the limits of 200-500 m from the coastline. In the second half of July the birds wander seawards, at least, to within 1 km of the coast. In the summer of 1970 a minimum of 600 Common Mergansers were present along the western shore of the island from Cape Golenishcheva to Peresheyek in the coastal waters of the strait. Besides that, at least 1,000 (according to alternative data – up to 3,000) mergansers stayed near the southern edge of the island. An additional number of up to 1,000 birds were constantly situated in Pervaya Lagoon. In the coastal waters on the eastern side of the island the Common Mergansers were recorded in single specimens, and dozens of them were observed solely in Severnaya Bay. The moulting groups almost exclusively consist of males. The total number of Common Mergansers, which moulted in the island's waters at the beginning of the 1970s was estimated at 3,000-5,000 specimens.

Pelagic Cormorant. A common breeding species. In the island's waters the species is represented from the end of April until the end of November, and sometimes later. The nesting microhabitat of this species features on rocky sea shores, separately standing rocks and

islets. The total number at the beginning of the 1970s reached about 15,000 specimens, but the species status in Kamchatka significantly deteriorated and in 1994 just 5,234 cormorants were counted on Karaginskiy Island (Vyatkin, 1986, 2000; Gerasimov, 2016).

Slaty-backed Gull. A numerous breeding and common overwintering species. The Slaty-backed Gulls become especially noticeable in the first and second ten-day periods of May, during the spring migration. In summer the main body of breeding birds, a minimum of 10,000-12,000 specimens, stays along the eastern and south-eastern shores – and in small numbers – along rocks on the southern edge of the island. Each year, a considerable proportion of the mature gulls fail to breed, or else lose their brood. During summer at least 2,500-3,000 Slaty-backed Gulls (which have not yet reached sexual maturity) are permanently present in the waters of the Litke Strait,



Common Merganser male
(photo by Yu.B. Artukhin)

including Lozhnykh Vestey Bay and Pervaya Lagoon. The total number of this species in the summers of 1969-1973 was estimated at 15,000-16,000 specimens, and in 1994 11,320 gulls were counted on the island (Vyatkin, 1986, 2000; Gerasimov, 2016). The nesting microhabitat of the species occurs on rocky costal cliffs, separately standing rocks, and occasionally on alluvial islands in the lower regions of rivers. The largest nesting site is situated on Ptichiy Island.

Black-legged Kittiwake. A numerous breeding species. In 1966-1973, 205,000-240,000 specimens bred on the island (Gerasimov, 1986; Vyatkin, 1986). According to the results of the latest count, conducted in 1994, the species number on the island was determined at 35,000 specimens (Vyatkin, 2000). The Black-legged Kittiwake colonies are situated on vertical coastal rocks and pillar rocks which stand in the sea.

Use, Management

The island has had limited practical use until the present time. Coastal fishing, hay-making, berry harvesting and the trapping of fur mammals (in winter) is carried out. The situation could deteriorate if the mountain-mining industry develops, because mineral resources are discovered on the island. The waters are a zone of active marine commercial fishing.



Western shore of Karaginskiy Island (photo by A.M. Burdin)

Existing Threats

Fishing, hunting, poaching, recreational pressure, disturbance factor.

Conservation Status

In 1974 on Karaginskiy Island a regional zoological Game Reserve (under the same name) was established. In 2002 its activity was not prolonged due to the absence of funds for the state expertise. The island was linked to the territories reserved for the establishment of Specially Protected Nature Sites with a protected regime, corresponding to the game reserve. During 2009 in

connection with the forthcoming deadline, this status expired and the "Karaginskiy Island" Game Reserve was liquidated. In 1994 by order of the Russian Federation Government, Karaginskiy Island with a 2-km coastal sea zone of a total area at 193,597 ha was included in the list of wetlands of international importance (Krivenko, 1998).

Necessary Conservation Measures

The return of the regional game reserve status to this territory, overcoming the struggle with poaching.

Author-compiler: Gerasimov Yu.N.

Species	Status	Survey year	Number	Estimation precision	Criteria
Greater Scaup	Ps	1976-1983	25,000-30,000	B	A4.1
Steller's Eider	Ps	1976-1982	20,000	B	A1, A4.1
Steller's Eider	N	1969-1970	5,000	A	A1, A4.1
Common Eider	Ps	1976-1982	15,000	B	A1, A4.1
Common Eider	B, N	1969-1970	2,500-3,000	A	A1, A4.1
Harlequin Duck	Ps	1976-1982	10,000-15,000	B	A4.1
Harlequin Duck	B	1966-1978	4,000-5,000	A	A4.1
American Scoter	Ps	1976-1982	20,000-25,000	B	A1, A4.1
White-winged Scoter	Ps	1976-1982	20,000-25,000	B	A4.1
Long-tailed Duck	Ps	1976-1982	50,000	B	A1, A4.1
Long-tailed Duck	W	1968-1970	10,000	A	A1
Red-breasted Merganser	Ps	1976-1982	8,000	B	A4.1
Common Merganser	N	1968-1970	3,000-5,000	A	A4.1
Pelagic Cormorant	B	1994	5,234	A	A4.1
Slaty-backed Gull	Ps	1976-1982	40,000	B	A4.1
Slaty-backed Gull	B	1994	11,320	A	A4.1
Black-legged Kittiwake	B	1966-1973, 1994	35,034-240,000	A	A4.1

COMMANDER ISLANDS

15

Mean Coordinates:

54° 54' 01"N 166° 54' 36"E

Marine Area:

3,463,300 ha

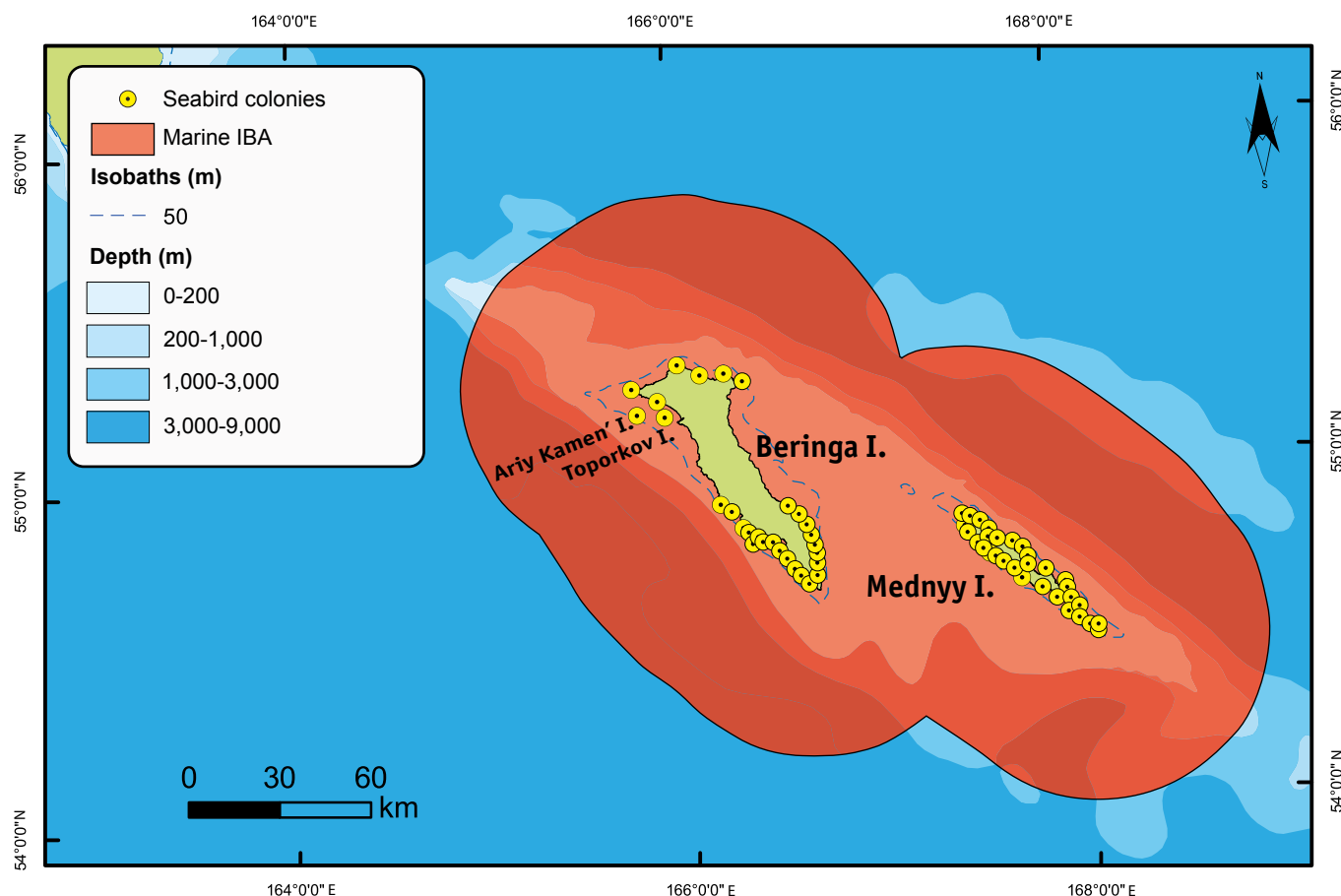
Geographical Coordinates:

55° 51' 38"N 166° 03' 07"E

54° 28' 52"N 168° 57' 09"E

54° 00' 05"N 168° 09' 59"E

55° 19' 52"N 164° 52' 57"E



Site Description

The Komandorskiye/Commander Islands are situated on the southern border of the Bering Sea 185 km east of the Kamchatka Peninsula and 340 km from the nearest island of the Aleutian Ridge – Attu. The largest islands – Beringa Island (area 1,667 km²) and Mednyy Island (186 km²) – are divided by the Admirala Kuznetsova Strait with a width of 49 km and depth of 146 m. Near the north-western edge of Beringa Island there are two small islets – Toporkov and Ariy Kamen'. The only settlement – Nikol'skoye (with a population of 637 as of 2015) – is situated in the north-west of Beringa Island.

The Commander Islands are washed from the west by the waters of the Kamchatskiy Strait with a depth of 4,420 m, and from the east by the Near Strait with a depth of 2,000 m. From the southern sides the islands are bordered by the Aleutian Trench. In spite of a deep underwater slope, the waters near the archipelago are shallow because the islands are surrounded by an abrasion submarine terrace with numerous stony ridges above and below the surface of the water. As a whole, the shelf zone is extensive, though at some sites a deep fall in the seabed occurs 4-5 km from the coast.

The Commander Islands are the summits of an underwater ridge and are formed by a diverse complex of tuff and basic rocks. The topography of Mednyy Island and the southern half of Beringa Island is complicated: steep hills with a height of up to 755 m alternate with narrow valleys, where short and shallow rivers flow; rocky coastal cliffs, often with small scree near the bottoms, transform into narrow stony beaches or vertical cliffs facing the sea. The northern part of Beringa Island is flat, with wide river valleys and shallow stony littorals.

The climate is maritime, moderate, and wet, with an absence of sharp contrast between the seasons; unfavourable weather with prolonged precipitation, stormy winds and fogs is typical.

Flora is boreal with Eastern-Asian features. There is an absence of trees and presence of few shrubs; the vegetation typically consists of widely distributed carpet and creeping grassy and dwarf shrub species, which have adapted for insular conditions.



South-eastern shore of Beringa Island (photo by Yu.B. Artukhin)

Since 1958, fishing and catching of other hydrobionts has been prohibited in a 30-mile maritime area around the islands. Owing to this, the waters around the Commander Islands are one of the last remaining extensive plots of shelf preserved in their natural conditions. Due to specific water dynamics, including active vertical circulation (upwelling), an exclusively favourable situation for the development of different hydrobionts is formed on shelf, including for the Walleye Pollock spawning. Rich food resources together with geographical peculiarities of the islands form conditions for the existence of a community of seabirds and marine mammals here.

The inner border of the considered territory passes along the coastline of the islands, and the outer border coincides with a 30-mile maritime area around the archipelago.



Northern shore of Beringa Island (photo by Yu.B. Artukhin)

Ornithological Importance

The high ornithological value of the Commander Islands is caused by the presence of species under the threat of extinction, and also by mass concentrations of colonial seabirds and waterfowl on their breeding, overwintering and migratory movements. The large seabird colonies are located on shores, the total number comprises about 1,000,000 specimens of 19 species. In the coastal zone tens of thousands of waterfowl overwinter – these are the northernmost mass overwintering areas for this group in the Russian Far East. Within the boundaries of the water area the nomadic movements of different migrants arriving from other regions of the World Ocean take place.

Steller's Eider. A common overwintering species of Beringa Island (on Mednyy it is practically absent), the main overwintering sites are located in the northern rim of the island. The species usually stays on shoals along the outer edge of the littoral, often among thickets of brown algae that moderate the surf wave. At the beginning of the 1990s the total population number was estimated at 8,300 specimens (Artukhin, 2003b). In the next period a steady decrease of the overwintering population took place, to 3,000 in 2013 (Belobrov, 2006; Belobrov, Artukhin, 2008; Zagrebelsky, 2010; Zakharova, Mamaev, 2014). The most significant decrease occurred in concentrations on the north-eastern shore of the island where the birds are most often disturbed by local people.

Common Eider. A common summering and overwintering species, rarely breeding. In summer the species mainly inhabits Mednyy Island, where it stays in the depths of bays near brook mouths and in large lakes. According to estimations in the late 1980s – early 1990s, the total number comprised 1,000 specimens (mainly gathering for moulting), and no more than 50 pairs began to breed (Artukhin, 1991, 1998). In winter the Common Eider inhabits not only Mednyy Island, but also the central and southern part of Beringa Island. The species is present in the coastal zone at sites with stony reefs and a wide, shallow littoral. In 1992-1993 roughly 1,000

specimens overwintered on Mednyy Island, and about 500 overwintered on Beringa Island (Artukhin, 1998, 2003b).

Harlequin Duck. A numerous overwintering and common summering species, very rarely breeding. The species inhabits waters surrounding the islands, mainly along rocky and stony parts with an indented coastline and deep in the bays near brook mouths. In summer the overwhelming majority of Harlequin Ducks are represented by immature specimens and birds, arriving from other regions for moulting; only separate pairs breed in large river valleys in the central part of Beringa Island. According to observations from 1986-1994 the population number in the middle of summer remained at 9,000 specimens. From the end of summer the number of Harlequin Ducks on the islands begins to grow; according to estimations of 1992-1993, during winter they gathered in numbers of up to 18,000-19,000 specimens on Beringa Island, without counting the other islands (Artukhin, 2003b). According to the most recent available data (Zakharova, Mamaev, 2014), the population on this island's shores had reduced by approximately 25 %.

Short-tailed Albatross. According to satellite telemetry data (Suryan et al., 2006, 2007; O'Connor, 2013; Deguchi et al., 2014) and observations from vessels (Artukhin, 2011c), the species regularly wanders in the waters around the Commander Islands. From the period of 1950 until 2013 the species was visually registered a minimum of 19 times in the direct vicinity of the islands (mainly in June – August, excluding one recording in December).

Laysan Albatross. A regular migratory species. In June – July 2004 its distribution density in the coastal zone was 1.0 specimens/km², and on the outside shelf – 1.7 specimens/km² (Artukhin, 2006).

Northern Fulmar. The most numerous species of the breeding avifauna on the Commander Islands. The species settles in colonies on precipitous seashores along the entire perimeter of Mednyy Island and in the south of Beringa Island. The breeding attempts of separate pairs are recorded on Ariy Kamen' islet. Observations during 1992-1994 indicated a population number of about 400,000 specimens (Artukhin, 1999). During summer the Northern Fulmar is spread everywhere in the waters surrounding the islands; the average number in the coastal waters can exceed 100 specimens/km², while in open waters it remains at a level of 20 specimens/km². Mass aggregations of feeding birds were observed from Mednyy Island to the Kitolovnaya shoal, near the south-eastern edge of this island and near north-western shore of Beringa Island (Artukhin, 2006).

Short-tailed Shearwater. The species belongs to the most numerous species of the summer population of seabirds. In the second half of summer in the shelf zone and seawards the distribution density is, on average, 50 and 55 specimens/km², respectively. The regions of mass concentrations coincides with those of the Northern Fulmar (Artukhin, 2006). Judging on the population density, more than 1,000,000 Short-tailed Shearwaters likely passed through waters of the islands during summer.

Pelagic Cormorant. A common breeding species, inhabiting all the main islands of the archipelago. The species primarily breeds on rocky coastal cliffs, and more seldom on islets and pillar rocks. The feeding habitats are situated in the coastal zone in the neighbourhood



*Chyornyy Cape on Mednyy Island
(photo by Yu.B. Artukhin)*

of the colonies. According to the most recent complete counts, the total number of breeding birds compiled 6,200 specimens (Artukhin, 1999), significantly smaller than the population at the beginning of the 1970s (20,000 specimens). The decline in numbers is attributable to an epizootic distributed among the birds (Marakov, 1972).

Red-faced Cormorant. A common species, breeding on all main islands of the archipelago. This species more often than the Pelagic Cormorant forms colonies of the pillar-rock type. In summer it feeds in the waters surrounding the islands. According to the latest estimation, the number of breeding birds on the Commander Islands comprised about 1,700 specimens (Artukhin, 1999). Since the end of the 19th century the size of the Commander population of this species changed dramatically – from almost complete extinction in the 1930s to 12,000 pairs by the 1970s at its zenith (Artukhin, 1991).

Glaucous-winged Gull. The only population of this species in Asia resides on the Commander Islands. The species is common and widespread across the islands. The largest nesting sites are situated on the Toporkov and Ariy Kamen' islets, where more than 80 % of breeding birds are allocated. The species breeds on small coastal islets and pillar rocks, and during recent times it has occupied the roofs of dwellings in the Nikol'skoye settlement. During a period of comprehensive counts (1986-1994) the breeding population grew from 3,750 to 10,240 specimens (Artukhin, 1999).

Red-legged Kittiwake. In Asia this species is only present on the Commander Islands, where it inhabits all the main islands of the archipelago. The species breeds together with other colonial seabirds, most often with



*Red-legged Kittiwake pair on nest
(photo by Yu.B. Artukhin)*

Black-legged Kittiwakes and guillemots. A major part of the population is located on Beringa Island, where in 1993 more than 31,500 Red-legged Kittiwakes were counted (including the Toporkov and Ariy Kamen' islets). In 1994, 800 specimens bred on Mednyy Island. Thus, the total number of this species on the Commander Islands was slightly over 32,300 specimens (Artukhin, 1999). In the sea the species is common both on shelf waters and in deeper waters. Large concentrations are observed in the region of the Kitolovnaya shoal, where birds feed from the main colonies of this species situated in the south of Beringa Island. At the same time the Red-legged Kittiwakes often fly away to also feed outside a 30-mile maritime area, both on the side of the Bering Sea and on the Pacific Ocean's side (Artukhin, 2006).

Pigeon Guillemot. The species is common and widespread on the islands. It inhabits rocky precipitous areas of the seashore, islets and pillar rocks in the coastal zone. It breeds both in colonies and in separate pairs. It occupies different natural shelters: clefts and niches in rocks, and empty spaces under stones. The population at the end of the 1980s towards the beginning of the 1990s remained at around 3,300 specimens (Artukhin, 1999).

Whiskered Auklet. This species is one of the least studied of seabird species. The main breeding sites are situated on Mednyy Island. When breeding the species occupies clefts and niches in stony taluses on rocky areas of the shores. Specific estimations of the population number are absent. The species stays in the sea, as a rule, within the limits of the shelf zone. According to observations in late June – early July 2004, the average distribution density here was 11 specimens/km², and in August – 2 specimens/km². Large concentrations of foraging birds were observed near the northern shore of Mednyy Island and on the Kitolovnaya shoal (Artukhin, 2006). Based on this data, the size of the Commander population of the Whiskered Auklet is estimated at tens of thousands of specimens.

Tufted Puffin. A numerous breeding species on each of the main islands of the Commander Archipelago. The

population is estimated at 127,000 specimens (Artukhin, 1999). The largest colonies are situated on the Toporkov and Ariy Kamen' islets, where about 90 % of this species are concentrated. The number of inhabited burrows was determined at 45,000 in the colonies on Toporkov islet, based on a special count in 1988 (Artukhin, 1989), and during an analogous count in 2007 – about 58,000 (Yu.B. Artukhin, unpublished data). During the nesting period the species is numerous in the shelf zone in the sea (on average 12-15 specimens/km²) and it is common in open waters. The highest quantity of birds is located near the north-western shore of Beringa Island, where Tufted Puffins are concentrated from two of the largest neighbouring nesting sites, and also from the colonies of the southern part of the island (Artukhin, 2006).

Use, Management

Ecological monitoring and other scientific studies are regularly conducted in the waters of the islands. The seabird concentrations are a popular attraction for tourism excursions (including cruises). The colonial seabirds were an important hunting object of the local population – in the past particularly the Commander Aleutians; at the present time this importance is lost, though on Toporkov Island humans continued to collect the eggs of the Glaucous-winged Gull (up to 3,000 per season) until the end of the 2000s. In the north of Beringa Island the habitats are selected for recreational hunting of waterfowl and shorebirds during spring and autumn. Recreational fishing and collection of invertebrates and seaweeds is allowed within the limits of the 5-mile coastal belt along the northern half of Beringa Island and on three 1-mile areas adjacent to the land buffer area of the Commander Nature Reserve on Beringa and Mednyy Islands. The provision of supplies to the Nikol'skoye settlement is conducted mainly by sea, therefore the waters near the north-western shore of Beringa Island are used by vessels for transport communication.

Existing Threats

The potential danger is the realization of plans for transforming the Commander Nature Reserve into a National Park, because the decline of its protected status could support the development of economic activity. The waters surrounding the Commander Islands, a zone of large-scale commercial fishing (allowed in near-border protected waters and illegal within its boundaries), results in bird mortality in fishing gears. The access of the local community to all-terrain vehicles leads to a disturbance of birds at the breeding and overwintering sites. There are risks of pollution in the waters in the case of extreme situations with ships and during the delivery of oil products on land. The invasive species (American Mink, Norway Rat), inhabiting Beringa Island represent a threat for seabirds.

Conservation Status

The water area is situated within the borders of the Commander State Nature Biosphere Reserve named after S.V. Marakov, which was established in 1993 on a total area of 3,648,679 ha, including 3,463,300 ha of the 30-mile protected maritime area. The Commander Islands are offered by the Government of the Russian Federation as a candidate for inclusion into the UNESCO List of World Heritage Sites.



*Tufted Puffin colony on Toporkov Island, Nikol'skoye settlement is in the background
(photo by Yu.B. Artukhin)*

Necessary Conservation Measures

Preservation of the existing nature conservation status of the territory. Strict control over the observance of the protected regime of the maritime area. It would be expedient to establish protected zones on the northern shore of Beringa Island for reducing the disturbance level for overwintering birds (Artukhin, 2003b; Belobrov, Artukhin, 2008). It is proposed to expand the protected

water area to the 1,000-m isobath for the purpose of protecting marine bioresources from being caught (Tokranov et al., 2007), and also to include the Commander Islands into the UNESCO List of World Heritage Sites. It is necessary to introduce a complete ban on hunting of waterfowl during spring.

Author-compiler: Artukhin Yu.B.

Species	Status	Survey year	Number	Estimation precision	Criteria
Steller's Eider	W	2013	2,956	A	A1, A4.1
Common Eider	B, N	1986-1994	1,000	A	A1
Common Eider	W	1992-1993	1,500	A	A1, A4.1
Harlequin Duck	B, N	1986-1994	9,000	A	A4.1
Harlequin Duck*	W	1992-1993	18,000-19,000	A	A4.1
Short-tailed Albatross	Vn	2004	10s	U	A1
Laysan Albatross	Vn	2004	100s	U	A1
Northern Fulmar	B	1992-1994	386,200	B	A4.2
Short-tailed Shearwater	Vn	2004	>1,000,000	U	A4.2
Pelagic Cormorant	B	1993-1994	6,200	A	A4.1
Red-faced Cormorant	B	1993-1994	1,668	A	A4.1
Glaucous-winged Gull	B	1993-1994	10,240	A	A4.1
Red-legged Kittiwake	B	1993-1994	32,338	A	A1, A4.1
Pigeon Guillemot	B	1993-1994	3,260	A	A4.2
Whiskered Auklet	B	2004	10,000s	U	A4.2
Tufted Puffin	B	1988-1994	127,000	A	A4.2

* Numerical data only provided for Beringa Island.

NERPICH'YE LAKE AND KAMCHATKA RIVER DELTA

16

Mean Coordinates:

56° 17' 22"N 162° 33' 09"E

Marine Area:

73,856 ha

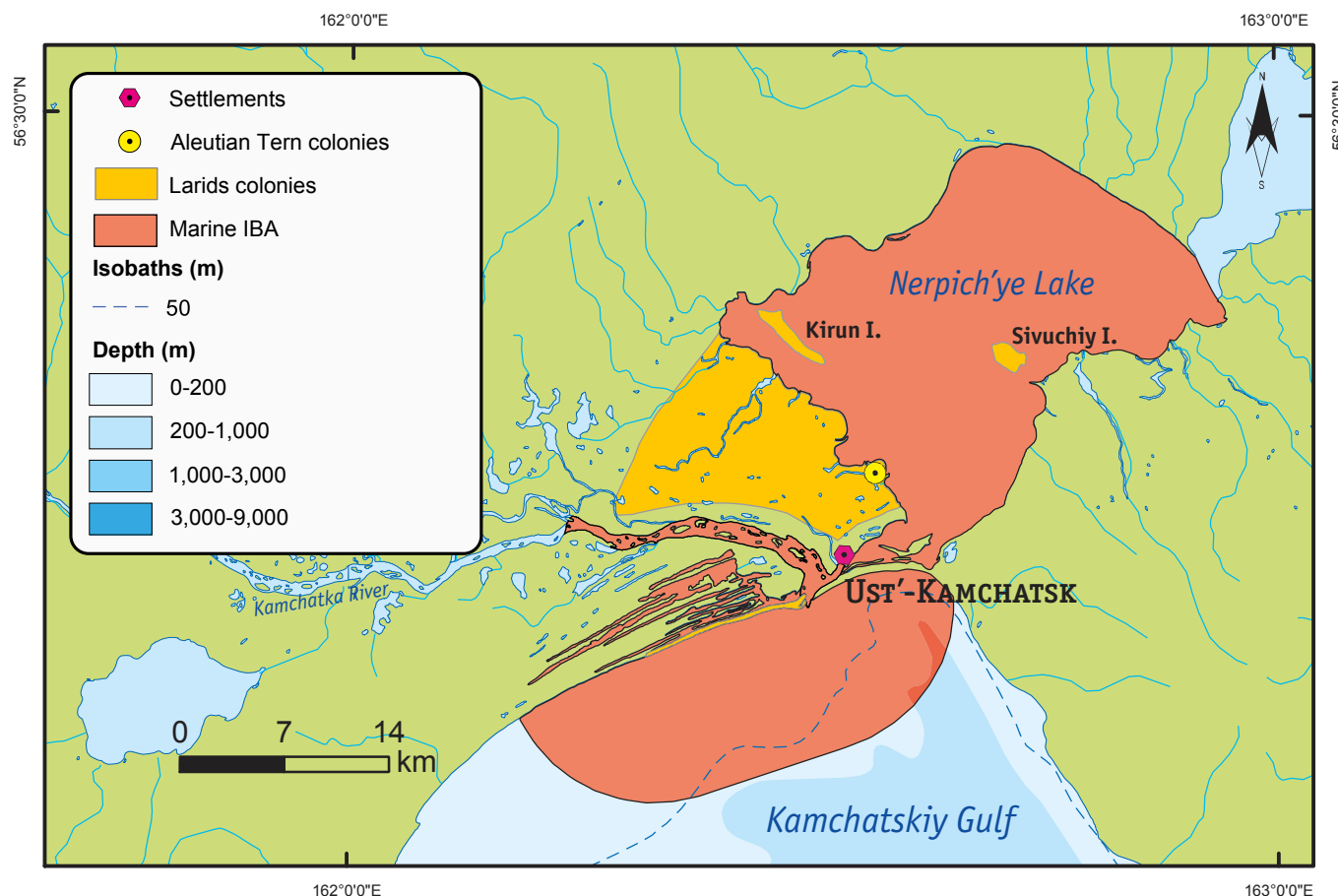
Geographical Coordinates:

56° 29' 00"N 162° 42' 41"E

56° 22' 41"N 162° 56' 50"E

56° 05' 16"N 162° 19' 17"E

56° 08' 16"N 162° 11' 06"E



Site Description

The territory is situated in the central part of the eastern shore of Kamchatka Peninsula and in the top region of Kamchatskiy Gulf. Nerpich'ye Lake was originally a sea gulf, which became isolated because of alluvia and drifts of the Kamchatka River and ebb-tidal activity of the ocean. It communicates with the Kamchatka River by means of the short Ozernaya River. With the incoming tide the Kamchatka River waters rush into the lake and as a result this water body experiences daily water level fluctuations. The lake area is 552 km². This lake is included in the described territory except for its north-eastern extension, which is the most remote part from the sea and comprises Kultuchnoye Lake. The average depth is 12 m, but its sizeable western area is shallow (less than 2 m). The lake has a joint mouth with the Kamchatka River. The lake is separated from the sea by a comparatively high sandy spit 500 m wide by about 8 km long. A major part of the plain, situated west of the lake, is occupied by sedge-sphagnum bogs and low shrubby bogs. A system of narrow lagoons up to 15 km in length, lying parallel with each other and separated by sandy spits, is situated between the Kamchatka River and the sea gulf. All the lagoons share a channel, connecting with the Kamchatka River opposite Nerpich'ye Lake mouth. The spits nearest to the gulf are covered by coastal meadows and crowberry fields, and the spits located in the depths of the land – mostly by elfin wood thickets.

The seabed in the coastal zone of the gulf is mainly flat, except for its northern part, where the gutter of Kamchatskiy Canyon comes close to the coast in the region of the eastern spit of the Kamchatka River. In the gulf there are tidal currents, causing the appearance of rips. The tides are irregular semidiurnal, with long-standing high waters of up to 2 m. Water salinity in the coastal region varies from 20 ‰ in spring to 30-32 ‰ in winter (Gorin, 2009).

The water area under consideration includes the region around the estuary of the Kamchatka River (river mouth part, Nerpich'ye Lake, and the complex of coastal lagoons) and a 10-km wide strip of sea along the coast.



Spring concentration of larids near the Kamchatka River mouth (photo by Yu.N. Gerasimov)

Ornithological Importance

The territory has a great importance for waterbirds for rest during migration period and as a habitat favourable for breeding. Since 20th April until 24th May 2011 from an observation point located on the spit separating Nerpich'ye Lake from the sea, 203,000 migratory Anatidae birds were counted belonging to 23 species. The White-winged Scoter, American Scoter, Long-tailed Duck, Greater Scaup and Red-breasted Merganser were numerous. In the period of the spring migration on the ice-free areas of lake up to 25,000 ducks were concentrated at the same time, and during the autumn migration this number increased to 100,000 (Bukhalova, Gerasimov, 2013).

In the first half of summer up to 70,000 larids concentrate in the estuary, and at the end of summer, their number, with the number of the grown new generation can reach 100,000-110,000. At the same time in this region up to 30,000-40,000 large representatives of *Larus* genus occasionally gather together, mainly immature birds or those which have lost their clutches and wandered here from other parts of the shore. At the end of summer the total number of larids, situated around the estuary of Kamchatka River can reach 150,000 specimens – this is the largest concentration of birds of this group in Kamchatka (Gerasimov et al., 2014).

Greater Scaup. A numerous breeding and passage species. During May 2012 from a permanent observation point 27,100 passage Greater Scaups were counted. However the total number of birds which migrated through this territory in spring comprised 30,000-35,000, because the count conducted on the 22nd May 2012 revealed that on this day on the western, ice-free part of

lake up to 25,000 Greater Scaups were present (Gerasimov, Bukhalova, 2013). In the autumn, tens of thousands of scaups migrate here. Thus, on the 20th-21st September 2009 on Nerpich'ye Lake 23,000-28,000 ducks of this species rested and fed. The transect counts, conducted in 2008-2014 on swampy lowland, west of the lake, suggest breeding numbers of about 2,600 Greater Scaups were evident in this region (Gerasimov et al., 2012, 2014).

Steller's Eider. A common migratory species. The spring migration passes through the coastal area of Kamchatskiy Gulf, and the species is not recorded on the lake. During May 2012 about 1,500 migratory Steller's Eiders were counted from a permanent observation point; their total number around the Kamchatka River mouth barely exceeded 2,000 specimens (Gerasimov, Bukhalova, 2013).

White-winged Scoter. A numerous migratory and rare breeding species, winters in small numbers in the coastal area of the sea. The spring migration occurs during May, in 2012 about 73,500 passage scoters were counted from a permanent observation point (Gerasimov, Bukhalova, 2013).

Long-tailed Duck. A numerous wintering and passage species. Near the mouth of Nerpich'ye Lake a large polynya persists during the entire winter. On this during 20th April 2011 (before the beginning of noticeable spring migration) about 3,200 Long-tailed Ducks stayed. During May 2012 from a permanent observation point 49,100 migratory Long-tailed Ducks were counted. The migration goes through the coastal part of Kamchatskiy Gulf, and Long-tailed Ducks do not stay on the lake at this time of year (Gerasimov, Bukhalova, 2013). During the breeding

season the species is absent excluding single non-breeding specimens.

Red-breasted Merganser. A numerous migratory and common breeding species. The spring migration occurs from the end of April until the end of May, in 2012 about 11,700 passage mergansers were counted from a permanent observation point (Gerasimov, Bukhalova, 2013).

Common Gull. A numerous species. Counts were not conducted in the migration period. In 2008 on the sea spit, situated south-west of the Kamchatka River mouth, 14,400 Common Gulls nested. The special count, conducted in summer 2011, has shown that on swampy lowland west of Nerpich'ye Lake 12,000-16,000 Common Gulls bred, and another 800-1,000 specimens nested on Kirun Island. The total number of Common Gulls, which breed in the territory under consideration, comprised 28,000-32,800 specimens in 2008-2011. Besides that, in the second half of summer in habitats around the Kamchatka River mouth, 8,000-10,000 non-breeding Common Gulls stayed in 2006 (Gerasimov et al., 2014).

Slaty-backed Gull. A numerous migratory and common breeding species. The spring migration occurs in the second half of April – May. Owing to peculiarities of bird movements in the region of the Kamchatka River mouth it was impossible to conduct the count, but undoubtedly, at least 10,000 Slaty-backed Gulls fly through here. The number of this species breeding is comparatively low – about 600 specimens. In the second half of summer around the Kamchatka River mouth up to 30,000-40,000 non-breeding large representatives of *Larus* gulls gather, among which at least a half – 15,000-20,000 – consists of Slaty-backed Gulls (Gerasimov et al., 2014).

Aleutian Tern. A common breeding species. On swampy lowland, situated west of Nerpich'ye Lake, in 2011-2014 up to 1,000 Aleutian Terns bred. Several colonies numbering from single specimens to 200 pairs were recorded here (Gerasimov et al., 2014).

Use, Management

The area of the Kamchatka River mouth is subject to more human activity than most of the shores of the Kamchatka Territory. The town-like settlement of Ust'-Kamchatsk, consisting of 3 separate parts, is situated around the estuary of the Kamchatka River and Nerpich'ye Lake. Another settlement – Krutoberegovo village – is situated on the south-eastern bank of the lake. Both

settlements at the present time officially form a single Ust'-Kamchatsk settlement with a total population of about 4,700 people. Salmon fishing using marine traps and gill nets takes place in the territory under consideration. On the spit, separating the lake from the Kamchatskiy Gulf, several fish-processing factories are situated. The Kamchatka River mouth region, including the lake, is actively using for hunting of waterfowl.

Existing Threats

Hunting, poaching, recreational pressure, disturbance factors. Navigation, including coastal fishing, at the present time is not so intensively developed, as for example, from the region of the Bol'shaya River mouth. Egg collecting in gull colonies is not intensive. Comparatively active exploitation of the Slaty-backed Gull colony has been noted on the island near the mouth of the Kamchatka River. A few Common Gull eggs are collected where fishing teams congregate. Tern egg collecting is not practised. Poaching of waders and waterfowl in habitats around Ust'-Kamchatsk is of limited extent in comparison with the majority of the other wetlands of Kamchatka.

Conservation Status

The territory does not have an official nature conservation status. Nerpich'ye Lake (an area of 50,000 ha) and lower part of Kamchatka River on an area of 80,000 ha are included in the shadow list of Ramsar habitats (Krivenko, 2000). Sivuchiy Island and Kirun Island on Nerpich'ye Lake demand the nature monument status of regional importance, that is envisaged by "Scheme of development and distribution of the Specially Protected Nature Sites of the regional and local importance of Kamchatka Territory till the year 2030", developed by the Kamchatka Branch of the Pacific Geographical Institute of the Far-Eastern Branch of the Russian Academy of Sciences. However this scheme has not yet been approved, nor adopted by the local Ministry of Nature Resources and Ecology.

Necessary Conservation Measures

Large colonies of gulls situated on Sivuchiy Island and Kirun Island demand the status of nature monument.

Author-compiler: Gerasimov Yu.N.

Species	Status	Survey year	Number	Estimation precision	Criteria
Greater Scaup	Ps	2012	27,100	A	A4.1
Steller's Eider	Ps	2012	1,500-2,000	A	A1, A4.1
White-winged Scoter	Ps	2012	73,500	A	A4.1
Long-tailed Duck	Ps	2012	49,100	A	A1, A4.1
Red-breasted Merganser	Ps	2012	11,700	A	A4.1
Common Gull	B	2008-2011	28,000-32,800	A	A4.1
Slaty-backed Gull	Pf	2006	15,000-20,000	C	A4.1
Aleutian Tern	B	2011-2014	1,000	B	A4.1

KRONOTSKIY GULF

17

Mean Coordinates:

54° 23' 25"N 160° 36' 51"E

Marine Area:

63,070 ha

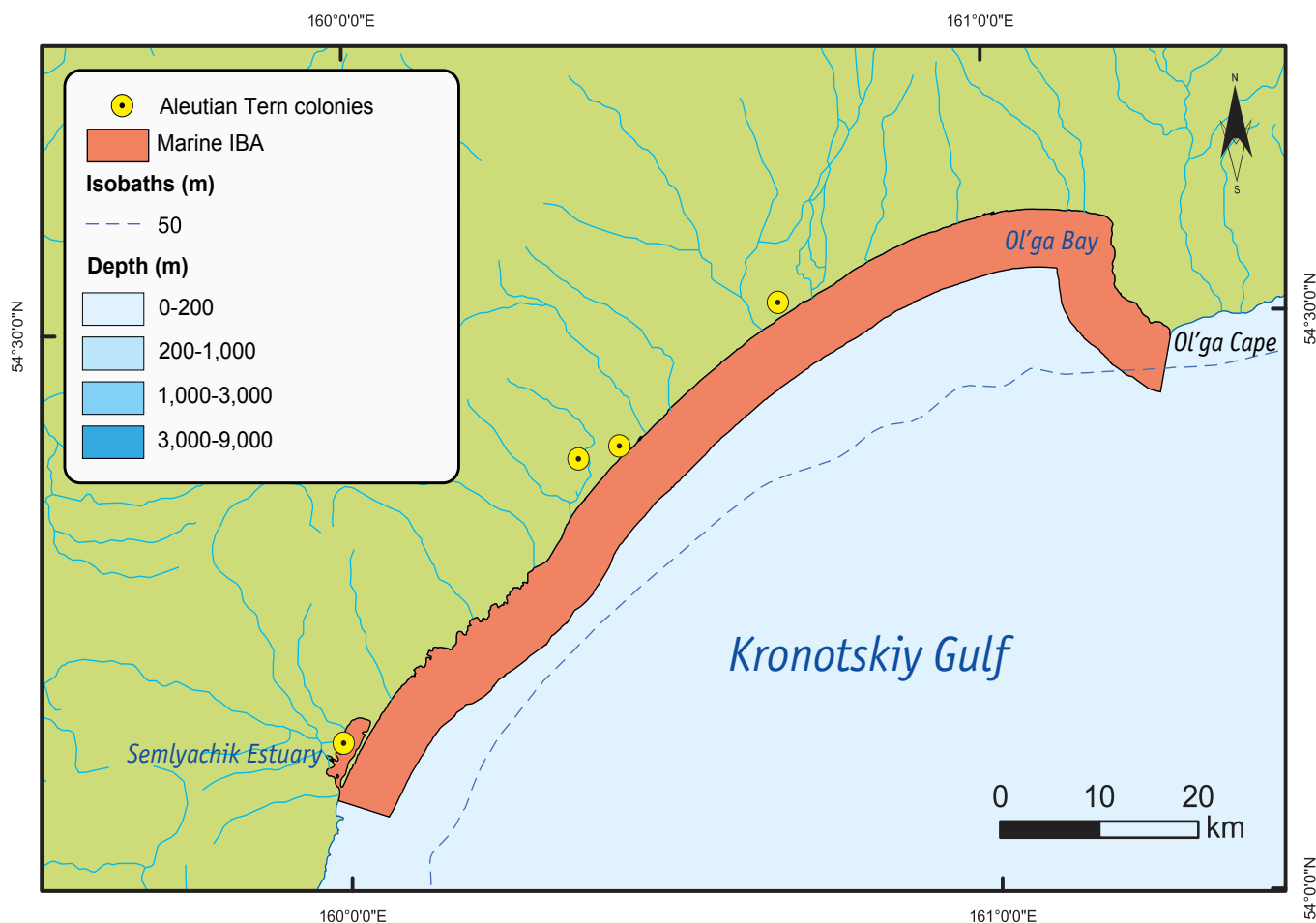
Geographical Coordinates:

54° 35' 35"N 161° 04' 07"E

54° 28' 49"N 161° 17' 01"E

54° 04' 54"N 160° 03' 29"E

54° 08' 07"N 159° 57' 44"E



Site Description

An area of the eastern shore of the Kamchatka Peninsula with its adjacent shallow coastal waters, situated in the north-western part of the Kronotskiy Gulf of the Pacific Ocean. To the very south of the territory lies the Semlyachik (Semyachikskiy) Estuary, an extensive (780 ha) shallow wetland of the lagoon type. The coastline is either sandy or composed of large, gently inclined plates of rock. At some sites the beach is covered by the large quantities of eroded rock, more or less smoothed by wave action. There are several pillar rocks and low, flat, rocky islands. The coastal belt is represented by three habitats: wet tundra-like moss-sedge bogs located in the lower regions of some rivers and on gently sloping watersheds; tall, coastal *Leymus* grass meadows; rocky costal precipices, overgrown by Erman's Birch wood.

In the territory under consideration there are two clearly different zones. The first consists of swamped microhabitats and adjacent wetlands (including the Semlyachik Estuary, the area between the Tikhaya River and Kronotskaya River, the lower parts of the Kronotskaya River and the Kronotskiy Estuary), where waterbirds nest and feed. The second is the coastal water belt, littoral zone and shallow areas where a number of seabirds and waterfowl are present all year round.

In addition to the birds it is possible to observe a considerable population of Sea Otters within the limits of Kronotskiy Gulf, and the vicinity of Ol'ga Bay is also a feeding site for a small group of Grey Whales. In all probability, peculiarities of the territory's hydrological regime support a high biomass of hydrobionts which contribute to the food chain.

The considered waters include the Semlyachik Estuary and a 3-mile maritime zone of the Kronotskiy Nature Reserve from the southern border of the protected territory to Ol'ga Cape.



*Ol'ga Bay, Kronotskiy volcano is far away
(photo by F.A. Martusov)*

Ornithological Importance

The species composition and the number of birds connected with the Kronotskiy Gulf waters vary from season to season. During nesting on the shore and in the sea there are a considerable number of Long-billed Murrelets, and several colonies of the Aleutian Tern are located here. Outside the breeding season in this territory (especially in its northern part) a number of sea ducks overwinters, mainly Long-tailed Ducks and Steller's Eiders. In spring the north-eastern area (Ol'ga Bay) becomes a site of mass concentrations of migratory waterfowl, starting with the Greater Scaup and Long-tailed Duck. During autumn, White-billed Divers stop in the coastal waters and concentrations of Short-tailed Shearwaters are known to occur. About 40 Steller's Sea-eagle pairs breed on the gulf shore.

Steller's Eider. A numerous overwintering species. The Steller's Eider concentrations in the north of the Kronotskiy Gulf were first described during the middle of the previous century. In the mid-1970s this species was regularly sighted in Ol'ga Bay during the winter months. In 2011, more than 3,500 Steller's Eiders were counted from one point at a single time. In 2012 between 4,000 to 5,000 birds of this species resided in the coastal waters of the Kronotskiy Peninsula.

Long-tailed Duck. A numerous overwintering and migratory species. It usually remains rather sparse and its numbers are difficult to estimate precisely. However, in years of extensive ice, when a comparatively small surface of open water remains, Long-tailed Ducks form large concentrations numbering several thousand specimens. Thus, in March 2010 slightly more than 20,000 Long-tailed Ducks were counted in the vicinities of the Kronotskiy Estuary. During the migration tens of thousands of this species fly through the described water area.

Aleutian Tern. A common breeding species. Several colonies are located on swamped territories, adjacent to the Kronotskiy Gulf. A complete census of all colonies in one breeding season has not been conducted. According to data collected in different years, up to 300 specimens can nest in the Semlyachik Estuary, up to 200 in several rarefied colonies between the Tikhaya and Kronotskaya Rivers, and at least 400 in the lower reaches of the Kronotskaya River (Kazanskiy, 2013). It can be said with certainty that in 2011-2014 at least 600 terns of this species nested in the vicinities of Kronotskiy Gulf, and by maximal estimations – up to 1,000.

Long-billed Murrelet. According to several coastal censuses conducted in the summers of different years, several tens to hundreds of this species stay (primarily in pairs) in the Kronotskiy Gulf during the breeding period. The species distribution is uneven and, likely depends on the neighbourhood of nesting habitats. At the beginning of July 1993, 654 Long-billed Murrelets were counted on the area from Cape Kronotskiy to Cape Pamyatnik, among them 589 specimens were situated in the coastal waters opposite the comparatively gentler coasts of the southern region of Kronotskiy Gulf (Lobkov, 2002). Results of the last counts, carried out in July 2009 and 2010, revealed that there were at least 3-4 birds of this species per 1 km of shore along the southern part of the gulf.

Use, Management

At the present time the territory is primarily used for scientific research and also for the purposes of tourist and recreational activity, which is growing in intensity.

Existing Threats

Infrastructure development of the territory, recreation load, disturbance factors.

Conservation Status

The water area in its entirety is situated in the composition of the protected territory of Kronotskiy State Nature Biosphere Reserve. The Semlyachik Estuary (on an area of 1,200 ha) is included in the shadow list of Ramsar habitats (Krivenko, 2000).

Necessary Conservation Measures

No additional measures are required while the protected regime of the Nature Reserve is observed. In the event of more intensive development of ecological tourism, measures towards regulating visitor numbers of the protected territory will likely be required.

Author-compiler: Kazanskiy F.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Steller's Eider	W	2012	4,000-5,000	A	A1, A4.1
Long-tailed Duck	W	2010-2012	20,000-40,000	B	A1, A4.1
Aleutian Tern	B	2011-2014	600-1,000	A	A4.1
Long-billed Murrelet	B, N	2009-2010	100s	U	A1, A4.2

AVACHINSKAYA BAY AND STARICHKOV ISLAND

18

Mean Coordinates:

52° 44' 01" N 158° 49' 14" E

Marine Area: 266,016 ha

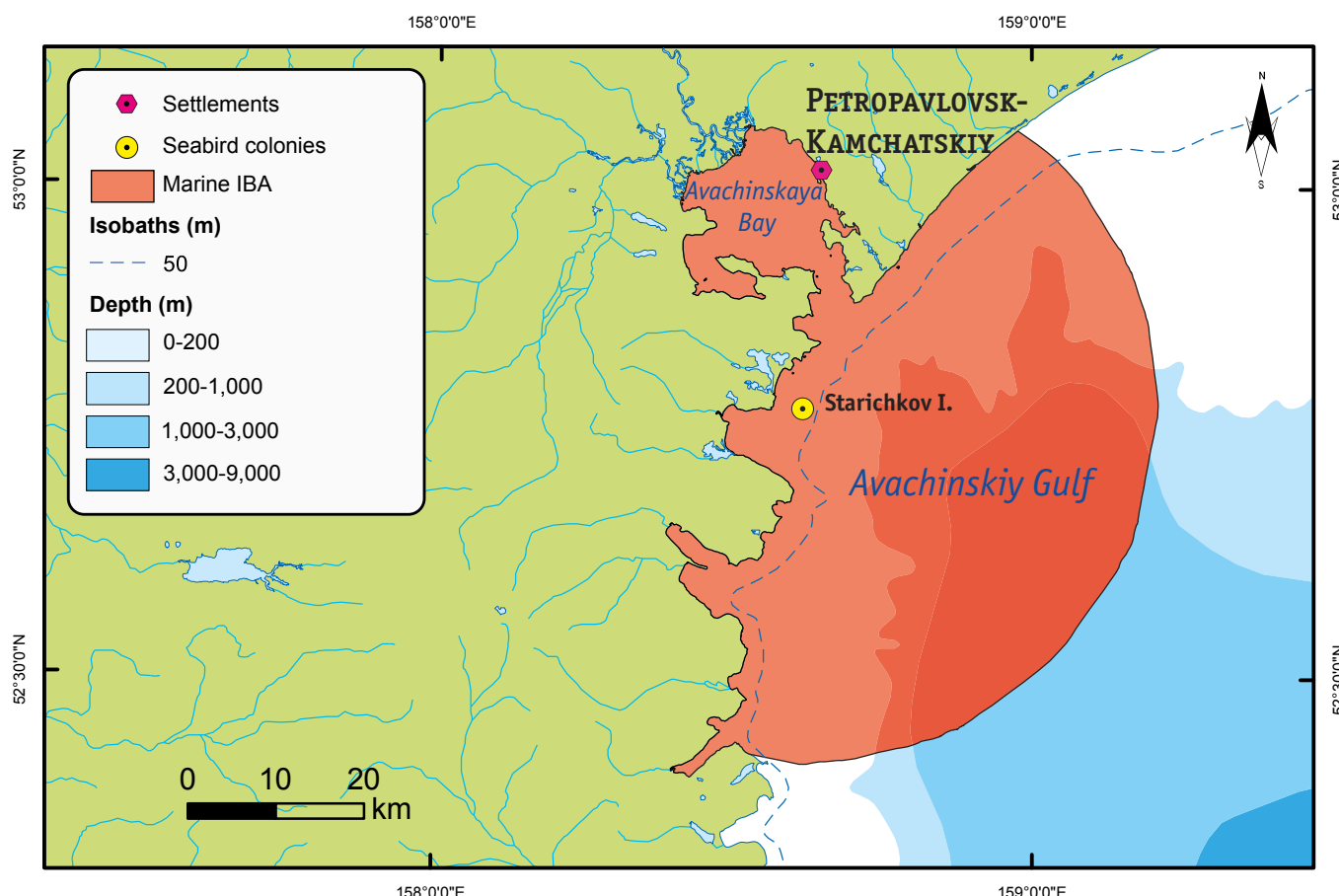
Geographical Coordinates:

53° 03' 58" N 158° 31' 22" E

52° 46' 55" N 159° 12' 46" E

52° 24' 04" N 158° 25' 41" E

52° 39' 03" N 158° 23' 12" E



Site Description

The territory includes Avachinskaya Bay and Starichkov Island – the main site for colonial seabirds breeding in the adjacent waters of the Avachinskiy Gulf.

Avachinskaya Bay is the second largest non-freezing harbour of the world. It is located on the eastern shore of the Kamchatka Peninsula and is a semi-closed gulf. One of the largest rivers of the peninsula, Avacha River, flows into its upper region. The bay area is about 238 km², its length is 24 km, its width is 19 km, and its depth reaches 27 m (deepest in the central area). The width of the strait at the entrance into the bay from the Pacific Ocean is about 3 km. The bay has volcanic origin. A major proportion of the Kamchatkan population live in towns and settlements located on the coasts of the Avachinskaya Bay and by the main rivers that flow into it (Avacha and Paratunka). The bay also has an importance for fishing: downstream and upstream migrations of wild and captive-bred Pacific salmon populations are found here (Lepsкая et al., 2014).

The Avachinskaya Bay basin is always filled by seawater, above which a thin layer of desalted water is located. The thickness and area of distribution of the desalted layer, and the temperature and salinity of water in the bay predominantly change with the seasons. Ice appears on the bay during November. The ice cover is unstable, during winter it quite often breaks up into the ocean, owing to strong winds and thaws. Within the limits of the bay the greatest amount of ice is recorded in February. In March the ice begins to deteriorate and by the second half of April it disappears completely. Crustaceans (copepods), polychaete larvae and rotifers dominate in plankton samples. The maximum prevalence of zooplankton is observed in June, while the minimum is observed in mid-July (Lepsкая et al., 2014).

In the Avachinskaya Bay waters one species of lampreys and 76 fish species of 23 families are registered. Members of Salmonidae, Osmeridae and another 8 families of benthic and benthopelagic fishes compile the fish fauna base of this water body (Tokranov, Sheiko, 2015).

Starichkov Island is located in the southern part of the Avachinskiy Gulf, 12 km from the entry into the bay. The island area compiles about 0.4 km². It is separated from Kamchatkan coast (Cape Saranny) by a 3-km strait. The flattened upper region of the island is inclined beside the ocean, and it is lifted at 147.5 m a.s.l. – the slopes are steep (30-45°) and precipitous. The coastline length exceeds 2 km. The reef outcrops and two high and rocky inselbergs and pillar rocks are adjacent to the island. The island has a volcanic origin. The depths, separating it from the Kamchatkan coast, do not exceed 10-12 m (Lobkov, 2009).

The inner border of the water area under consideration goes through the coastal line of Avachinskaya Bay and gulf of the same name, and the outer border goes around the circumference with a radius of 40 km (the average distance of foraging flights of the Tufted Puffin), drawn from Starichkov Island.



Starichkov Island (photo by V.E. Kirichenko)

Ornithological Importance

Avachinskaya Bay is an important site of wintering and stopping during seasonal migrations of tens of thousands of waterbirds. In colder times of the year, duck numbers on its waters can exceed 10,000 specimens. During migration periods the Anatidae numbers in the bay waters and adjacent wetlands considerably increase. In the second half of April to May and in September to October tens of thousands of specimens of the Greater Scaup halt here. In March, flocks of migrating Steller's Eiders appear in the bay, and in April the number of birds of this species resting and feeding in its waters reaches several thousands. Again, these ducks are recorded in the bay from the second ten-day period of November until the first ten-day period of December (Gerasimov, Gerasimov, 1998a).

Avachinskaya Bay is also significant as a breeding site of colonial seabirds. The largest colonies are located near its entrance, on Babushkin Kamen' islet, on the Tri Brata rocks, on the rocky islets near the Zavoyko Peninsula, on Cape Stanitskogo and on Cape Mayachnyy, where in total about 5,000-8,000 pairs are concentrated; most prevalently the Slaty-backed Gull, and also cormorants, guillemots and Tufted Puffins.

Starichkov Island avifauna numbers compile at least 67 bird species, including 26 breeding species. The species composition is quite diverse for such a small islet. The general appearance of the avifauna corresponds to the geographical location of the island in the coastal oceanic belt of the South-Eastern Kamchatka. The colonial seabirds dominate (Lobkov, 2009).

Considerable numbers of waterfowl migrate through the waters in spring and autumn. Counts from the observation point (on the bank of Khalaktyrskiy beach), recorded roughly 125,000 ducks from 22nd April until 20th May 2000, which have flown to the north. The main species were the Long-tailed Duck and White-winged Scoter (Gerasimov, 2001).

Steller's Eider. Commonly passes through the area. At the end of March the Steller's Eiders appear in Avachinskaya Bay, and in April their numbers reach 1,000-2,000 specimens. In smaller numbers these birds are recorded in the bay at the beginning of winter – from the second ten-day period of November until the first ten-day period of December (Gerasimov, Gerasimov, 1998a).

Long-tailed Duck. A numerous wintering and passage species. In winter months up to 10,000 specimens concentrate in the bay waters. Another concentration of up to several hundreds to thousands winter in adjacent waters of the Avachinskiy Gulf. On the wintering grounds the Long-tailed Ducks appear in October and primarily depart the bay during April (Gerasimov, Gerasimov, 1998a). During spring in the coastal waters of the Avachinskiy Gulf within the limits of the waters under consideration, there are also considerable transit migrations of the Long-tailed Ducks. In the spring of 2000 (from the observation point located on Khalaktyrskiy beach), about 54,000 ducks of this species were counted (Gerasimov, 2001).

Pelagic Cormorant. A common breeding species of the area. The number and location of the colonies on Starichkov Island drastically changes from year to year. In the period 1979-2006 the bird numbers on the island were in the tens to hundreds, but during the last count in 2008 this number exceeded 2,000 specimens (Zelenskaya, 2010).

Slaty-backed Gull. A common breeding and frequent passage species, stays for winter in small numbers (hundreds). The spring migration begins in April, and its peak is at the end of April – beginning of May. The large colony of Slaty-backed Gulls is located on Starichkov Island, the population number here during 1995-2008 varied within the limits of 3,000 to 5,600 specimens (Zelenskaya, 2010). Another several hundred pairs nest on islands and coasts of Avachinskaya Bay (Vyatkin, 1986, 2000).

Ancient Murrelet. A numerous breeding species. The large colony is situated on Starichkov Island that received its Russian name due to these birds. Due to complications during counts the population estimates strongly vary: from 7,000-13,000 specimens in 1995-2006 to 85,000 in 2008 (Zelenskaya, 2010).

Tufted Puffin. A numerous breeding species. The largest colony of the territory is situated on Starichkov Island – its sizes in 1995-2006 varied from 16,000 to 32,000 specimens, but during the last count in 2008 compiled 77,000 (Zelenskaya, 2010). Dozens of Tufted Puffins nest in Avachinskaya Bay.



Avachinskaya Bay and Petropavlovsk-Kamchatskiy city (photo by V.V. Zykov and A.V. Petrov)

Use, Management

The territory under consideration is the most developed region in terms of practical activity in the Kamchatka Territory. In the region of Avachinskaya Bay about 70 % of the population and about 80 % of industrial and economic sites of the Kamchatka Territory are concentrated. The bay is a diverse site of fishing fleets, trade fleets, transport fleets and the navy, and in different periods up to 1,000 vessels of different purposes are based. Numerous auxiliary services and ship-repair companies are located on the coasts. In the bay and gulf fishing sites are located, where commercial and recreational fishing occurs. Starichkov Island is a popular site for ecological excursions and tourism.

Avachinskaya Bay is a “natural wastewater treatment plant”, which receives the domestic, agricultural and industrial sewage waters from coastal towns and settlements, and also the ship waste and bilge water. In 2014 the minimum volume of sewage of economic-domestic and industrial waters delivered into the bay comprised 49,402,000 m³, including 13.8 % without treatment (Abrosimova et al., 2015).

Existing Threats

Development of infrastructure on the territory, pollution (domestic, agricultural and industrial sewage waters from the coastal settlements, and also ship waste and bilge waters), fishing (as undermining the forage food of birds and through their potential loss in fishing gears), poaching, recreational load, and disturbance factors.

Conservation Status

Starichkov Island, including the protected marine zone with an area of 8,400 ha, is a zoological Nature Monument of regional importance. Avachinskaya Bay on an area of about 25,000 ha is included in the shadow list of Ramsar habitats (Krivenko, 2000).

Necessary Conservation Measures

Coordination of the actions of all nature-conservation services, controlling the environment status in Avachinskaya Bay. Adhering to the protection regime of the Nature Monument “Starichkov Island”.

Author-compiler: Gerasimov Yu.N.

Species	Status	Survey year	Number	Estimation precision	Criteria
Steller's Eider	Ps	1990-e	1,000-2,000	A	A1, A4.1
Long-tailed Duck	Ps	2000	54,000	A	A1, A4.1
Long-tailed Duck	W	2007	>10,000	B	A1
Pelagic Cormorant*	B	2008	2,092	A	A4.1
Slaty-backed Gull*	B	2008	5,534	A	A4.1
Ancient Murrelet	B	2008	85,256	A	A4.2
Tufted Puffin*	B	2008	76,924	A	A4.2
* Numerical data only provided for Starichkov Island.					

UTASHUD ISLAND

Mean Coordinates:

51° 30' 03"N 157° 41' 54"E

Marine Area:

8,200 ha

Geographical Coordinates:

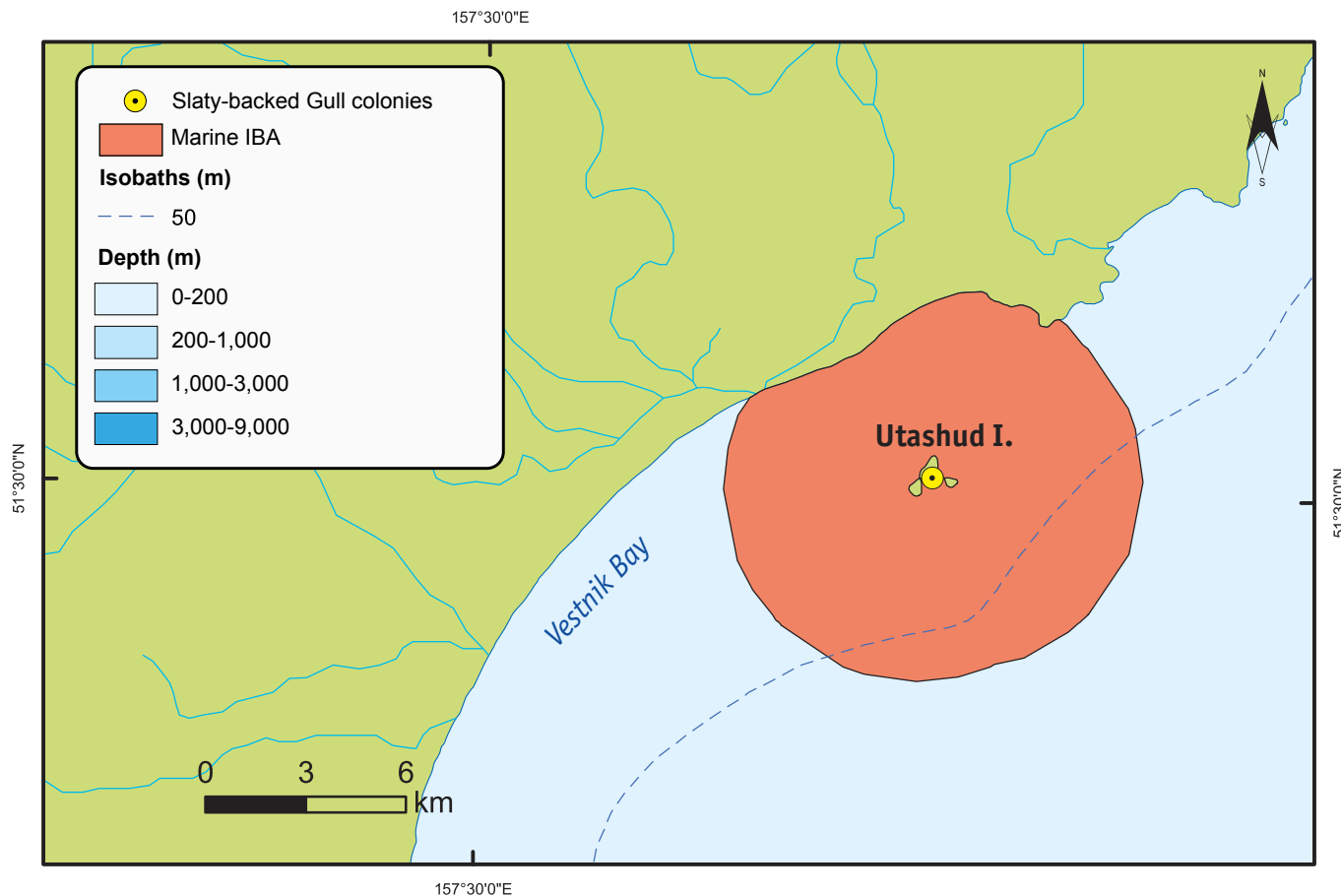
51° 33' 19"N 157° 42' 53"E

51° 30' 16"N 157° 47' 08"E

51° 27' 00"N 157° 41' 22"E

51° 30' 03"N 157° 36' 16"E

19



Site Description

A small rocky island, situated in the coastal area south-east of the Kamchatka Peninsula, almost 40 km north of its edge – Lopatka Cape. It is separated from the Vestnik Bay coast by a strait with a width of 4 km and a depth up to 20 m. It consists of two islets, separated by a strait whose width reaches 130 m during high tide and 100 m during ebb tide. The total surface area is 34 ha.

The perimeter of the large islet is 3.2 km, and its height reaches 153 m. The islet is passable along the entire coastline. A wide sandy-pebble beach is situated in the south-western side, occupied by the Larcha Seal rookery. Another islet has a perimeter of 1.5 km, and a height of 193 m. It looks like a pillar rock, similar to a hay stack with precipitous rocky cliffs. These parts of coast are practically unpassable.

The island is surrounded by reefs, upon which stones are scattered. These stones dry during ebb tide. The slopes and tops are covered by grassy vegetation.

Utashud Island is one of the richest islands on the south-eastern shore of Kamchatka. Besides seabird colonies, the rookery of Larcha Seals is also situated here. The Harbour Seals and Sea Otters occur here too. From spring until the end of the year the Grey Whales remain in the island's surrounding waters.

The outer border of the waters is drawn along a 3-mile sea border of the South-Kamchatka Game Reserve; it coincides with an average distance of the foraging flights of Slaty-backed Gulls of 6-km (this is a key species of the territory).

Ornithological Importance

The territory includes a site of mass breeding populations of colonial seabirds (13 species with total number up to 44,400 specimens). It is also a key breeding site of the Slaty-backed Gull.

Slaty-backed Gull. The breeding colonies of this species are located across a major part of Utashud Island. According to data from 1972-2011, between 6,000 to 8,000 specimens bred on the island. Fluctuations in inter-year numbers are primarily caused by predation from Brown Bears, which visit the gull colony in summer, swimming through the strait (Vyatkin, 2008, 2011).



Slaty-backed Gull colony on the north-western coast of Utashud Island (photo by Yu.B. Artukhin)

In addition to the Slaty-backed Gulls of Utashud Island, Tufted Puffins (12,000 specimens counted in 2011), Common Guillemot and Brünnich's Guillemot (6,000), Ancient Murrelets (6,000), and Black-legged Kittiwakes (1,600) breed in their numbers. The Pelagic Cormorant and Red-faced Cormorant, Pigeon Guillemot and Horned Puffin regularly settle here in their tens. In 1990-2000 a small colony of Northern Fulmars emerged on the island and remained periodically. In 2010-2011 the presence of Leach's Storm-petrels and Fork-tailed Storm-petrels was regularly recorded at night (Vyatkin, 2011). The mass migrations of the Short-tailed Shearwaters occur throughout the waters of Vestnik Bay (Artukhin, 2003c).

Use, Management

At the present time the island and its waters are only used for regular scientific research.

Existing Threats

The breaching of the Game Reserve protection regime by crews of ships that pass through the area, and poaching.

Conservation Status

The island (30 ha) and its surrounding 3-mile waters (8,200 ha) are included in the composition of the South-Kamchatka State Nature Game Reserve of federal importance (administrative subordination: Kronotskiy State Nature Biosphere Reserve). The Game Reserve is included in the UNESCO List of World Heritage Sites under the general nomination of "Volcanos of Kamchatka".

Necessary Conservation Measures

No additional measures are necessary while the protection regime of the Game Reserve is enforced.

Author-compiler: Vyatkin P.S.

Species	Status	Survey year	Number	Estimation precision	Criteria
Slaty-backed Gull	B	2011	6,000	A	A4.1

Utashud Island, view from the north-eastern side (photo by Yu.B. Artukhin)



LOPATKA PENINSULA AND FIRST KURIL STRAIT

20

Mean Coordinates:

50° 50' 55"N 156° 33' 10"E

Marine Area:

92,220 ha

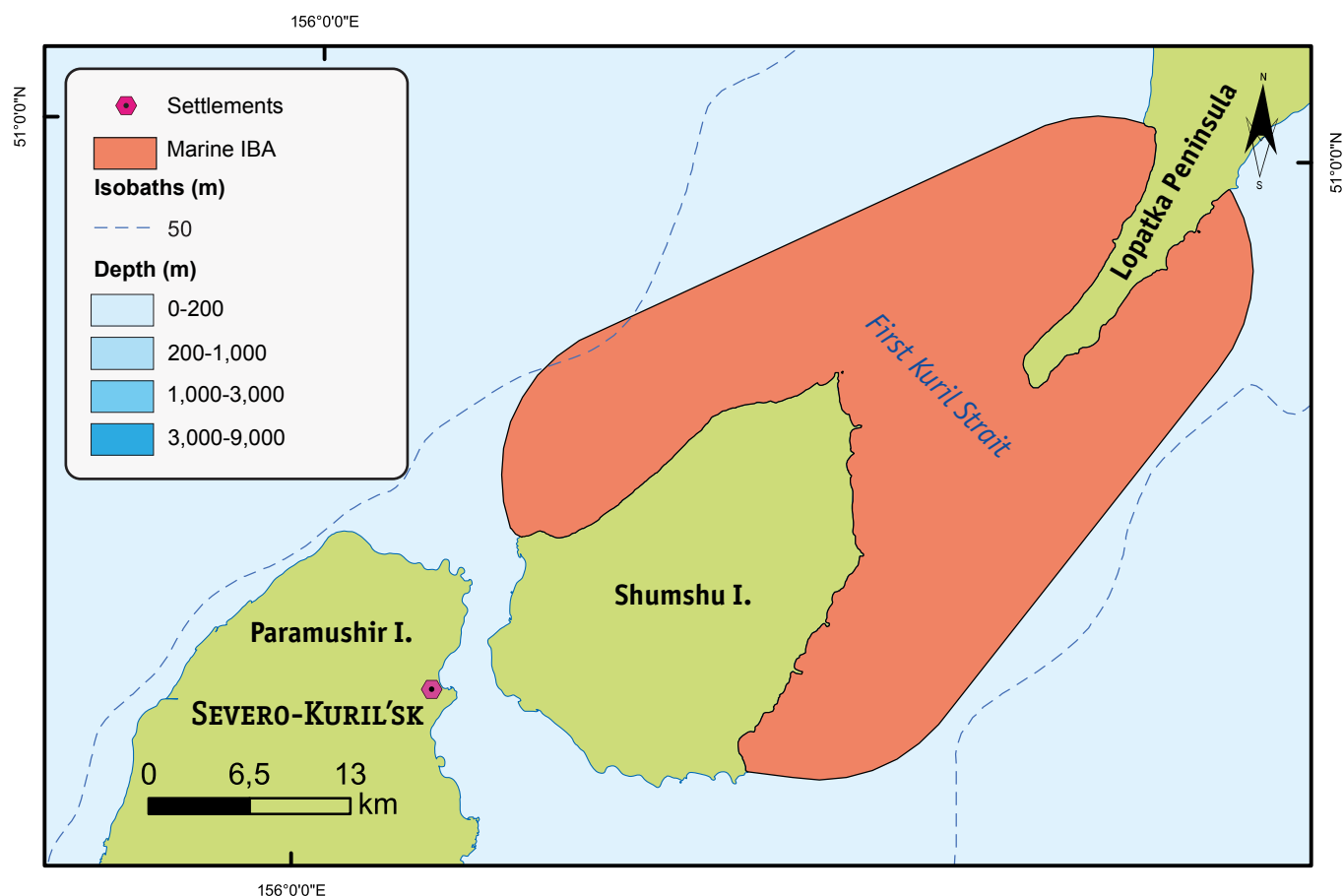
Geographical Coordinates:

51° 01' 24"N 156° 42' 45"E

50° 38' 02"N 156° 28' 40"E

50° 56' 10"N 156° 51' 32"E

50° 48' 13"N 156° 10' 40"E



Site description

Lopatka Peninsula, located on the southernmost edge of Kamchatka, is a narrow (with a width of 2-7 km) land belt, stretching more than 20 km. Its western coast faces the Sea of Okhotsk, and its eastern coast faces the Pacific Ocean. The peninsula ends at a cape (of the same name), which points towards Shumshu Island situated opposite to it (the northernmost island of the Bol'shaya Kuril'skaya/Greater Kuril Ridge) and the Pervyy Kuril'skiy/First Kuril Strait that divides them. The strait is narrow (12 km) and short, with a belt of coastal reefs. The banks are narrow and primarily sandy-pebbled, with small areas of rocky outcrops. The depths in the navigable area of the strait reach 40 m, and the stream flows at up to 5.5 knots.

Lopatka Peninsula lacks tree-shrubby vegetation, excluding creeping shrubs. The local area is more similar to subarctic landscapes by appearance: open slightly-waved relief (with a height of up to 40 m), covered by meadows reminiscent of a tundra, alternating with bare plots of pebbles, tundra lakes and extremely unstable and severe climatic conditions.

During the entire year the north-western winds dominate; often strong, with a wind speed of more than 40 m/s at any month of the year. Fogs are frequent, especially from June until August, when they occur around 22-25 days per month.

The borders of the waters under consideration cover an area in which the main movements of migratory birds occur: from Lopatka Peninsula to Chibuynny Cape and Babushkina Cape on Shumshu Island.

Ornithological Importance

The geographical boundaries of Kamchatka narrow towards the south and form the prolonged Lopatka Peninsula. This creates conditions which allow the migratory bird flows to unite in autumn – they follow the western and eastern shores of Kamchatka in a southern direction. The entrance of the bird passageway also becomes narrow, and as a result Lopatka Peninsula can be considered a migratory corridor for birds, which fly through in autumn from Kamchatka on the side of the Kuril Islands.

The waters of the First Kuril Strait are the main point, where vectors of further directions of bird migrations are forming in the southern direction. Besides that, the strait plays an important role as a corridor for bird migrations between the Sea of Okhotsk and the Pacific Ocean. Migrations and nomadic movements continue throughout the day mainly during lighter hours (particularly in the first 4 hours of sunrise) at a high altitude above land and sea. The general direction of their passage heads towards the side of the Kuril Islands, but in the region of the First Kuril Strait each bird species forms its own distinct route.

According to surveys from the observation point on Lopatka Cape, 2,100,000 specimens of waterbirds and colonial seabirds were counted between 24th August and 11th October 1987. Extrapolated data suggests about 5,000,000-7,000,000 specimens passed through this region during autumn (Lobkov, 2003).

A major proportion of the counted birds (95 %) were represented by Procellariiformes, who passed by Lopatka Cape along the First Kuril Strait: Short-tailed Shearwaters (3,560,000-4,450,000) and Northern Fulmars (440,000-550,000). The nomadic movements of each of these species took place in contrary directions, with the majority occurring from the side of the Pacific Ocean into the Sea of Okhotsk. The number of passing Short-tailed Shearwaters exceeds the known (Shuntov, 1998) estimations for this species, both in the Sea of Okhotsk, and in the Kamchatka and Kuril waters. The situation with the Northern Fulmar is analogous.

In the same period of surveying Lopatka Cape in 1987, 31,800 divers were counted, of whose number 81.6 % was made up of Red-throated Divers (about 20,000). Taking into account the known dates and duration of autumn migrations for this species, at least 80,000-100,000 specimens passed nearby Lopatka coast during autumn (Lobkov, 2003). White-billed Divers also made up a considerable proportion of the total number of divers (3,500 specimens were counted, and according to extrapolation their number reached about 10,000). These indices provide evidence that a considerable if not a major part of this species' population passes through Lopatka and First Kuril Strait during autumn.

The results of the surveys from 1987 provide a basis for the estimation of numbers of visible migrations near Lopatka, and also of other groups of waterbirds: Podicepediformes (2,000-3,000), Pelecaniformes (100,000), Anseriformes (35,000-50,000, including from 100 to 1,000 Steller's Eider specimens), Charadriiformes (820,000-1,500,000) (Lobkov, 2003).

The waters of the First Kuril Strait are a wintering site of waterbirds. Some 200,000-300,000 eiders of different species were counted during 1970 and 1971 in the strait



Meteorostation on Lopatka Cape, Shumshu Island and Alaid volcano on Atlasova Island are in the background (photo by I.P. Shpilenok)

and along the shores of Shumshu Island and Paramushir Island (Voronov, 1972). In their highest numbers during this period they were concentrated on an 8-10 km² plot near Lopatka Cape, and the total number of wintering birds in this region was estimated at about 1,000,000 specimens (Long-tailed Ducks, eiders, Common Goldeneyes). At the present time (according to survey data from 2011-2013) hundreds to several thousands of birds reside in the strait waters during winter, including about 150 Steller's Eiders, hundreds of Long-tailed Ducks and Harlequin Ducks, and up to one thousand of cormorants and other species (Lobkov et al., 2015b).

The Lopatka Peninsula and First Kuril Strait are important locations in the Kamchatka area and for entire north-eastern shore of Asia in general for regular migrations of not only waterbirds and seabirds, but of terrestrial birds too. In the period from 24th August until 11th October 1987, 52 terrestrial bird species were registered as migrants. Extrapolation of the survey results for autumn reveals that 6,700-8,300 birds of prey and 420,000-454,000 passerines fly through here (Lobkov, 2004).

Use, Management

Lopatka Peninsula is a protected natural territory in the composition of South-Kamchatka Federal Game Reserve. It is therefore a major part of the peninsula not currently used for practical needs, and only Lopatka Cape and its vicinities can be considered insignificantly used territories. Buildings including lighthouses and a hydrometeorological station are situated here are used year round, and there is a permanent station for studying the Game Reserve which is visited episodically. There is also evidence of past activity in this territory of the peninsula: the roads and old military fortification constructions remain.

An analogous situation is evident in the northern part of Shumshu Island: only a border station on Kurbatova Cape is situated here, but traces of military actions during the Second World War are evident.

First Kuril Strait is using for ship navigation.

Existing Threats

At the present time there are no visible threat factors in the territory. It is possible to suggest the potential for seawater pollution by ships, and other threats such as poachers, disturbance factors and impact of the natural reasons on the natural complexes. The extent of these threat levels (both separately and combined) can be



Short-tailed Shearwater (photo by Yu.B. Artukhin)

estimated as low. These factors can hardly have a negative impact on the role of the territory as a migratory bird corridor, because the migrations are mainly in transit.

Conservation Status

The entire land within the borders of Lopatka Peninsula and a coastal 3-mile water area are included in the composition of the South-Kamchatka State Nature Game Reserve of federal importance (Administrative subordination: Kronotskiy State Nature Biosphere Reserve). The Game Reserve is included in the UNESCO List of World Heritage Sites under the general nomination "Volcanos of Kamchatka". A 15,000 ha area of the First Kuril Strait appears on the shadow list of the Ramsar habitats (Krivenko, 2000).

Necessary conservation measures

Conduction of ecological education among crews of marine ships, among staff members of lighthouses and the hydrometeorological station on Lopatka Cape, and among military personnel of the state border station on Kurbatova Cape.

Author-compiler: Lobkov E.G.

Species	Status	Survey year	Number	Estimation precision	Criteria
Red-throated Diver	Pf	1987	80,000-100,000	A	A4.1, A4.4
White-billed Diver	Pf	1987	10,000	A	A1, A4.1, A4.4
Northern Fulmar	N, Vn	1987	440,000-550,000	A	A4.2, A4.4
Short-tailed Shearwater	N, Vn	1987	3,560,000-4,450,000	A	A4.2, A4.4



Lighthouse on Lopatka Cape (photo by I.P. Shpilenok)

BOL'SHAYA RIVER ESTUARY

21

Mean Coordinates:

52° 31' 29"N 156° 14' 27"E

Marine Area:

39,230 ha

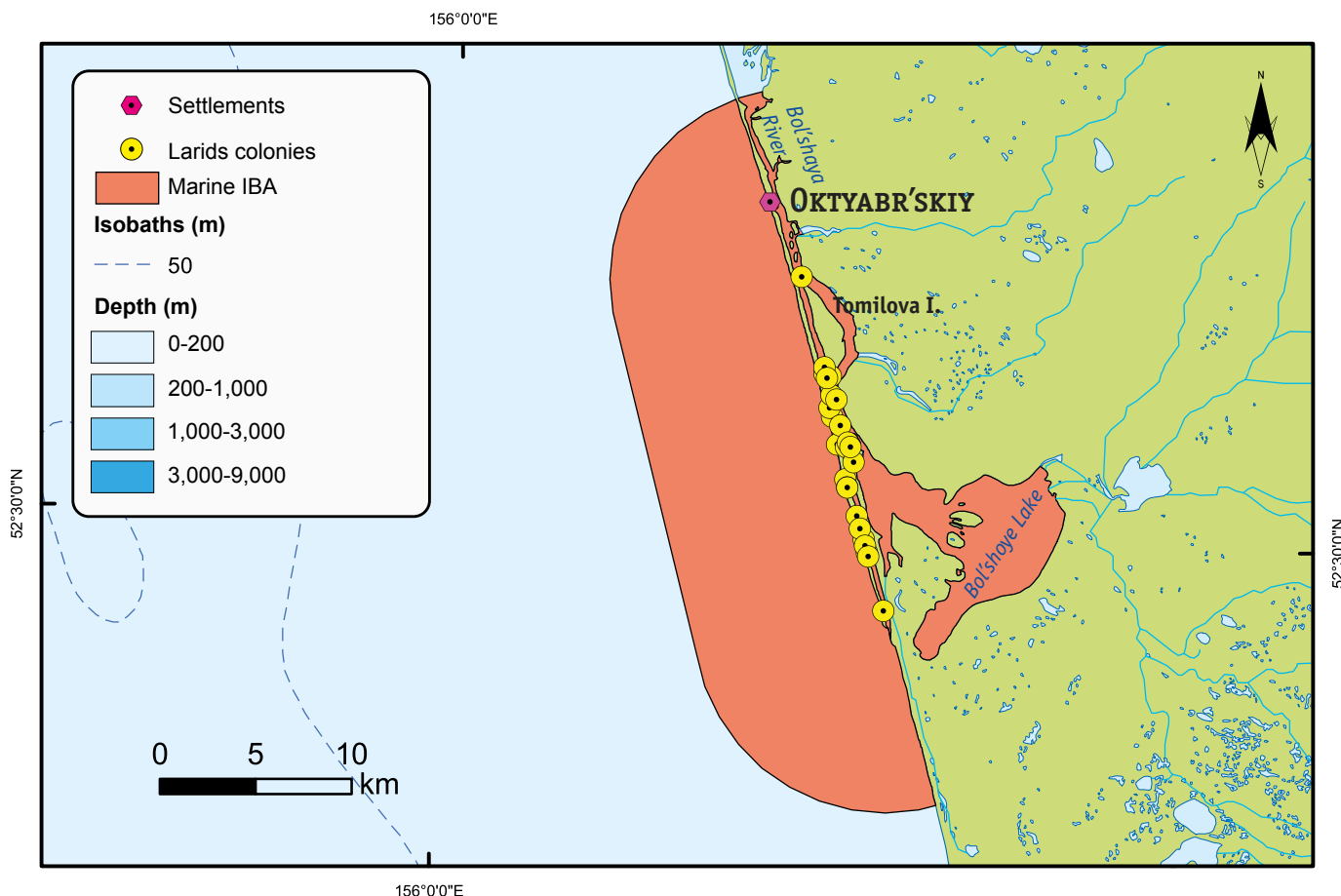
Geographical Coordinates:

52° 42' 10"N 156° 12' 44"E

52° 22' 33"N 156° 23' 10"E

52° 22' 17"N 156° 20' 51"E

52° 36' 59"N 156° 07' 14"E



Site Description

Bol'shaya River, the largest river in the south-western part of Kamchatka, has a length of 275 km and water area of 10,800 km². Near the site in which this river flows into the Sea of Okhotsk it forms an estuary. Its total length comprises more than 30 km, and its width predominantly does not exceed several hundred meters – only in its northern region does the width reach 1.5-2 km. The estuary is separated from the sea by a narrow sandy spit with a width of 300-500 m. As a continuation of the estuary in the southern part is shallow Bol'shoye Lake of the lagoon type (water surface area – 53.5 km²), that fills up during the rising tide with salt water. The average depth of the water bodies reach 1-2 m, but maximal depths reach 5-7 m. The mouth of the estuary is shifting to the south at a rate of 150 m per year. In this process the spit is becoming narrower and it is increasingly likely that it will be breached. The seawater salinity levels near the river mouth change from 20-22 ‰ during floods, to 33 ‰ in winter (Gorin, 2009).

The water area under consideration includes the Bol'shaya River Estuary and coastal belt with a width of 10 km.

Ornithological Importance

The region of the Bol'shaya River mouth is an important site for halting and feeding waterbirds. A total of 445,000-765,000 Anatidae birds of 27 species were counted here from the observation point during one spring. The most numerous were (in thousands of individuals): American Scoters – 255, White-winged Scoters – 193, Long-tailed Ducks – 186, Common Teals – 91, Greater Scaups – 58, Pintails – 32, Eurasian Wigeons – 30, and Red-breasted Mergansers – 11. The main proportion of sea ducks fly over the shore in transit, stopping only for rest and feeding (Gerasimov, 1997, 2002b; Gerasimov, Zavgarova, 2008; Gerasimov et al., 2008).

Towards the end of the spring passage into the beginning of the fishery season for salmonids on the estuary, many thousands of immature gulls concentrate on Bol'shoye Lake and on the seaside of spit (in addition to the birds that remain here for breeding).



Bol'shaya River Estuary
(photo by Yu.B.Artukhin)

In the habitats of several large colonies, tens of thousands of Laridae birds breed, including 6,000-7,000 Common Gulls, 5,000-6,000 Slaty-backed Gulls, 2,000-3,000 Common Black-headed Gulls, 6,000-8,000 Common Terns, and 1,000-1,400 Aleutian Terns. The count, carried out over the entire length of the spit during 21st July 2009, has shown that more than 66,500 larids resided on the spit and estuary at this point, including 25,000 Common Gulls, about 25,000 Slaty-backed Gulls, 3,500 Common Black-headed Gulls, 3,000 Black-legged Kittiwakes, 8,000 Common Terns, 500 Arctic Terns and 1,500 Aleutian Terns (Zavgarova et al., 2010).

Slaty-backed Gull. A numerous migratory and breeding species. Population counts, conducted from the stationary observation point from 2nd to 27th May 1993, illustrated that during this period over 14,000 Slaty-backed Gulls flew by towards the north along the coast. Taking into account that this species' migration begins near the south-western shore at the beginning of April, the total number of gulls flying past should exceed 20,000 (Zavgarova et al., 2011). The large nesting colony, encompassing 5,000-6,000 specimens, is situated on Tomilova Island located near the site

where the Vtoraya Rechka River flows into the Bol'shaya River. Tens of thousands of Slaty-backed Gulls halt in July to October on the spit and estuary. As a result, during 21st July 2009 up to 25,000 stayed here, and during 26th-27th October 2012 – 33,000 birds of this species were present.

Aleutian Tern. A common breeding species. During spring in the territory of the habitat it appears in mid-May. On the sandy spit separating the Bol'shaya River Estuary from the Sea of Okhotsk, around 1,000-1,400 specimens are nesting in separate years – in spite of considerable anthropogenic pressure (Zavgarova et al., 2010). The location of the colonies and the total number of breeding birds varies considerably from year to year. The last of the juvenile birds begin to fly in the first days of August. The autumn migration occurs during August and finishes at the beginning of September.

Use, Management

The Oktyabr'skiy settlement is located in the middle of the spit with a population of about 1,700 people. Coastal fisheries are intensely developed in this region; in summer there are dozens of teams based on the spit, fishing for salmon using marine traps and gill nets. Several fish-processing plants are located on the spit. This region is a popular site for recreational fishing and hunting of waterfowl.

Existing Threats

The development of infrastructure on the territory, hunting, poaching (egg collecting and illegal hunting), recreational pressures, disturbance factors, predation by domestic dogs in the vicinities of fishermen's camps.

Conservation Status

Absent.

Necessary Conservation Measures

Control over hunting rules and struggles with territory contamination, including pollution from oil products.

Author-compiler: Gerasimov Yu.N.

Species	Status	Survey year	Number	Estimation precision	Criteria
Greater Scaup	Ps	2009	58,000	A	A4.1
American Scoter	Ps	2009	255,000	B	A1, A4.1
White-winged Scoter	Ps	2009	193,000	B	A4.1
Long-tailed Duck	Ps	1993	186,000	B	A1, A4.1
Red-breasted Merganser	Ps	2009	11,000	A	A4.1
Slaty-backed Gull	Ps	1993	>20,000	B	A4.1
Slaty-backed Gull	B	2009	5,000-6,000	B	A4.1
Slaty-backed Gull	Pf	2012	40,000-50,000	C	A4.1
Aleutian Tern	B	2009	1,000-1,400	B	A4.1

MOROSHECHNAYA RIVER

22

Mean Coordinates:

56° 49' 18"N 156° 04' 11"E

Marine Area:

30,863 ha

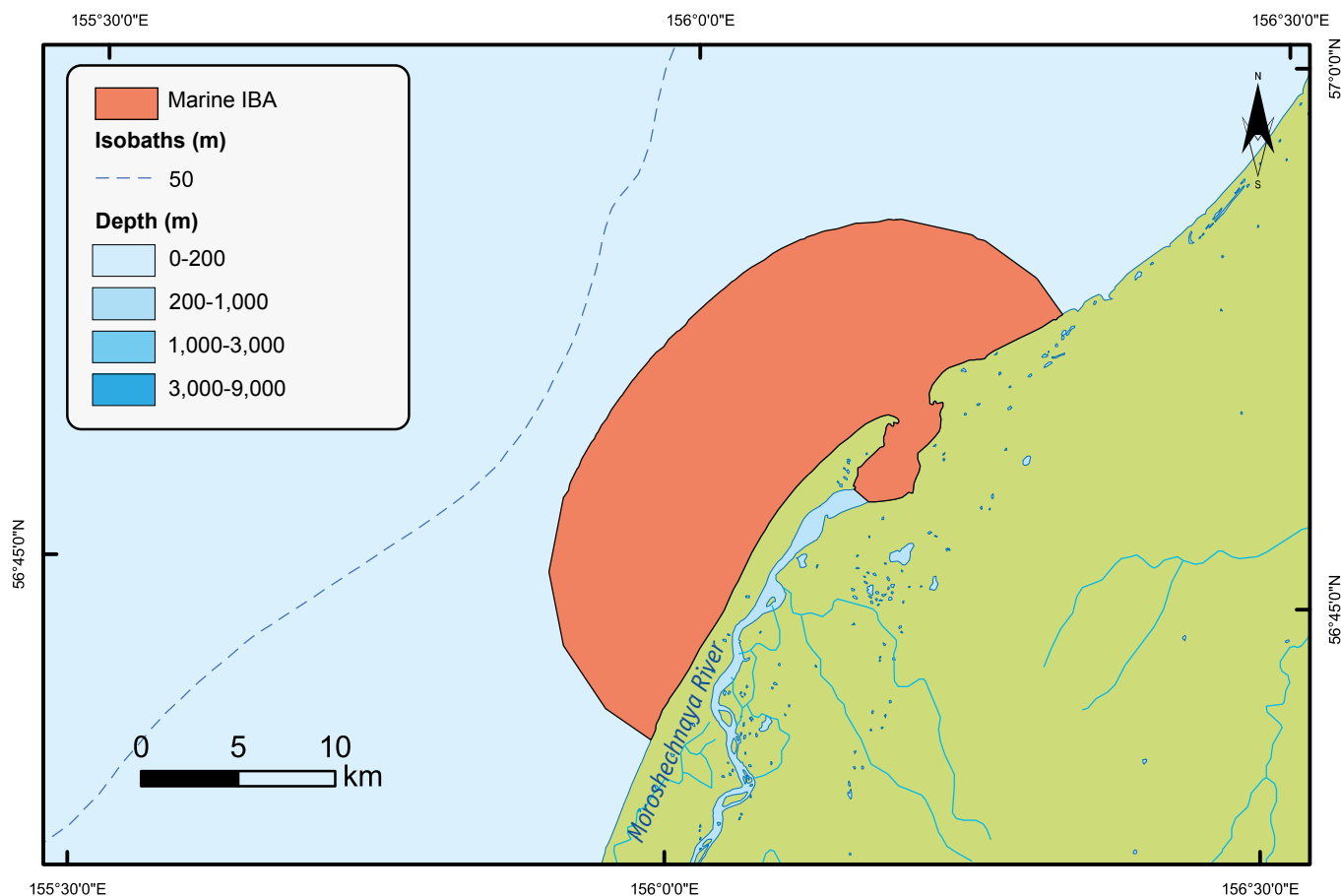
Geographical Coordinates:

56° 55' 22"N 156° 10' 37"E

56° 52' 55"N 156° 18' 58"E

56° 40' 39"N 155° 59' 03"E

56° 45' 11"N 155° 53' 32"E



Site Description

The Moroshechnaya River is located in the central part of Kamchatka on the shore of the Sea of Okhotsk. The river is about 270 km in length, and the area of its river basin measures 5,450 km². In its lower reaches the river flows along coast from south to north and is separated from it by a long and narrow sandy-pebble spit with a width of almost 2 km. The water level during spring floods and summer-autumn floods can rise by 2-3 m. During high tide the flow of the river is reversed by some tens of kilometres from the river mouth. During ebb-tides a major part of the lagoon and the coastal sea belt with a width of 500-700 m dries and forms extensive sandy and silty shoals. Under the impact of the river and ebb-tide streams, the river bed and shoal boundaries strongly vary from year to year.

The area towards the lower reaches of the Moroshechnaya River is a typical plot of the coastal lowlands of Western Kamchatka, here a boggy tundra with numerous lakes of varying sizes dominates.

The water area under consideration includes the Moroshechnaya River Estuary and the sea belt with a width of 10 km.

Ornithological Importance

This is an important concentration site of waterbirds during migratory, breeding and moulting periods (Gerasimov, Gerasimov, 2010). In spring, passages of up to 300,000 waders, 45,000 dabbling ducks, 250,000 diving ducks, and 80,000 gulls of the *Larus* genus stop here. During summer about 200 pairs of Tundra Bean Geese breed and up to 7,000 Middendorff's Bean Geese moult in the habitats. A number of waterbirds also concentrate during the period of their autumn migrations.

Greater Scaup. A common breeding and numerous migratory species. The spring migration occurs in waves during May. The majority of birds move to the north by the coastal area, but near the mouth of the lagoon concentrations of 2,000-3,000 Greater Scaups are recorded. In 1975-1990 the population counts during the spring migration compiled 22,000-74,600 specimens (Gerasimov, Gerasimov, 2011, 2012a).

Steller's Eider. A common migratory species. In spring a majority of eiders migrate at a distance of several kilometres from the coast, therefore it is not always possible to reliably identify the species. During one season it was possible to count up to 1,700 eiders of all species, whose majority were purportedly Steller's Eiders (Gerasimov, Gerasimov, 2011).

White-winged Scoter. A numerous migratory species. The spring migration occurs during May, and the maximal count reported 153,700 specimens (Gerasimov, Gerasimov, 2011). The migratory flocks pass through and feed in the coastal part of the sea; they rarely visit the lagoon in the river mouth.

Long-tailed Duck. A common wintering and numerous migratory species. In colder periods of the year, up to several thousands of Long-tailed Ducks remain in the open sea by the shore. In May of 1990 during spring time, 25,200 birds were counted flying in a northern direction (Gerasimov, Gerasimov, 2011, 2012a).

Red-breasted Merganser. A common migratory species. The spring migration primarily occurs during May. Maximal numbers, counted during one spring migration, comprised of 6,700 specimens (Gerasimov, Gerasimov, 2012a).

Red-throated Diver. A common breeding and numerous migratory species. During spring of 1990 in the period from 3rd May until 9th June, 22,700 divers were counted in the coastal area, who flew by in a northern direction. Their vast majority (over 90 %) consisted of Red-throated Divers (Gerasimov, Gerasimov, 1998b).

White-billed Diver. A common species in the spring migration period, the details of the autumn passage are absent. In spring of 1990 from 3rd May until 9th June, 450 White-billed Divers were counted in the coastal area, who also flew by in a northern direction. At this stage the migration was evidently incomplete, because for 3 hours on the morning of 12th May another 50 birds flew by (Gerasimov, Gerasimov, 1998b).

Common Gull. A common breeding and numerous migratory species. In the spring of 1990 during May, 32,300 birds flying to the north were counted. During summer and the beginning of autumn near the river mouth, Common Gull concentrations of up to 3,000 specimens can be observed.

Slaty-backed Gull. A common breeding and numerous migratory species. In the spring of 1990 during May, 23,300 birds flying to the north were counted (Gerasimov, Gerasimov, 1999). In summer and at the beginning of autumn near the river mouth, Slaty-backed Gull concentrations with a size ranging from several hundreds to up to 2,000 specimens can be observed.

Use, Management

The fishing plots are located in the Moroshechnaya River mouth, where in July – August commercial salmon fishing is carried out with haul and gill nets. Recreational hunting of waterfowl is conducted in the habitats. As a whole, due to its remoteness from settlements and difficult access, the territory has comparatively weak traces of anthropogenic transformations in comparison with other plots of the western shore of Kamchatka.

Existing Threats

Development of infrastructure in the territory, hunting, poaching, recreational pressures, and disturbance factors.

Conservation Status

During 1974 near the mouth of the Moroshechnaya River, the regional zoological Game Reserve was established. In 2002 its activity was not prolonged due to the absence of funds for the state expertise. The Game Reserve had belonged to those grouped under the Specially Protected Nature Sites. During 2009 in connection with the forthcoming deadline, this status expired and the "Moroshechnaya River" Game Reserve was liquidated. In 1994 by order of the Russian Federation Government, the basin of the lower part of the Moroshechnaya River encompassing an area of 219,000 ha was included in the list of wetlands of international importance (Krivenko, 1998).

Necessary Conservation Measures

The return of an official nature conservation status to the territory, as a minimum of the game reserve of regional importance (Gerasimov, Gerasimov, 2012b).

Author-compiler: Gerasimov Yu.N.

Species	Status	Survey year	Number	Estimation precision	Criteria
Greater Scaup	Ps	1975-1990	22,000-74,600	A	A4.1
Steller's Eider	Ps	1975-1990	>1,000	C	A1
White-winged Scoter	Ps	1975-1990	50,000-153,700	B	A4.1
Long-tailed Duck	Ps	1975-1990	10,000-25,200	B	A1, A4.1
Red-breasted Merganser	Ps	1975-1990	2,300-6,700	A	A4.1
Red-breasted Diver	Ps	1990	>22,000	B	A4.1
White-billed Diver	Ps	1990	>500	B	A1, A4.1
Common Gull	Ps	1990	32,300	A	A4.1
Slaty-backed Gull	Ps	1990	23,300	A	A4.1

KHALPILI ISLANDS AND IMPOVEYEM BAY

23

Mean Coordinates: 61° 16' 02"N 159° 33' 24"E

Marine Area: 362,312 ha

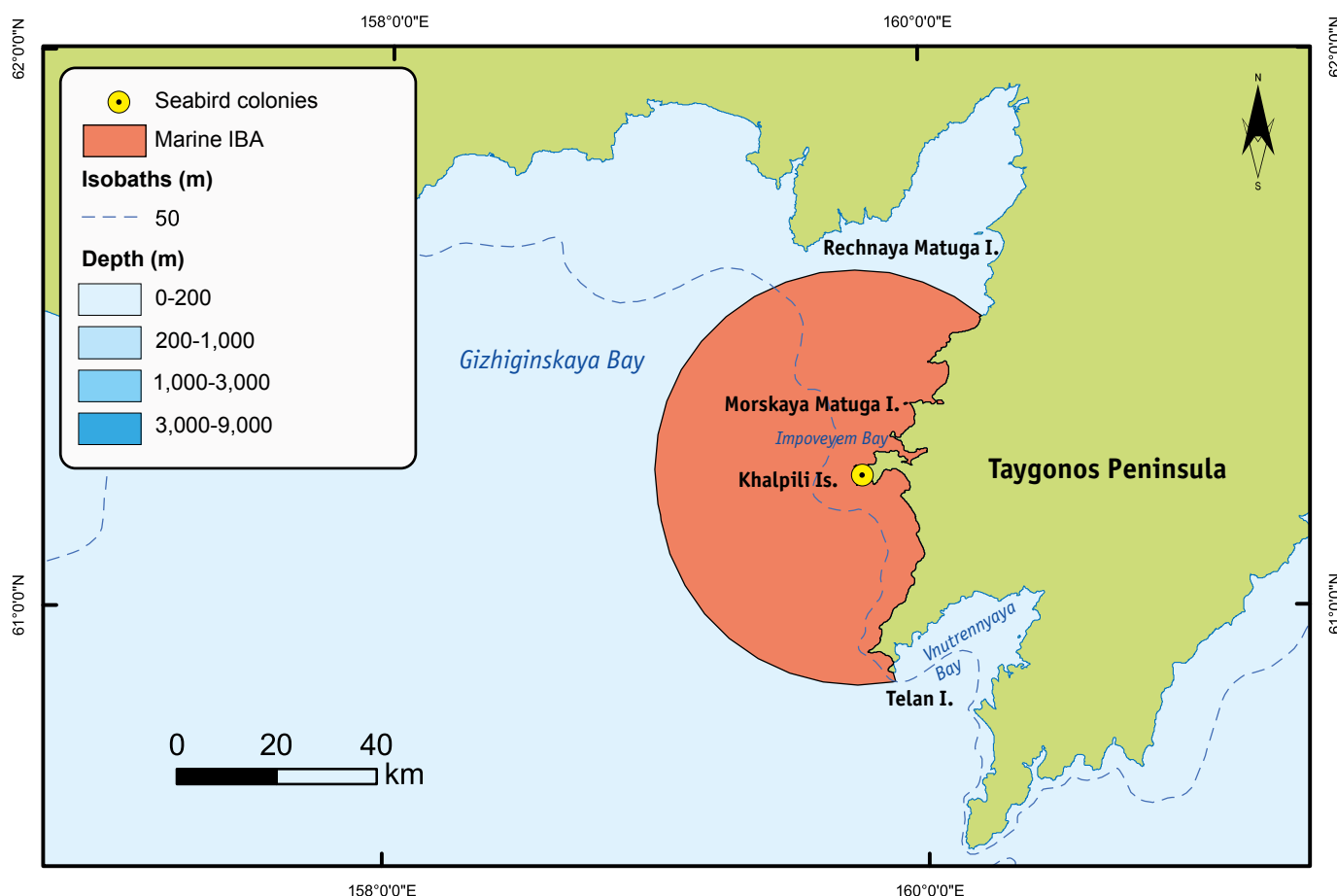
Geographical Coordinates:

61° 37' 09"N 159° 45' 05"E

61° 32' 00"N 160° 13' 41"E

60° 52' 22"N 159° 44' 46"E

61° 15' 45"N 158° 59' 50"E



Site Description

An area of rocky coast of the Taygonos Peninsula with the deeply indented Impoveyem Bay, the coastal waters and neighbouring Khalpili Islands. The western shore of Taygonos Peninsula is formed by extensive and gently sloping plains, which are the foothills of the Taynynotskiy mountain ridge. These plains terminate at the sea, in mountainous cliffs 50-60 m high, coloured by yellowish-ochreous tones. Within the borders of this territory the coast is entirely bordered by reefs, low islets and pillar rocks. Low down in the bays there are stretches of narrow pebble beach, but everywhere stony shoals and pillar rocks arise out of the sea. At several sites the battered edges of capes are transformed into islets lying separate from the reef, which during ebb-tides connect with the coast by a narrow belt of land. Among similar formations, the largest are Telan Island and Morskaya Matuga Island. In the majority of cases the islets and pillar rocks have flat tops, overgrown by reedgrasses or ragworts. In the western part of the Taygonos Peninsula the foothill plain drains via the Impoveyem River, which reaches the sea through a wide valley adjoining Impoveyem Bay – a shallow sea lagoon with a length of about 5-7 km and a width of 2-3 km. During ebb tide along the extensive shoreline of this bay, abundant silty-sandy littorals and rocky shoals are exposed.

Two islets, comprising together the miniature Khalpili Archipelago, are situated 10 km to the south of Impoveyem Bay and are separated from the cape of the same name by a strait 1.2-1.7 km wide with a depth of 25-30 m. The flat-topped northern Khalpili Island measures 600 m from north to south, and 200 m from west to east, and is up to 40 m high. The sharply topped southern Khalpili Island reaches a height of 103 m, while its length is about 300 m and width about 200 m.

The tides in Gizhiginskaya Bay have a cycle of about 24 hours. In Impoveyem Bay their amplitude reaches 9.5 m. Fairly strong ebb-tide streams with rips develop near the capes and in the outer parts of the bays. In July – August high water levels are at night and in the early morning. In the second half of the day along the peninsula coasts, extensive sandy-silty flattish areas of the sea bottom adjacent to the shore which is exposed at low tide and stony littorals with *Fucus* algae thickets, numerous gastropods, banks of mussels and balanuses become exposed too. On eroded ground in the upper part of Impoveyem Bay, Marine Eelgrass thickets grow, together with a rich fauna of benthos invertebrates –



Impoveyem Bay (photo by A.V. Andreev)

bivalves, polychaetes, decapods (hairy crabs, hermit crabs, different shrimps) etc.

In June – July, the weather is generally windy, and often stormy. Southern winds predominate, bringing low clouds, and frequent fogs and drizzle which penetrate 5-8 km inland. The sea temperature in the coastal belt of the Taygonos Peninsula is considerably higher than on the Koni-P'yagina shore: at the end of July – August it reaches +12-14 °C (Andreev, 2012).

The border of the territory under consideration goes at a distance of 40 km from the Khalpili Islands (the average distance of foraging flights of the Common Guillemot).

Ornithological Importance

The largest nesting sites of colonial seabirds (guillemots, Black-legged Kittiwake) in Shelikhova Gulf are situated on the western protrusion of the Taygonos Peninsula and the Khalpili Islands. The total number of seabirds in this area reaches 300,000 specimens; in Impoveyem Bay and the neighbouring bays considerable concentrations of sea ducks (Common Eiders) and Slaty-backed Gulls are to be found (Andreev, 2012).

Common Eider. At the end of July 2008, broods and flocks of eider were recorded along the entire western coast of the Taygonos Peninsula. Considerable concentrations of moulting eiders, mainly males, can be observed in Impoveyem Bay. In its southern part roughly 700 males were present, and in the northern sector there were up to 100 females. Near the top of the bay, numerous broods with large chicks were sighted, gathered together in "kindergarten", in total about one hundred birds. Further northwards, in the bays between Impoveyem Bay and Rechnaya Matuga Island, flocks of moulting eiders were sighted constantly (in total 980 birds). Flock numbers varied from 20 to 180, with an average of 82 specimens, with an approximately equal proportion of males and females.

The largest concentrations of moulting eiders in Impoveyem Bay, and probably in the whole Sea of Okhotsk, are to be found in the Shelikhova Gulf. To all appearances the northerly migration of males to the moulting sites ends on the banks of the Taygonos Peninsula, according to records from the shores of Shelikhova Gulf, taken on the second ten-day period of June in previous years (Andreev, Kondratyev, 2001; Andreev, Van-Pelt, 2007; Andreev, 2012).

Slaty-backed Gull. A numerous species breeding along the entire western shore of the Taygonos Peninsula. The size of the separate settlements varies from 5 to 400 nests. Small colonies of gulls form on the coastal rocks, and larger colonies form on the tops of pillar rocks. Several hundred birds breed on each of the Khalpili Islands. The number of the coastal nesting sites increases towards the top of Gizhiginskaya Bay: from 11 pairs/km in the southern part of peninsula (Vnutrennyaya Bay) to 36 pairs/km



Littoral in Impoveyem Bay (photo by A.V. Andreev)

near Rechnaya Matuga Island. The highest values of this index – above 100 pairs/km – are found in the Khalpili Islands, but there the merging of these birds into a single colony is the norm.

In the southern and western parts of the Taygonos Peninsula, the majority of the gulls stayed in groups at some distance from the breeding sites, usually near the mouths of rivers and brooks or in the coastal tundra. The total number of birds at these locations approximately corresponded to the number of nests in the nearest colonies. On rocky cliffs and pillar rocks of the outer part of Impoveyem Bay about 350 pairs of gulls nested and around 1,500 specimens remained on the pebble spits in the centre of the gulf. It is likely that these birds were nonbreeding ones. In total on the shore of the Taygonos Peninsula from Cape Telanskiy to Rechnaya Matuga Island, including the Khalpili Islands, there were roughly 15,500 Slaty-backed Gulls.

Common Guillemot. According to data from 2008, the largest colonies within the borders of the territory are situated on southern Khalpili Island (up to 75,000 specimens), Khalpili Cape (61,000), northern Khalpili Island (59,200), Telan Island (up to 21,500) and on pillar and coastal rocks to north of Impoveyem Bay (21,000). The total number of guillemots on the western shore of the Taygonos Peninsula comprises, thus, approximately 240,000 specimens, predominantly of the Common Guillemot. In all probability the largest nesting colonies of guillemots are situated on the western shore of the Taygonos Peninsula and in the entire Shelikhova Gulf.

Use, Management

The breeding sites of guillemots and gulls are visited by egg collectors among the local people and members of vessel crews. The western shore of the Taygonos Peninsula lies on the path of spring migrations of Arctic geese and, judging by the abundance of ambush cabins is used by hunters at the beginning of spring.

Existing Threats

Topolovka village is located near the territory. For local people, hunting during spring and egg collecting on seabird colonies is a part of the traditional lifestyle. According to enquiries, the Impoveyem Bay region is also visited by teams of small boats for commercial egg collecting. During the period of spring migrations this part of the shore is a popular site for recreational hunting.

Conservation Status

The land area is included in the borders of the State Nature Game Reserve of regional importance "Taygonos", established in 1978 for the purposes of conservation and reproduction of the Snow Sheep and waterfowl populations. The water area has no nature conservation status.

Necessary Conservation Measures

Monitoring of the protection regime of the Game Reserve.

Author-compiler: Andreev A.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Common Eider	B, N	2008	1,780	A	A1, A4.1
Slaty-backed Gull	B, N	2008	15,526	A	A4.1
Common Guillemot	B	2008	237,700	A	A4.2



*Seabird colonies on southern Khalpili Island
(photo by A.V. Andreev)*

YAMSKIYE ISLANDS

Mean Coordinates: 59° 19' 50"N 155° 37' 06"E

Marine Area: 506,676 ha

Geographical Coordinates:

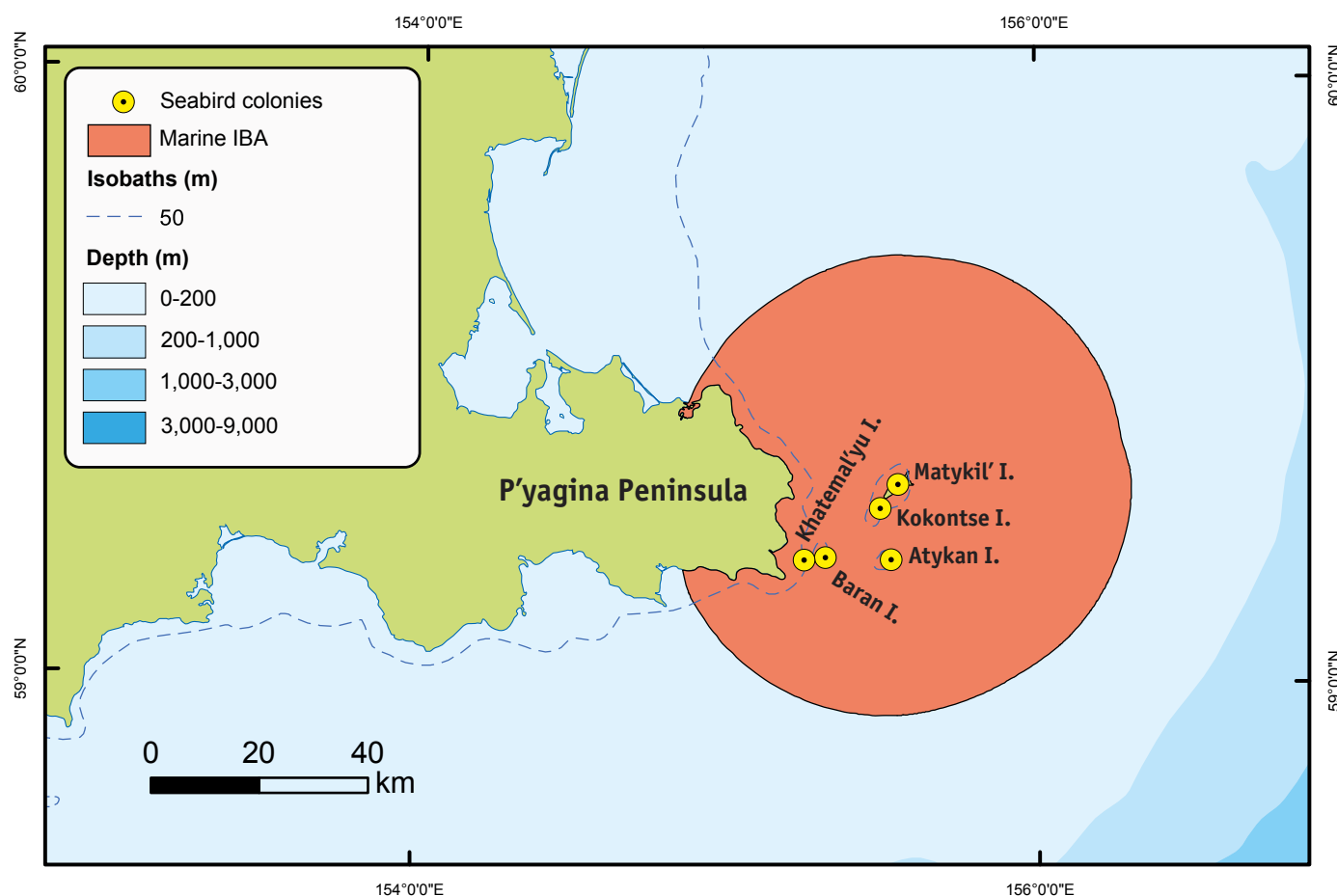
59° 42' 37"N 155° 32' 41"E

59° 26' 50"N 154° 50' 26"E

58° 56' 58"N 155° 30' 45"E

59° 19' 27"N 156° 18' 19"E

24



Site Description

The territory is situated near the entrance into the Shelikhova Gulf. The width of the straits between the shore and islands varies from 7 to 19 km. The archipelago includes two large islands – Matykil' and Atykan and three additional small islands – Baran, Khatemal'yu and Kokontse.

Matykil' Island from the northern side is indented by sharp-topped cliffs, and its slopes are divided by vertical cracks with movable scree. The southern side of the island appears quieter with denser vegetation. The slopes are covered by patches of grass up to a height of about 500-600 m, which are resistant to nitrification (Khoreva, 2001). The projective area of island is about 6.25 km², the perimeter is roughly 16 km, and its maximal height is 697 m. The area of the slope's surface on the island is 2-2.5 times larger than the projective area due to steep slopes and broken up relief.

The second largest island – Atykan – is similar to Matykil' Island but lacks beaches. The sharp-topped mountain ridge with a height of 384 m juts from the water in vertical walls and steep scree. The axial crest is oriented from north-west to south-east, the slopes are covered by grassy and moss-herb species. The projective area of island is 0.95 km², the length of the coastal belt is 6.3 km, and the area of the slope is about 2 km².

The depth of the straits, separating the islands from the P'yagina Peninsula, is 40-70 m, and the bottom slope is gentle. To the south-east the sea bed is irregular with steep hollowed out formations, resulting in the Yamsk upwelling of cold waters to the sea surface. Mixing with the waters of the Shelikhova Gulf, they become a part of the stationary Yamsk Current that goes alongside the Koni-P'yagina shore and Tauyskaya Bay. In July – August the sea's surface temperature near Yamskiye Islands does not exceed +6-8 °C, while in the northern part of the Shelikhova Gulf the water warms up to +12-14 °C. The adjacent water areas are marked by tides of high amplitudes (up to 5-7 m), fast currents (up to 7-9 knots), unstable weather and high levels of primary productivity.

For about 9 months of the year the waters of the archipelago are covered by drifting ice and are not navigable. Powerful tide rings constantly develop, under the influence of protrusions of the coastal frontier, irregularity of the sea bed and stochastic wind gusts. The island summits are quite often covered by fog, and even on clear days stormy winds whistle through the gorges of Matykil' Island. During stormy weather the winds commonly reach – 25-35 m/s. The air temperatures during summer vary between +7 and +12 °C.



Yamskiye Islands' panorama, view from the western side (photo by A.V. Andreev)

The region of Yamskiye Islands is among the most productive areas of the Sea of Okhotsk. Primary production in the region of the Yamsk upwelling consists mainly of diatoms and on average exceeds 1,000 mg/m³ while the background level is less 200 mg/m³. Correspondingly, the zooplankton biomass is great (Andreev, 2001).

The limit of the sea area under consideration is at a distance of 40 km (average distance of the feeding dispersion of Crested and Least Auklets) from the costal line of Matykil' Island, upon which the main nesting sites of the key seabird species are situated.

Ornithological Importance

The largest seabird colonies in Asia are situated on the islands. The total number on Matykil' Island equals 4,800,000 specimens of 11 species (Zelenskaya, 2009). On Atykan Island, whose area of slopes is approximately at 5 times smaller, it should be expected that about 1,000,000 breeding birds are present (Andreev, 2011). On Baran Island about 80,000 breed, on Khatemal'yu Island about 50,000 breed and on Kokontse Island – 15,000 (Velizhanin, 1975, 1977; Kondratyev et al., 1993; Golubova, Pleschenko, 1997). Small habitats of Black-legged Kittiwakes and Spectacled Guillemots are situated along the coasts of the P'yagina Peninsula (Andreev, Van-Pelt, 2007). Thus, the total number of seabirds in the entire territory is estimated to be about 6,000,000 specimens.

Spectacled Guillemot. Breeds on the entire perimeter of Matykil' Island on stony beaches near the foot of slopes. According to counts conducted in 2006, the most probable population estimates comprises 1,650 specimens (Zelenskaya, 2009), which approximately corresponds to the data of a census in 1988 (Kondratyev et al., 1993).



Crested Auklets (photo by Yu.B. Artukhin)

Crested Auklet. Breeds on Matykil' Island between large cracks, in cavities of the bolder taluses and on grass-covered slopes, squeezing out other species at a height of up to 200 m a.s.l. The total population on the island in 2006 is estimated at 1,760,800 specimens (Zelenskaya, 2009). This value somewhat exceeds the data of counts from 1988 (Kondratyev et al., 1993), but it is not possible to judge the trend in numbers of this species due to differences in the methods of census.

Least Auklet. Breeds on the entire perimeter of the Matykil' Island slopes – from the coastal beaches to the top, settling on taluses of divisive composition. Around the summits of the island this species is rare. In canyons it inhabits grass-covered hummocks along the upper part of the walls and in cracks in rocks. It prefers to settle on the border of vegetation. The total number of the Least Auklet on Matykil' Island is estimated at about 2,536,000 specimens (Zelenskaya, 2009). These estimates are somewhat lower than the previous minimum estimate (Kondratyev et al., 1993), but are substantiated by more exact initial statistics in relation to the breeding density and habitat area.

Parakeet Auklet. Inhabits Matykil' Island along the entire perimeter from the upper part of the stony beaches to the tops. On taluses of all types and on conglomeration of rock debris it breeds together with the Crested and Least Auklets, occupying separate niches from them. It prefers to settle on the border of vegetation and stones. More seldom it breeds in grassy hummocks on steep slopes, and in cracks of rocks on cliffs. According to data from counts in 2006, the total population on the island is approximately 15,800 specimens (Zelenskaya, 2009).

Horned Puffin. On Matykil' Island it breeds by rarefied pairs along the entire perimeter of the island, settling upon grass-covered slopes, and usually along the border of the grassy areas and taluses. It also breeds in boulder taluses and among pebble slopes above beaches, where it forms mixed colonies with auklets of both species (Crested and Least) and the Parakeet Auklet. The total population estimates on Matykil' Island, according to the data of counts from 1988, comprises 15,000-20,000 specimens (Kondratyev et al., 1993); approximately the same number to that of the Horned Puffin in 2006 (Zelenskaya, 2009).

Use, Management

The islands are situated in the territory of one of the plots of the Magadanskiy State Nature Reserve. The Yamskiye Islands are well protected from any breaching of the protected regime owing to their remote location and complicated navigational conditions. The Reserve staff members visit the island on a practically annual basis for various purposes. On the P'yagina Peninsula the areas designated for the purposes of hunting tourism are adjacent to a narrow protected belt.

Existing Threats

The strait between the P'yagina Peninsula and Yamskiye Islands is used by tug boats and low-tonnage ships for delivering cargo and teams of fishermen in the Yamsk settlement. Threats to the area are minimal due to dangerous navigation conditions; ships aim to navigate this passage as quickly as possible or go around the archipelago more seaward.

Conservation Status

Yamskiye Islands and the neighbouring shore of P'yagina Peninsula are included in the composition of the Yamsk plot of the State Nature Reserve "Magadanskiy". The belt of coastal waters to a width of 2 km with a total area of 10,800 ha is included in the protected zone. The islands are included in the catalogue of wetlands of North-East of Russia (Andreev, 2001). Yamskiye Islands in the composition of Magadanskiy Reserve are suggested by the Government of the Russian Federation as a candidate for inclusion in the UNESCO List of World Heritage Sites.

Necessary Conservation Measures

With regard to the observance of the protected regime of the Nature Reserve, no additional measures are required.

Author-compiler: Andreev A.V.



Horned Puffin (photo by Yu.B. Artukhin)

Species	Status	Survey year	Number	Estimation precision	Criteria
Spectacled Guillemot	B	2006	1,650	A	A4.2
Crested Auklet	B	2006	1,760,800	A	A4.2
Least Auklet	B	2006	2,536,000	A	A4.2
Parakeet Auklet	B	2006	15,800	A	A4.2
Horned Puffin	B	2006	15,000-20,000	A	A4.2
* Numerical data only provided for Matykil' Island.					



Currents in the straits of Yamsk Archipelago (photo by A.V. Andreev)

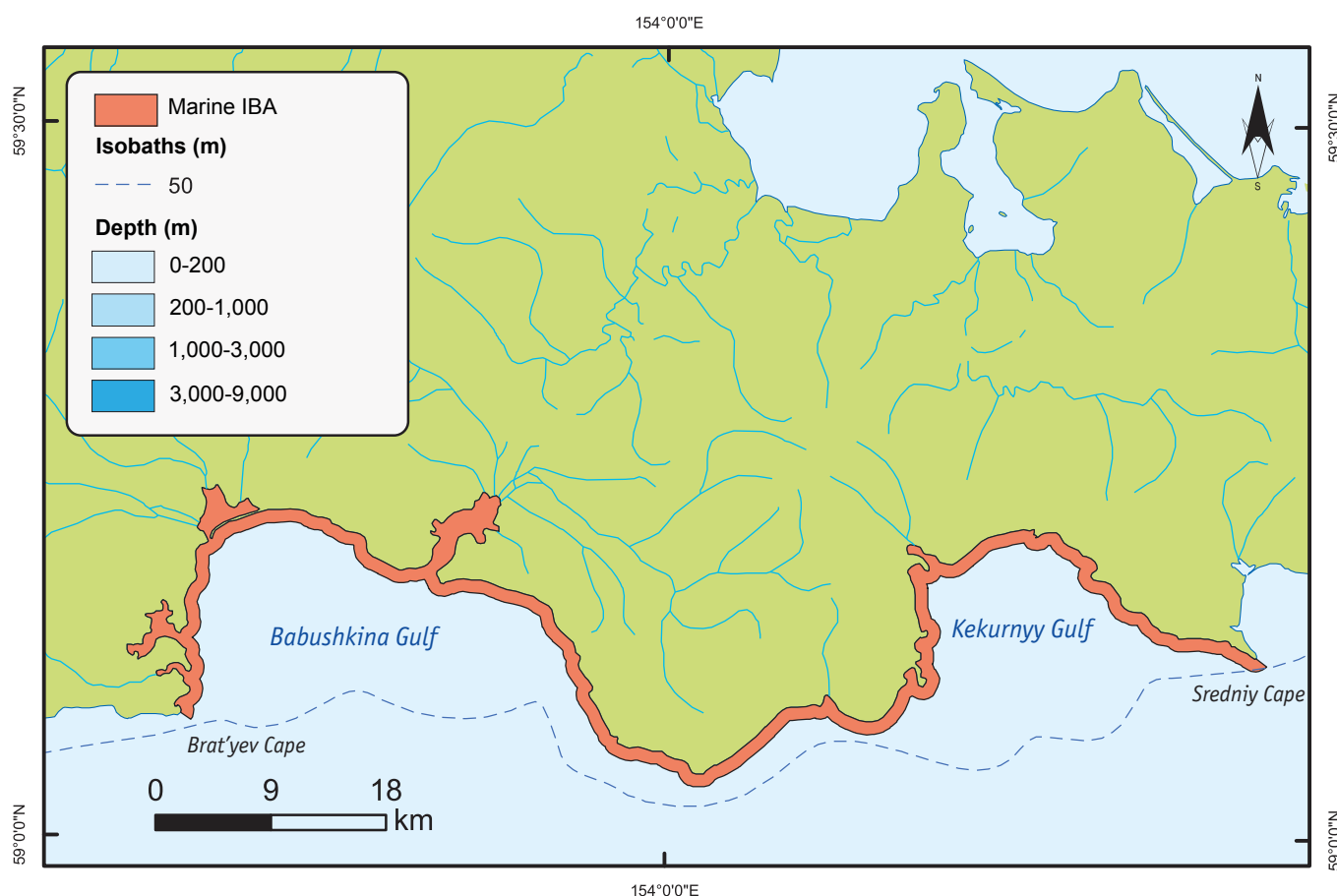
BABUSHKINA AND KEKURNYY GULFS

25

Mean Coordinates: 59° 09' 25"N 153° 56' 57"E
Marine Area: 16,524 ha

Geographical Coordinates:

59° 14' 49"N 153° 23' 01"E
59° 07' 20"N 154° 49' 12"E
59° 02' 19"N 154° 03' 08"E
59° 07' 54"N 153° 15' 56"E



Site Description

The vast gulfs along the shore of the eastern part of the Koni-P'yagina region of the Sea of Okhotsk, in the proximity of the Yamsk Current. The coastal line of both gulfs is indented by rocky capes, bays and lagoons.

The depths in the outer part of the gulfs reach 45-50 m. The tides are variable with 12-hour durations and have an amplitude of 4.5-5 m. During low tide the upper regions of the gulfs and lagoons become dry, revealing extensive silty-boulder and pebble littorals. An exposed at low tide area is especially great in the Shkiperov Gulf and the Astronomicheskaya, Srednyaya and Pronkina Bays. Fast currents and tide rings develop in the mouth of Srednyaya Bay. The north-western banks of the Babushkina Gulf are formed by tundra foothills of the eastern slopes of the Eguyya mountain massif. In the northern part of the gulf the rocky coasts become gentler, and are transformed into low elongated sloping hills and coastal terraces, bordered by pebble beaches. The western coast of the Kekurnyy Gulf from Cape Vnutrenniy to Pronkina Bay is surrounded by small bays with sandy beaches; on the capes there are stony areas and reefs, overgrown by brown algae. The eastern shore of the gulf has steep underwater slopes and is predominantly rocky.

On the gentle coasts of the gulfs, the grassland and tundra vegetation dominate, while on the mountain slopes thickets of the Japanese Stone Pine dominate. The mountain slopes surrounding the top of Astronomicheskaya Bay are covered by forest. The border of the larch taiga protrudes to the east from here, after that by a wide arch, moving further from the sea by 3-5 km, before rounding Babushkina Gulf and again coming closer to the sea in the top part of the Shkiperov Gulf.

This area is subject to the perennial influence of the cold Yamsk Current. The climate is severe, maritime, and subarctic. The average annual air temperature is equal to -3.8 °C. Spring begins at the end of May in the coastal tundra. Snow remains in pockets and crevices in the mountains until the end of July or early August. Dislodgement of ice moving out into the gulfs occurs in the middle of June, but warm weather does not start for another 1-2 weeks – until ice movements in the Shelikhova Gulf are finished. The warmest months are July and August (the average temperature in July is +11.5 °C). South-western winds dominate during this period. Crossing the Yamsk Current belt, these winds bring



Shores of Babushkina Gulf and Kekurnyy Gulf (photo by A.V. Andreev)

**The counts of moulting Harlequin Duck concentrations in the Babushkina Gulf and the Kekurnyy Gulf
(A.V. Andreev, unpublished data)**

Date	Route and its length	Number, specimens	Concentration size, specimens	Number of concentrations
22.07.2006	Pronkina Bay – Kaftany Bay, 25 km	1,215	15-100	22
26.07.2006	Vnutrenniy Cape – Pronkina Bay, 11 km	6,500	10-800	56
20.08.2007	Brat'yev Bay – Astronomicheskaya Bay, 15 km	4,700	200-1,000	4
13.08.2008	Astronomicheskaya Bay, 11 km	5,500	1,000-3,500	3
1.08.2012	Nerpich'ya Bay – Astronomicheskaya Bay, 45 km	3,400	200-500	7
4.08.2012	Astronomicheskaya Bay – Brat'yev Cape, 15 km	5,200	200-1,500	4

cold dry fogs to the coast on a near-daily basis. By the end of July the water in the gulf warms up to +10-11 °C, and in the shallows to +15-16 °C. Snow cover begins to build up at the beginning of October, but the sea does not freeze until the end of December or beginning of January. Winters feature heavy snowfall and windy conditions. The average temperature in January is –20.5 °C (Andreev, 2001).

The water area under consideration includes a 2-km coastal zone of the Babushkina and Kekurnyy Gulfs from Cape Brat'yev and Cape Sredniy.

Ornithological Importance

On the Babushkina Gulf shore 118 bird species are recorded, among which breeding is confirmed for 65 species (Andreev, Kondratyev, 2001). From June until the end of August on the coasts and in the gulf large concentrations of Harlequin Ducks and other sea ducks (Common Goldeneye, White-winged Scoter, Common Merganser, Common Eider) are recorded. In the coastal waters on the western and northern coast of the Babushkina Gulf the Long-billed Murrelet and Kittlitz's Murrelet are regularly recorded.

Harlequin Duck. The male ducks approach the gulf coasts from the middle of June, when the bird numbers reach a maximum. The moulting period begins in the third

ten-day period of July and lasts until the end of August. 7,500-8,600 specimens gather in the Babushkina Gulf, and up to 7,500-8,000 in the Kekurnyy Gulf. The most considerable concentrations are regularly discovered in Astronomicheskaya Bay and in the Kekurnyy Gulf from Cape Vnutrenniy to Pronkina Bay.

Long-billed Murrelet. The counts on the standard 21-km route (from Brat'yev Cape to Mel'dek River) in 1995, 2006, 2007, 2008 and 2012 have shown that this species is consistently present in the western part of Babushkina Gulf at a distance of 100-250 m from the coast. In 1995, 10 specimens were counted (among them 6 in pairs), in 2006-2012 – 4-6 specimens. The birds regularly feature in the waters of Brat'yev Bay, Malaya Astronomicheskaya Bay and Bol'shaya Astronomicheskaya Bay. This species was not recorded on the eastern shore of Babushkina Gulf and in Kekurnyy Gulf.

Kittlitz's Murrelet. In counts taken along a 35 km stretch of sea (from Brat'yev Cape to Shkiperv Gulf) in 1995 and 2006-2012 single birds were recorded regularly on 5-6 plots (Brat'yev Cape, Malaya Astronomicheskaya Bay, Srednyaya Bay, Mel'dek River, Babushkina mountain). A nest was found in the mountain massif on the left bank of Mel'dek River at a distance of 5 km from the sea (Andreev,

Golubova, 1995). This species is not recorded along the eastern coast of Babushkina Gulf and in Kekurnyy Gulf.

Use, Management

A meteostation operates in Brat'yev Bay. The bay is protected from the south-western winds, and in stormy weather the ships of the fishing and trading fleets shelter here. In Srednyaya Bay and Shkiperov Gulf fishing takes place when the salmons come to spawn. In the north-eastern part of Shkiperov Gulf from 1994 until 2004 teams of gold prospectors were active (Andreev, 2013), at the present time geological exploration takes place in the north-eastern side of the gulf. There has been a camp for the hunting tourism clientele in Pronkina Bay since 2007.

Existing Threats

There are plans for mining rich metal deposits along the Mel'dek River, and to do this a road and other infrastructure would have to be built in the northern part of Shkiperov Gulf. During the salmon fishing season in the gulf water area the volume of marine traffic increases, raising the level of disturbance to the seabirds and the sites where the ducks are moulting.

Conservation Status

Absent. Babushkina Gulf is included in the catalogue of wetlands of the North-East of Russia (Andreev, 2001).



Babushkina Gulf, view from the side of Shkiperov Gulf (photo by A.V. Andreev)

Necessary Conservation Measures

On the western shore of Babushkina Gulf and Kekurnyy Gulf it would be appropriate to set up seasonally protected zones.

Author-compiler: Andreev A.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Harlequin Duck	N	2006-2012	15,000-16,600	A	A4.1



Concentration of the moulting Harlequin Ducks (photo by Yu.B. Artukhin)

TALAN ISLAND

Mean Coordinates:

59° 16' 11"N 149° 11' 19"E

Marine Area:

376,758 ha

Geographical Coordinates:

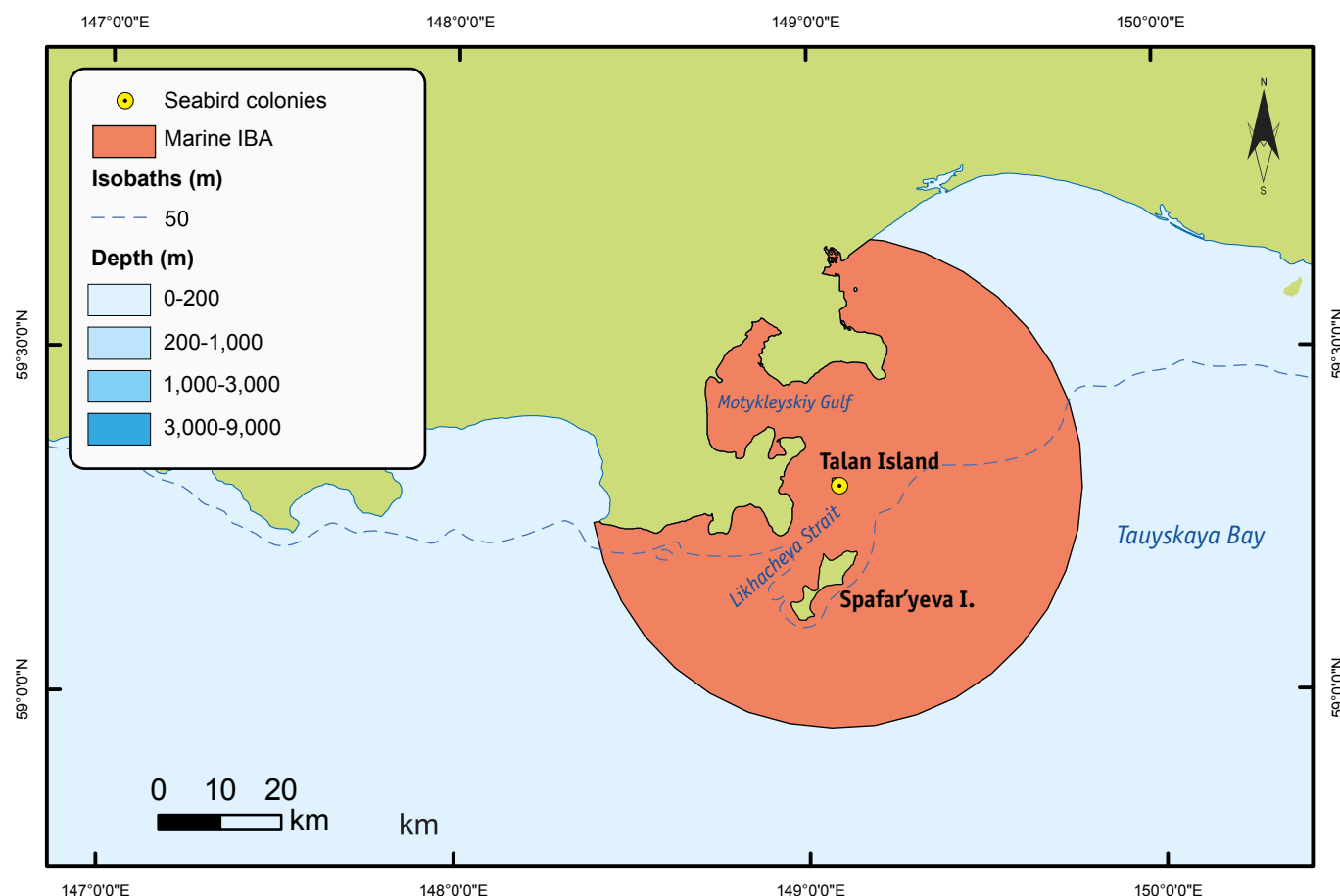
59° 39' 51"N 149° 10' 58"E

59° 18' 02"N 149° 46' 51"E

58° 57' 14"N 149° 03' 50"E

59° 15' 15"N 148° 23' 32"E

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Site Description

A small rocky island on the border of the Motykleyskiy Gulf and Tauyskaya Bay. It is located in fertile shelf waters, surrounded by stony littorals and inhabited by seabird colonies – the largest in Tauyskaya Bay.

The island is an inselberg with a height of 180-220 m. Its summit forms a gentle plateau. On the southern, western and eastern sides of the island there are steep slopes and conglomeration of rock debris, which are partially covered in grass; or sheer rocks bordered by boulders of broken rocks and reefs. The rocky walls on the southern side of the island are the greatest in height (120-150 m), and the surf zone in this part of the island consists of a chain of small bays, rocky grottoes and reefs. In the north the island is rimmed by a stony littoral, pounded by surf with a total length of about 4.2 km and a width of 150-200 m. The island is oriented from the south-east to the north-west, its length along the main axis is 2 km, its diameter is 1.2 km, the projective area of the island is 178 ha, and the total surface area (plateau, terrace, rocky walls, slopes) is 277 ha.

According to data from a meteostation on Spafar'yeva Island, the average annual air temperature is -2.3°C . The coldest month is January (the average temperature is -5.8°C , and its absolute minimum is -40°C). During winter northerly winds predominate, averaging a speed of 5.4 m/s. From the middle of October until the middle of May the island is covered by snow, which remains until the end of May. During summer southerly winds predominate. The daily weather cycle is well defined. Strong breezes develop on the Likhacheva Strait in the second half of the day, which come from the south-west and create high waves. During these hours the higher regions of the island are usually covered by fog. Northerly winds blow quite regularly from the Motykleyskiy Gulf after midnight. Calm weather in summer is interrupted several times by 3-4-day storms. The warmest month is August with an average temperature of $+10.6^{\circ}\text{C}$.

The island is situated in the zone of continuous sublatitude current with a speed of about 1.5 km/h which carries out the Tauyskaya Bay waters to the west. Stronger tidal streams with a periodicity of about 12.7 hours and an amplitude of 4.5-5 m are superimposed on this background. The depth of the sea in the Talan waters is around 40-60 m. The seabed is flat and sandy-silty. The seabed is only covered by fragments of rock or polished boulders in the coastal belt of the island.



Talan Island (photo by T. Fukuda)

Ice forms on the Tauyskaya Bay waters in the middle of December, which deteriorates in the middle of May towards the beginning of June. By August the water's surface in the Likhacheva Strait warms up to +12-14 °C. At depths of greater than 20 m the water temperature is about 0 °C all year round. In the summer the water's surface in the Motykleyskiy Gulf and Likhacheva Strait becomes fresher, owing to the rivers of Tauyskaya Bay (salinity 27-30 ‰).

The Talan Island waters are situated in one of the most productive regions of the Sea of Okhotsk. The productivity is especially high in the Motykleyskiy Gulf neck, becoming slightly fresher from the waters of the Tauy River and enriched from biogenic substances as a result of stationary, cyclonic and tidal streams. In addition to this, from May until September bird excrements abundantly appear in the waters, directly adjacent to Talan Island. Diatoms absolutely dominate the phytoplankton composition. The levels of primary production during spring in the Motykleyskiy Gulf reach quantities of near record-breaking proportions – 12 g/m³ (Afanasyev et al., 1994).

The abundance of birds in the Talan breeding sites is supported by the constant movement of fattening and spawning fish concentrations in the inshore waters of the western part of the Tauyskaya Bay. The most numerous fish are the herrings, capelins, sand lances and also young specimens of Pacific salmon and gadids (Chereshnev et al., 2001; Santalova, 2001; Panfilov, Chereshnev, 2006). The high quantity of planktivorous birds forms due to a specific combination of topographical and hydrographical conditions in this part of the Sea of Okhotsk shore. Lines of the costal belt, the contour of the sea bottom, the movement of the cold Yamsk Current with stationary cycle flow and hydrological fronts (specific "traps") and the increasing macro-plankton concentration have significance for the formation of foraging fields.

The border of the considered water area goes through the circumference at a radius of 40 km (the average distance of foraging dispersion of the key bird species) from Talan Island.

Ornithological Importance

On Talan Island there are 11 breeding species of seabird belonging to the following families: Phalacrocoracidae (1 species), Laridae (2 species) and Alcidae (8 species). The total bird population in the colonial nesting sites is estimated at 584,000-689,000 specimens (Andreev et al., 2010).

Black-legged Kittiwake. The species inhabits the rocky cliffs along the south-western, southern and eastern sides of the island. Their nests are situated both in the lower regions of the rocky coasts and at heights of about 200 m. According to counts from 2007, the total population of the Black-legged Kittiwake was around 100,000 specimens, while in 1988-1990 it was estimated at 35,000-40,000 specimens (Kondratyev et al., 1992a).

Crested Auklet. The most numerous breeding species. The birds are present along the entire perimeter of the island, but the highest density is recorded between the slopes of boulders and taluses, distributed mainly in the northern and western sides of the island. On such plots the Crested Auklet breeds together with the Horned Puffin. A proportion of these pairs use the grassy areas of slopes, settling among the nesting sites of the Tufted Puffin, Parakeet Auklet and Ancient Murrelet, but the breeding density of the Crested Auklet is sufficiently lower here.

According to estimations of 1989-1990, 950,000-1,200,000 specimens of the Crested Auklet nested on Talan Island (Kondratyev et al., 1992a). By 2008 the nesting population was within the range of 260,000 and 300,000 specimens (Andreev et al., 2010). Taking everything into consideration, the Crested Auklet population on Talan appears to have stabilized at a comparatively low level at the present time, established after the sharp decline in numbers during the second half of the 1990s.

Horned Puffin. Inhabits boulder fields and stony taluses across the entire perimeter of the island. It also settles in considerable numbers in dykes on the top plateau of the island, in areas of overgrown Japanese Stone Pine, boulder fields with vegetation and stone heaps. The most populated nesting sites of the Horned Puffin are situated in



Eastern coast of Talan Island (photo by A.V. Andreev)

the northern and western parts of the island. The Horned Puffin settles in joint colonies with the Crested Auklet here. Horned Puffins, present on grassy slopes and taluses, nest together with Tufted Puffins, Ancient Murrelets and Parakeet Auklets.

Counts in 2007-2008, revealed that the total number of Horned Puffins on Talan Island reached 112,500 specimens (Andreev et al., 2010), and according to estimations from 1988-1989 the population was around 90,000-100,000 (Kondratyev et al., 1992a). Based upon this data, it appears as though the total number of breeding colonies on the island for this period somewhat increased.

Tufted Puffin. During the nesting period the species has a preference for grassy slopes, where it independently digs its own burrows. In similar areas Tufted Puffins breed together with the Ancient Murrelet and Parakeet Auklet. The most extensive nesting sites are located on the western and northern slopes of the island. Separate pairs settle on overgrown areas of boulder taluses, occupying niches between the stones. Tufted Puffins from joint colonies with Horned Puffins and Crested Auklets here. The Tufted Puffin breeds at all altitudes of the islands from the base of the slopes to the apical plateau.

The total nesting population of the Tufted Puffin on Talan Island was estimated at 103,000 specimens in 2008. According to data from counts at the end of the 1980s, this figure stood at 140,000 (Kondratyev et al., 1992a), which is indicative of a decline in the species' population by approximately 40 % over a 20-year period.

Use, Management

Since 1987 the Biological Station of the Institute of Biological Problems of the North of the Far-Eastern Branch of the Russian Academy of Sciences has operated on the island. Since 2010 the island has been visited by expedition ships, with tourists landing on the coast.

Existing Threats

Recreational pressure is conducted under the control of staff members of the Institute of Biological Problems of the North. The disturbance factor is of importance in the case of unsanctioned visits to the island by crew members of the expedition ships.

Conservation Status

The territory of the island (152 ha) and belt of the coastal waters with a width of 100 m (50 ha) is protected as a Nature Monument of federal importance "Talan Island" (founded in 1991). The island is included in the catalogue of wetlands of the North-East of Russia (Andreev, 2001).

Necessary Conservation Measures

It would be expedient to expand the belt of the protected water to a width of 300-500 m.

Author-compiler: Andreev A.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Black-legged Kittiwake	B	2007	100,000	A	A4.1
Crested Auklet	B	2008	260,000-300,000	A	A4.2
Horned Puffin	B	2008	112,500	A	A4.2
Tufted Puffin	B	2008	103,000	A	A4.2

IONY ISLAND

Mean Coordinates: 56° 24' 23"N 143° 22' 58"E

Marine Area: 500,064 ha

Geographical Coordinates:

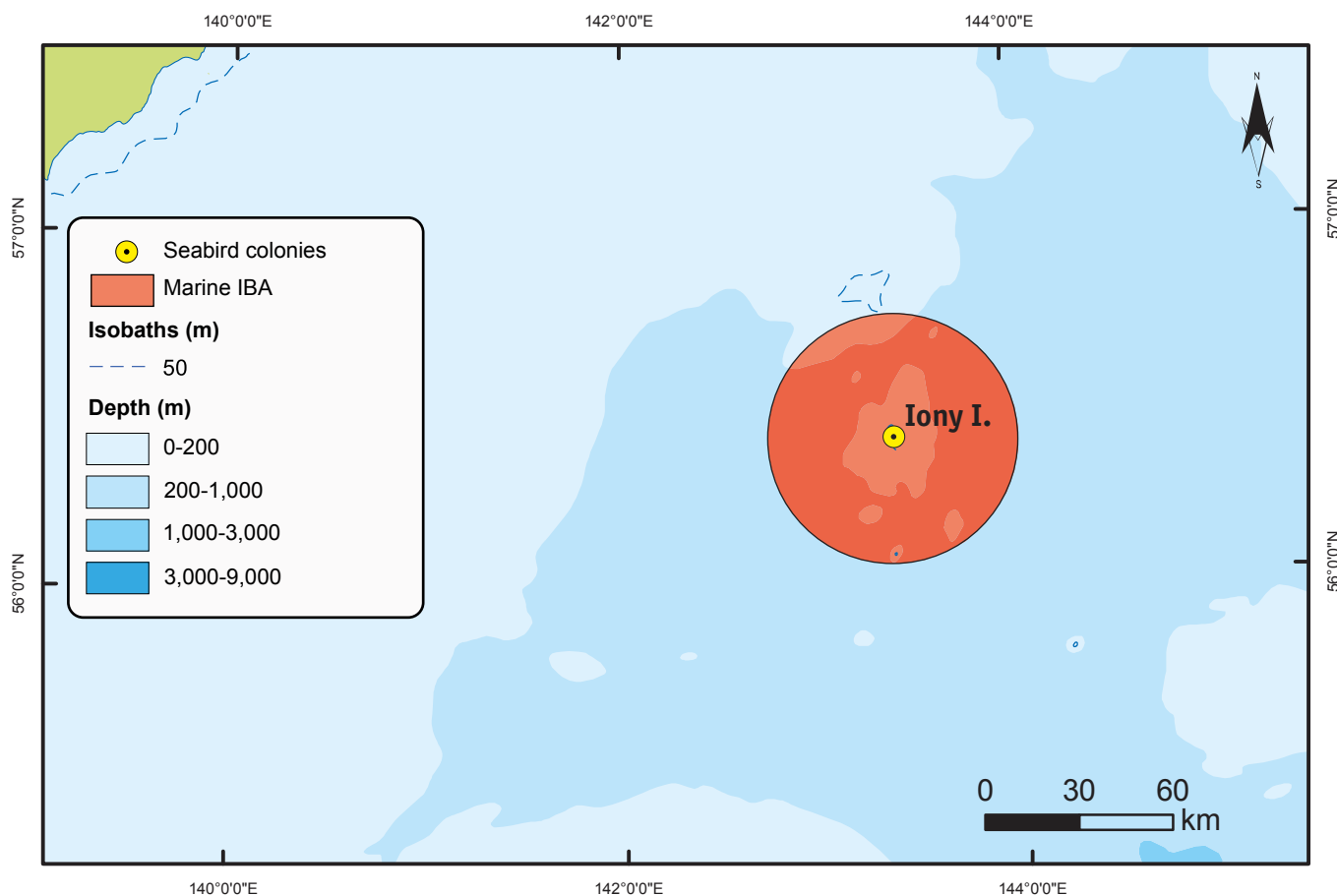
56° 45' 39"N 143° 20' 45"E

56° 25' 25"N 144° 01' 18"E

56° 03' 05"N 143° 24' 56"E

56° 23' 06"N 142° 44' 32"E

27



Site Description

Iony/Saint Jonah's Island is an islet in the north-western part of the Sea of Okhotsk, 236 km from the mainland coast and 223 km from the northern cape of Sakhalin Island. The raised seabed forms an underwater terrace with a depth of 10-20 m. It is oriented in a submeridional direction and surrounded by extremely cold waters, brought to sea surface from deeper parts of the shelf. Iony Island is also surrounded by small islets – pillar rocks, scattered around it at a distance of 20-500 m. The island is a conical granite inselberg with a rounded top. The island's height stands at 150 m a.s.l., and its diameter at the base level varies from 450 to 570 m. The surface area is 16.3 ha.

The island is also surrounded by narrow and rocky beaches in the western, northern and eastern parts, which are occupied by Steller Sea Lion rookeries. The insular slopes are characterized by disintegrated relief; all of them from the coastal belt to the top and also the adjacent pillar rocks are occupied by seabird colonies.

In the southern part of the island, at heights of 30-45 m a.s.l. and slopes of about 3-5°, there are plots of rocky fields with screes of smaller stones and vegetation spots. Smaller and similar areas are clearly seen on the gently sloping cols of stony ridges in the eastern part of the island. The total area of the similar habitats comprises of 0.44 ha, or 2.7 % of the island's area. This habitat is extremely attractive for all 3 species of auklets which inhabit the island.

Heights of 25 to 150 m a.s.l. with slopes at 5-30° are occupied by two species of vegetation – *Leymus* and *Angelica*. Their total area spans 4.7 ha, or 29.1 % of the total surface. The Northern Fulmars breed almost everywhere in these thickets. The nesting sites (burrows) of storm-petrels and the Parakeet Auklet are also situated here.

The western and north-western slopes, with a steepness of 35-40°, are occupied by stony taluses and have no vegetation. Taken together, these plots cover 3.6 ha, or about 22 % of the surface. They are almost completely occupied by guillemot nesting sites.

The steep and occasionally vertical rocky surfaces (45-90°) dominate the northern and eastern slopes of the island. These steep surfaces cover altogether about 7 ha, or 43 % of the surface. The Black-legged Kittiwake and Brünnich's Guillemot breed on rocky outcrops and steep rocks, and the Whiskered Auklets breed in the clefts.

During the clear weather in July, the day-time air temperature varies from +6 to +22 °C. The tidal amplitude reaches about 3.5 m, but the island has no littorals. During ebbs in the water surrounding the island a current develops,



Lony Island, view from the southern side (photo by A.V. Andreev)

directed to the south-west at a speed of 3-5 km/h. A zone of increased turbulence in the sea simultaneously forms in an area of 50-m isobath, situated at a distance of 1.5-2 km from the island. During calm weather this turbulence is expressed as a ripple that fans out for many kilometres. Many thousands of foraging seabirds congregate here each day.

The border of the territory under consideration goes at a distance of 40 km from Lony Island (the average distance of foraging flights of guillemots).

Ornithological Importance

On Lony Island the total number of breeding birds is about 1,300,000 specimens, made up of 14 seabird species (Andreev et al., 2012). This estimation sufficiently exceeds an estimation received in 1974 (of about 300,000 specimens), based on a less precise determination of habitat areas and breeding density (Kharitonov, 1980). The overwhelming majority of breeding birds (88 %) belongs to two guillemot species.

Common Guillemot and Brünnich's Guillemot. The Common Guillemot dominates in numbers, and forms the largest settlements in the northern part of island. The Brünnich's Guillemot inhabits the periphery of these colonies in small groups. The latter breeds in large numbers on steeper parts of the slopes and across the steep rocky walls that surround the lower part of the island. The Brünnich's Guillemot colonies are more numerous in the southern part of island.

In upper regions the Common Guillemot breeds with a density of 8 to 17, in the average 12.5 nests/m². In the solid settlements of the Brünnich's Guillemot the breeding density varies from 5 to 18, in the average 9.5 nests/m². On steep and vertical areas of the rocks the Brünnich's Guillemot settles diffusely with a considerably lower density, or does not breed at all. Taking into account one area of rocky slopes, the estimated numbers of the Common Guillemot compile 820,000, and numbers of Brünnich's Guillemot are estimated at 307,000 specimens. Besides this, on the pillar rocks surrounding the island another 18,000 guillemots breed. The total number of

the breeding populations of both species on Lony Island comprises 1,145,000 specimens.

The egg-laying period in the guillemots on Lony Island is extended and lasts from the beginning of June until the beginning of July. The mass chick hatchings occur during the middle of July. Large foraging concentrations of guillemots are observed each day in the area of "ebb mess" at a distance of 2-3 km to the east of the island (Andreev et al., 2012).

Whiskered Auklet. Inhabits the rocky fields and meadow slopes, residing close to the top of rocks and rocky walls and also near peripheral parts of the detritus taluses. The greatest amount of birds are recorded in their colonies during the first half of the day – from 03:30 to 11:30. At this time the majority of Whiskered Auklets stay in pairs upon stones. In the evening hours at these habitats the number of birds is lower and incomparably low against the abundance of Crested Auklets and Least Auklets. In late twilights there are mass appearances of single Whiskered Auklets on vertical rocky walls. The birds attach to the



Whiskered Auklet (photo by Yu.B. Artukhin)

walls like bats. The population of Whiskered Auklets on the rocky fields and meadow slopes varies from 0.13 to 0.39, and on the rocky walls from 0.07 to 0.13, while an average estimation for all habitats compiles 0.2 specimens/m². For the meadow slopes and rocky fields (an area of 5.19 ha) the breeding population is estimated at 13,500. For the rocky walls (an area of 7.0 ha) it is estimated at 7,000 specimens. In total on island there are around 10,000-12,000 to 20,500 Whiskered Auklets.

The chicks hatch in the first ten-day period of July. The parents were recorded to have arrived at the nest with food in the second half of the day (after 15:00) with intervals ranging from 0.5 to 1.5 hours. Euphausiids are most commonly brought by the parents. The single foraging birds were seen in the sea at a distance of 50-500 m from the island. In the daytime many birds rest in the twilights of the grotto, clinging to the wet rock walls (Andreev et al., 2012).

Besides this key seabird species on lony Island, the Northern Fulmar is common (130,000 specimens), and breeds everywhere on vegetation-covered slopes and on rocky fields. Around 10,000 Black-legged Kittiwakes are found along the entire perimeter of the island and on the pillar rocks. On the rocky fields the Crested Auklet and Least Auklet breed (9,000 and 2,600 specimens, respectively). The Parakeet Auklet is common (8,400), and the Pelagic Cormorant, Leach's Storm-petrel and

Fork-tailed Storm-petrel breed in small numbers (Andreev et al., 2012).

Use, Management

In the 1990s concrete buildings were built on the top of the island for the allocation of the navigational radio-equipment, which are abandoned at the present time. The adjacent water area is a zone of active commercial fishing.

Existing Threats

The trawl fishing of the Walleye Pollock adds a negative impact factor on the foraging area and is a potential source of bird loss through entanglement in fishing tools and equipment located on vessel decks.

Conservation Status

In 1994 the island and its surrounding water area up to 150-m isobath, with total area at 88,000 ha, was declared a complex Nature Monument of regional importance "lony Island".

Necessary Conservation Measures

Controlled observation of the conservation regime of the Nature Monument.

Author-compiler: Andreev A.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Common Guillemot	B	2009	833,000	A	A4.2
Brünnich's Guillemot	B	2009	312,000	A	A4.2
Whiskered Auklet	B	2009	10,000-20,500	B	A4.2



Brünnich's Guillemot colony (photo by A.V. Andreev)

SHANTARSKIYE ISLANDS

28

Mean Coordinates:

54° 51' 57"N 137° 30' 35"E

Marine Area:

277,269 ha

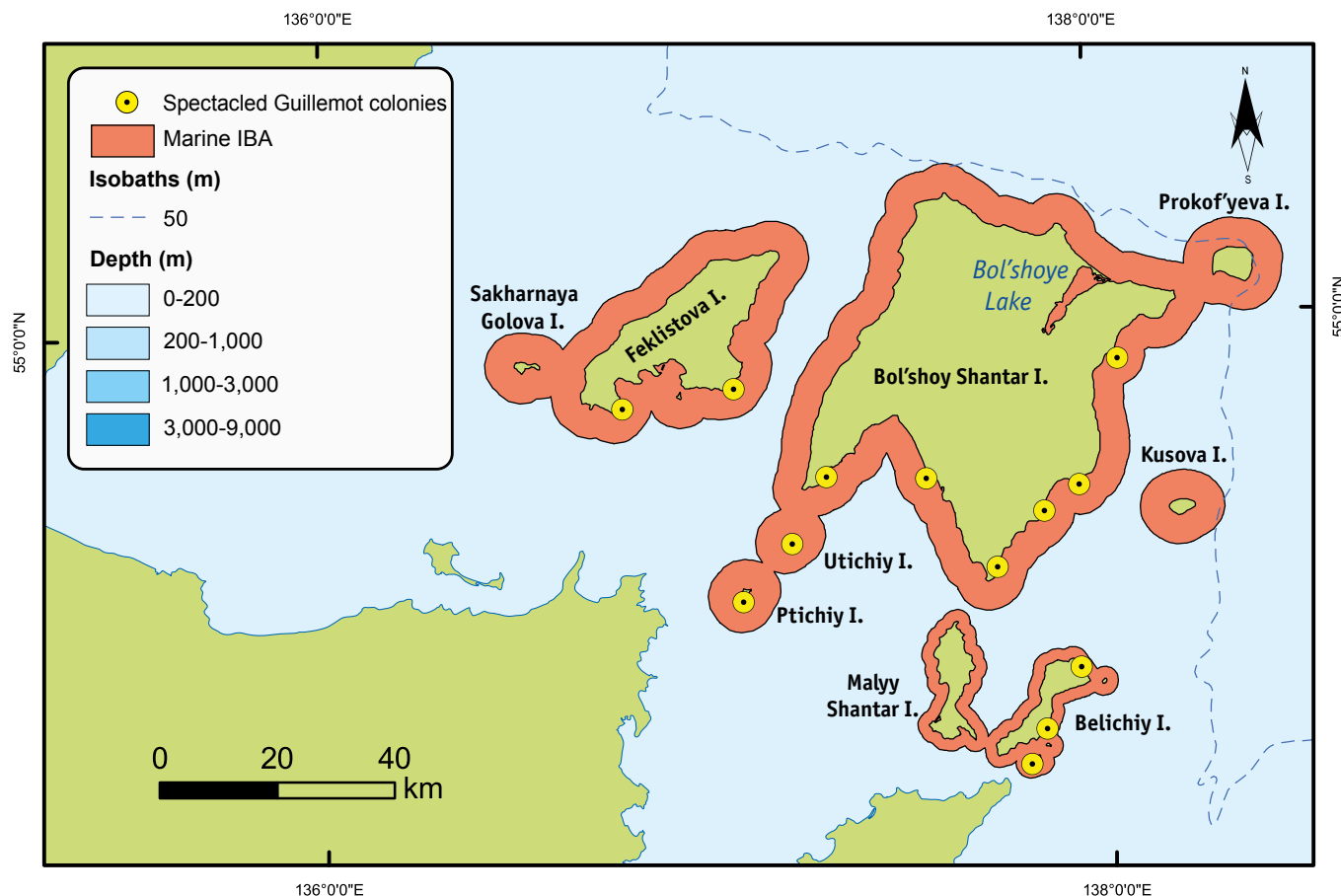
Geographical Coordinates:

55° 14' 21"N 137° 38' 10"E

55° 04' 57"N 138° 30' 10"E

54° 19' 04"N 137° 47' 28"E

54° 57' 32"N 136° 25' 23"E



Site Description

The Shantarskiye Islands make up a coastal archipelago in the western region of the Sea of Okhotsk, and consist of 4 large and 11 small islands. The areas of the larger islands vary from 70 to 1,790 km² (Belichiy, Feklistova, Malyy Shantar, and Bol'shoi Shantar Islands), whereas the smaller islands range from 2 to 20 km². The total length of the coast lines of the large islands compiles 470 km. The width of the straits separating the archipelago from the mainland shore varies from 3-12 to 22-28 km.

The waters around the archipelago – also referred to as the "Shantarskoye Sea" – are distinguished by its comparatively shallower depths (30-60 m), flat relief and strong tidal currents. The tides are irregular semidiurnal, and their amplitude reaches 5-7 m. In narrow straits and near capes the velocity of the current reaches 7-8 knots and rips, whirlpools and standing waves form. At the beginning of summer under the impact of stationary currents of the Sea of Okhotsk, and easterly and north-easterly winds, the frozen bulk of the ice fields persists in these waters for a long time, exerting a significant influence on the climate and phenological dates of the archipelago. With regard to the ice, this is the most complicated region of the Sea of Okhotsk for navigation. As a result of the cold air there are frequent fogs that last until the middle of July, and comparatively lower coastal water temperatures, which do not exceed +8-10 °C. Winters last from November until April. Winter is comparatively mild, with a great amount of snow. The climate is moderately continental. Annual precipitation ranges within 600-800 mm. The phenological dates of spring and the beginning of summer vary depending on the ice situation, but spring typically occurs during the middle of June (Roslyakov et al., 1989).

On the larger islands, there is predominantly mountainous terrain covered by forest. Bol'shoi Shantar Island reaches 700 m a.s.l., and Feklistova Island reaches 485 m. The coastline is represented by prolonged pebble beaches with outcrops of rocky cliffs and reefs. Marshes develop near the river mouths. The sea littorals are notable for their cleanliness and the richness of invertebrate species. In the sublittoral belt, brown algae predominate. In the north-east of Bol'shoi Shantar Island is Bol'shoi Lake, which is separated from the sea by a narrow sandy spit; the lake water is brackish.



Southern shore of Ptichiy Island (photo by A.V. Andreev)

The water area under consideration includes Bol'shoye Lake and 4 plots of the coastal zones composing the "Shantarskiye Islands" National Park: 1) a 5-km width around Bol'shoy Shantar Islands (along with Kamni Diomida Islands), Prokof'yeva, Utichiy and Ptichiy; 2) a 5-km width around Feklistova Islands (with Arka, Shilova, Sukhotina Islands) and Sakharnaya Golova; 3) a 2-km width around Malyy Shantar Islands (along with Skala Island) and Belichiy Island (with Severnyy, Sredniy, and Yuzhnyy Islands); 4) a 5-km width around Kusova Island.

Ornithological Importance

The Shantarskiye Islands are marked by the high diversity of terrestrial and coastal habitats. In the migration and breeding periods more than 200 bird species are recorded here. The seabird colonies are situated on the rocky capes of the islands of Feklistova, Bol'shoy Shantar and Malyy Shantar, and also on the islands of Yuzhnyy, Utichiy and Ptichiy. Considerable numbers of Harlequin Ducks and Spectacled Guillemots breed here, and the Long-billed Murrelet can be found. On the islands there is also a large breeding site for Steller's Sea-eagles (Roslyakov, Roslyakov, 1996).

Harlequin Duck. The species is distributed over all large islands of the archipelago. According to approximations, during the breeding period the total population reaches 2,000-4,000 specimens. Depending on its brood size, in autumn the numbers increase to up to 8,000-16,000 specimens (Roslyakov, 1986). After beginning to fly the young Harlequin Ducks form concentrations of 3,000-5,000 specimens in the coastal belt opposite to Bol'shoye Lake (Roslyakov, Roslyakov, 1996). In all probability, these numbers are an underestimate of the total, as they do not take account of the populations on the other islands of the archipelago. For example, the count in the coastal belt of Prokof'yeva Island, conducted on the 12th July 2011, has shown that on the southern shore (which is 4 km in length) 4 flocks of Harlequin Duck males occupy this area with around 250-300 specimens in each (A.V. Andreev, unpublished data).

Spectacled Guillemot. The largest breeding sites of this species in the Sea of Okhotsk are situated on the Shantarskiye Islands. The largest colonies are located on Utichiy Island and Ptichiy Island. On Utichiy Island in 1971, 3,000 specimens nested, and in 1978 more than 10,000, and by 1982 at least 14,000 (Roslyakov, 1986). Up to 4,200 guillemots resided in the belt of the coastal waters of this island (with a length of 6 km) on the 14th July 2011 (A.V. Andreev, unpublished data). On Ptichiy Island at the beginning of the 1980s the guillemot colony numbered up to 6,000 specimens (Roslyakov, 1986). The count along the coast, conducted on the 14th July 2011, has shown that in the coastal waters and on the stones of Ptichiy Island up to 6,000 specimens resided in 6 groups with numbers from 500 to 2,000 birds, or about 700 specimens/km of the island's coastline (A.V. Andreev, unpublished data). Estimations of the total number of the species on the Shantarskiye Islands vary from 36,000-40,000 specimens (Roslyakov, 1986) to 12,000-14,000 specimens (Roslyakov,



Bol'shoy Anaur River mouth on Bol'shoy Shantar Island (photo by A.V. Andreev)



Severo-Vostochnyy Strait, view on Utichiy Island (photo by A.V. Andreev)

Roslyakov, 1996). The counts of 2011 suggest that the latter estimate is more realistic.

Long-billed Murrelet. Observations conducted in 1986 and 1992 on Bol'shoy Shantar Island and Feklistova Island revealed that from 130 to 240 specimens breed here (Roslyakov, Roslyakov, 1996). The largest concentrations are registered in the northern part of Bol'shoy Shantar Island (Bol'shoye Lake) and in the southern part of Feklistova Island (Lebyazh'ya Bay). Counts conducted on the 13th July 2011 in the afternoon, in the southern part of Bol'shoy Shantar Island along a 46-km route (from Cape Kusova to the Bol'shoy Anaur River in a 200-m wide belt of the sea at a distance of 500-800 m from the coast) recorded only 2 specimens of this species; and on a 15-km transect in

Lebyazh'ya Bay under ideal observation conditions in the afternoon on the 14th July the Long-billed Murrelet could not be detected at all (A.V. Andreev, unpublished data).

Use, Management

Until the end of the 1950s the Yakshino settlement existed on Bol'shoy Shantar Island. Its inhabitants were involved in forestry, haymaking, fishing and hunting. Until the end of the 1990s, hunting and fishing were seasonal activities. Overgrowing forest cuttings occupy considerable areas in valleys. At the present time a meteorological station is in operation. The Shantarskiye Islands are often visited by tourists and recreational fishermen. Routes of quite intensive navigational communication between Nikolaevsk-on-Amur port and the Chumikan settlement traverse the waters of the archipelago.

Existing Threats

Oil contamination of the water area (intensive navigation), recreational pressure (hunting, fishing and water-motor tourism), poaching in the waters and on the island coasts (crab fishery, bear and seal hunting), the gathering of wild plants, disturbance factors, and pollution of coasts by household waste.

Conservation Status

In 2013 on the archipelago, "Shantarskiye Islands" National Park was established with an area of 515,500 ha, of which 274,284 ha are located in the coastal waters. The islands are included in the catalogue of wetlands of the Russian Southern Far East (Bocharnikov, 2005).

Necessary Conservation Measures

During observation of the protected regime of the National Park, no additional measures were seen to be required.

Author-compiler: Andreev A.V.



*Southern coast of Prokof'yeva Island
(photo by A.V. Andreev)*

Species	Status	Survey year	Number	Estimation precision	Criteria
Harlequin Duck	B	1991, 2011	2,000-4,000	B	A4.1
Spectacled Guillemot	B	1991-1992, 2011	12,000-14,000	A	A4.2
Long-billed Murrelet	B	1986, 1992	100s	U	A1, A4.2

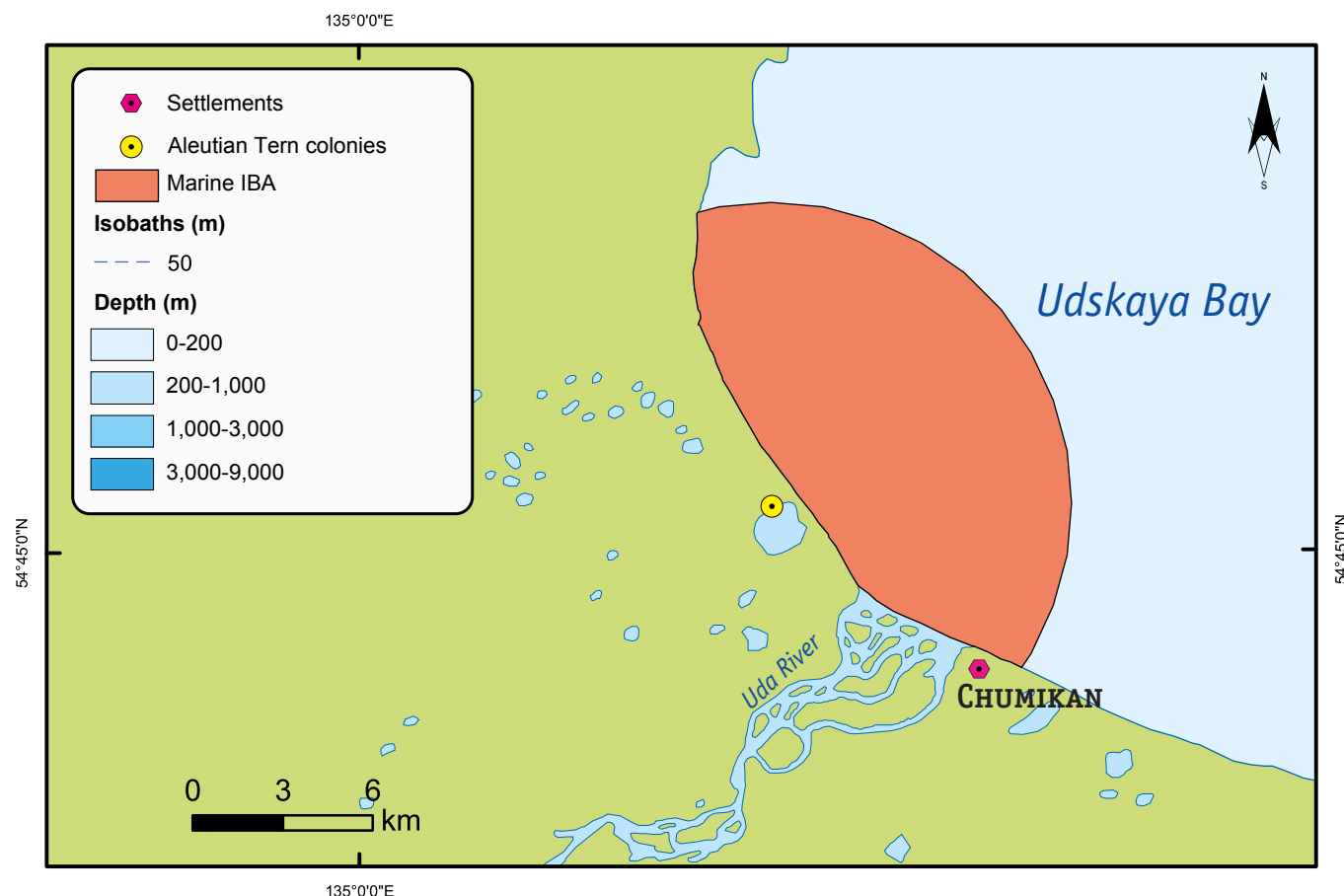
UDSKAYA BAY

Mean Coordinates: 54° 47' 27"N 135° 16' 22"E
Marine Area: 12,440 ha

Geographical Coordinates:

54° 51' 07"N 135° 12' 29"E
 54° 45' 51"N 135° 21' 31"E
 54° 43' 00"N 135° 19' 59"E
 54° 49' 54"N 135° 10' 07"E

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Site description

Udskeya Bay is situated in the far western part of the Sea of Okhotsk, and protrudes into the mainland shore. The bay sizes are 100 by 85 km. The bay is relatively shallow – its maximum depths reach 36 m. The coasts in the northern and southern parts of the bay are rocky and precipitous, and in the western regions they are low, swamped, and partially afforested by larch woods.

Several rivers (including Uda, Tyl', Torom, Al among others) flow into the bay. All of these are used for spawning by migratory Salmonidae fishes. The largest river – Uda River – has a length of 457 km, and on its exit into the sea it forms a well-developed pebble delta. Uda River valley is a widely swamped and lake-covered alluvial plain with a number of small channels, covered by sphagnum swamps. The area of the bay surrounding the Uda River mouth is subject to high tides, reaching 7 m. During ebb-tide near the bay's mouth a wide, 3-km silty bar forms. This region is characterized by a cold climate with frequent strong winds and unstable weather. Ice forms here from the end of October until the middle of July.

The waters under consideration cover a coastal area in the upper region of Udskeya Bay opposite the Uda River mouth; its border goes through the sea coast and on the circumference with a radius at 10 km from the location point of the Aleutian Tern colony.

Ornithological Importance

It is a key breeding site of the Aleutian Tern.

Aleutian Tern. The colony of this species (with a total number of 700-800 specimens) was discovered at the beginning of July 1991, 5 km north-west of the Uda River mouth. Recent visitations to this breeding site have not occurred and its modern status is unknown. The tern settlement was situated in a moss-covered swampy massif on the bank of the lake (its local name – Sergo). The nests were situated several meters away from each other. The clutches were discovered in well incubated conditions. Adult birds flew to the sea to feed (Adnagulov, Voronov, 2008).



Aleutian Tern with food for chicks (photo by Yu.B. Artukhin)

The western region of the upper area of Udskeya Bay during seasonal migrations has significance as a concentration site of waterbirds. Migratory birds cross paths here and follow the directions of the sea coast and Uda River valley. The annual congregations of waders, using the tidal-ebb zone of the bay for foraging breaks, reach several tens of thousands of specimens. On the coastal meadows by the mouths of the Uda and Torom Rivers the breeding pairs of Nordmann's Greenshanks were registered (Pronkevich, 2008; Pronkevich, Voronov, 2013).

Use, Management

The Chumikan settlement is situated on the right-bank of the Uda River mouth, and is a regional centre of the Tugur-Chumikan District of the Khabarovsk Territory. The population number at the beginning of 2012 comprised 1,091 people. A sea harbour and airport are situated here. During warmer periods of the year, communication with other settlements of the territory occurs by marine and aviation transport, and in winter by automobile transport too.

In the waters of Udskeya Bay and in the coastal zone, the commercial fishing of Clupeidae, Gadidae and Salmonidae fishes occurs. In the settlement vicinities during seasonal migration periods recreational hunters shoot migratory waterfowl and shorebirds. In summer, poaching of numerous migrating waders occurs here. The total amount of birds shot by this group can reach several hundred specimens.

Existing Threats

Due to the distance to the Aleutian Tern colony from the Chumikan settlement (5 km) and the difficult accessibility of this colony, disturbance factors or theft by people and domestic dogs are unlikely. The summer hunting of waders represents a serious threat for rare wader species: the Nordmann's Greenshanks are likely to be breeding in this area and the Spoon-billed Sandpiper, Eurasian Oystercatcher, Far Eastern Curlew are migrants likely to be halting in the area. Transformation of the territory for practical uses in the near future is not planned.

Conservation Status

There is no conservation status. Udskeya Bay is included in the shadow list of Ramsar habitats (Krivenko, 2000) and the catalogue of wetlands of the Russian Southern Far East (Bocharnikov, 2005).

Necessary Conservation Measures

Necessary conservation measures can be developed, subject to current data on the number of the state and distribution of rare species of nesting and migratory birds. It is necessary to conduct investigations into the territory to gain current information about the rare bird species and migrants residing in the area. The Government of the Khabarovsk Territory is planning to prepare ecological and economical bases to help native people to establish and manage the territory with traditional use of wildlife of Uda River valley. The ornithological value of the upper region of Udskeya Bay should be taken into account during this process.

Author-compiler: Pronkevich V.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Aleutian Tern	B	1991	700-800	B	A4.1

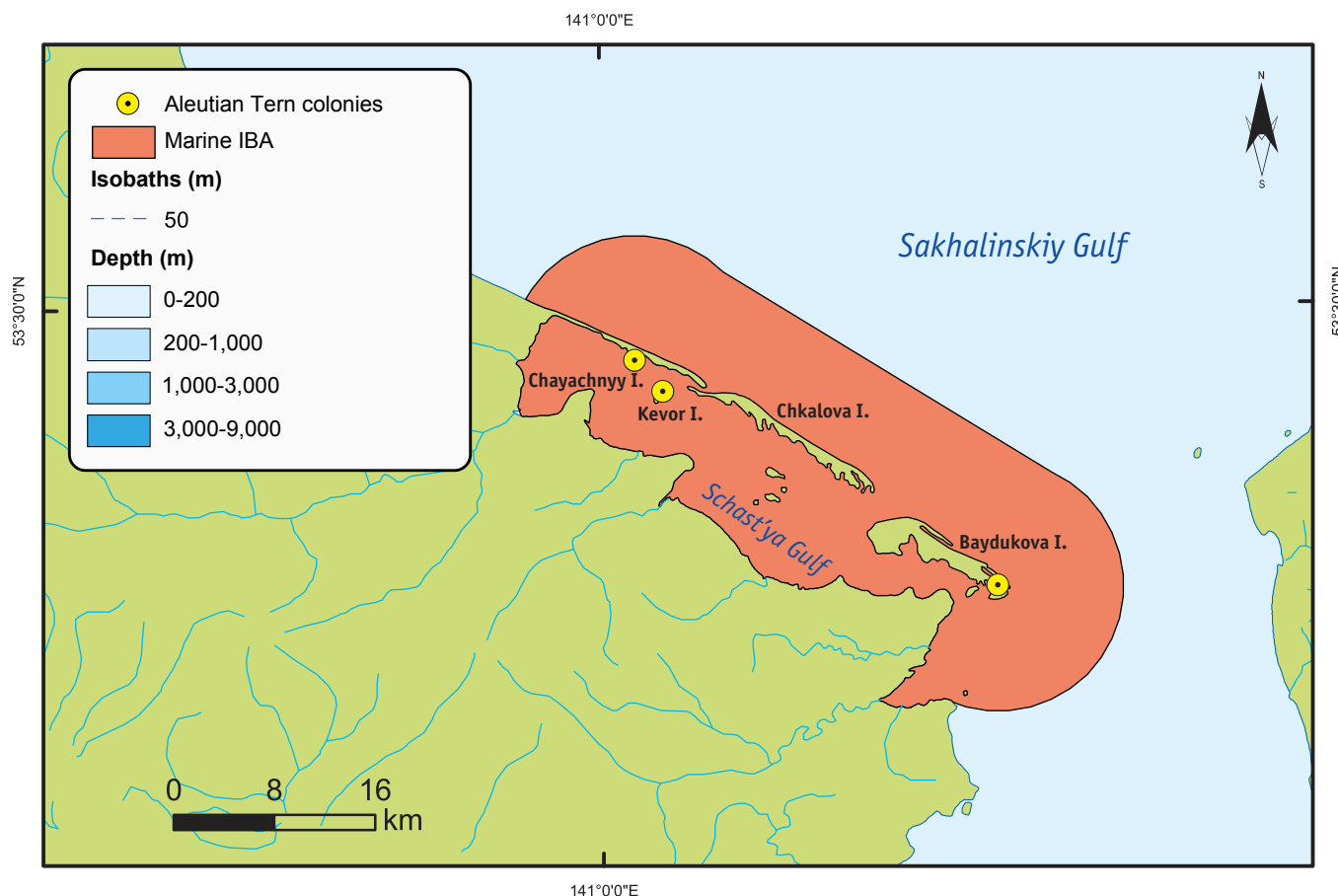
SCHAST'YA GULF

Mean Coordinates: 53° 23' 22"N 141° 16' 21"E
Marine Area: 81,165 ha

Geographical Coordinates:

53° 33' 09"N 141° 01' 43"E
 53° 18' 38"N 141° 36' 44"E
 53° 12' 58"N 141° 28' 33"E
 53° 27' 48"N 140° 54' 04"E

30



Site Description

A gulf situated in the south-western area of the Sea of Okhotsk, which forms part of the large Sakhalinskiy Gulf. It is a shallow, brackish lagoon, separated from the Sakhalinskiy Gulf by Baydukova Island, Chkalova Island and the Petrovskaya Spit. The water bodies average a size of 40 by 6 km. Several small islands are scattered across the gulf waters: Chayachnyy, or Tudum (380x220 m), Kevor (1,460x500 m), Dygruzh (1,650x550 m), and Malyy Langr (1,200x650 m). Each of these are made up of sand and pebble, rise above the sea by 1.5-2.5 m and are predominantly covered by *Leymus* thickets.

The Schast'ya Gulf is influenced by irregular daily tides, and has an extended period of low water. At its greatest height, the tide reaches 2.5 m. The status of the gulf wildlife is in many respects determined by the tidal periodicity, because during low tide a major part of the lagoon begins to dry. Considerable rips form upon entry into the gulfs, especially in those to the west.

The mainland shore of the gulf is covered by swampy meadows, which transform into shrubby, mossy bogs, covered by larch woods. On the Petrovskaya Spit, Chkalova Island and Baydukova Island, the primary species of vegetation include Japanese Stone Pine, Shrubby Alder, Wild Rose, and Crowberry.

This region is characterized by a cold climate with frequent strong winds and unstable weather. During the entire winter heavy ice conditions are evident, and the gulf begins to become free of ice at the middle of June (though occasionally the ice remains until July or early August).

The considered water area includes the entire surface of the Schast'ya Gulf and the adjoining coastal area of the Sakhalinskiy Gulf, whose borders pass at a distance of 10 km from the Aleutian Tern colonies.

Ornithological Importance

A key breeding region of the Aleutian Tern, and a regular site of Long-billed Murrelets.

Aleutian Tern. Breeds in colonies on Chayachnyy Island (200-300 specimens in 1986 and 400-500 in 1987), Kevor (about 1,000-1,400 specimens in 1986 and 1987), Baydukova (50-60 specimens in 1987), and potentially in low numbers on Dygruzh Island and Malyy Langr Island (Babenko, 1996). The species mainly occupies the central



Schast'ya Gulf (photo by V.V. Pronkevich)

areas of the islands, where the maximal density of nest distributions is observed for this species – each 1-2 m from each other. On Baydukova Island the colony is diffuse, stretching across an area of 1 km. On Chayachnyy Island and Kevor Island it forms mixed colonies with the Common Tern, which, as a rule, occupies the peripheral part of the islands and breeds in the Schast'ya Gulf in numbers of 7,800-9,600 specimens (Babenko, 1996).

The breeding dates of the Aleutian Tern in the Schast'ya Gulf are strongly extended: clutches were found from the beginning of the second ten-day period of June until the third ten-day period of July (Babenko, 1996). It is probable that the prolonged breeding period can be explained by unstable weather conditions and the impact of predators, meaning the terns have to lay egg repeatedly.

The main number of Aleutian Terns feed in the water area of the Schast'ya Gulf and in the Sea of Okhotsk at a distance of 2-6 km from the colonies. This proportion of birds undertake feeding flights 10-15 km from the Avri and Bol'shaya Iska River mouths, which flow into the gulf where flocks of up to 100-200 birds concentrate. Some terns regularly fly to feed along the mainland shore towards the Kol' River mouth 40 km west of the colonies. Occasionally the birds search for food on the small lakes between swamped depressed larch sparse forests situated near the base of the Petrovskaya Spit. In the ration of the Aleutian Tern population based in the Schast'ya Gulf, the Three-spined Stickleback predominates – it is a numerous species of the local shallow lagoons, which also inhabits small flounders, smelts, capelins, shrimps and isopod crustaceans (Babenko, 1996).

Long-billed Murrelet. From the end of June until August in 1984-1987 this species was annually sighted in the sea near the Petrovskaya Spit, Baydukova Island and Chkalova Island. It likely breeds in the coastal taiga: in the

breeding period the birds were observed flying away from the sea into the depths of the land. The maximal index of the abundance was received from a census on the 31st August 1985 near Baydukova Island – 178 specimens per 20 km of route (Babenko, 2000).

The Schast'ya Gulf is a breeding site of the Nordmann's Greenshank and Steller's Sea-eagle (Pronkevich et al., 2011). Extensive zones of silty sediments that are revealed during low tides are the key stopover sites of migratory waterbirds and diurnal birds of prey. Concentrations of migratory waterfowl and waders amount to several tens of thousands of specimens here (Voronov, Poyarkov, 2000; Pronkevich, 2014).

Use, Management

The small Vlas'yev settlement which lacks a permanent population is situated in the western part of the Schast'ya Gulf. In summer the settlement is used as a trans-shipment base for a fishing company and fishing poachers, who catch herrings, gadids, salmons and sturgeons. A hunters' base is located on Chkalova Island, from which dozens of White Whales are annually trapped. The base of the fish-processing company is situated on the Petrovskaya Spit, acting only in the warm periods of the year.

Existing Threats

Egg collecting (for eating) occurs annually in the mixed colonies of the Common Black-headed Gull, Common Tern and Aleutian Tern. This harvests several hundred specimens. There are poachers hunting waders during their summer migration, who shoot numerous flocks of these birds. This amounts to several hundreds of specimens. Fires and the destruction of meadows by tracked vehicles have a negative impact on the habitat's status.

Conservation Status

The entire water area of the Schast'ya Gulf (including the small islands) is included on an area of 26,100 ha in the composition of the ornithological Nature Monument of regional importance "Schast'ya Gulf with Kevor and Chayachnyy Islands". A territory is listed in the catalogue of wetlands of the Russian Southern Far East (Bocharnikov, 2005).

Necessary Conservation Measures

Control for the adherence of the protected regime of the Nature Monument. It would be expedient to raise the conservation status of the territory up to a federal level. It is necessary to develop longitudinal monitoring of the status of rare bird species. It is possible to recommend the extermination of Red Foxes on the islands where the Aleutian Tern colonies are situated.

Author-compiler: Pronkevich V.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Aleutian Tern	B	1987	1,450-1,960	A	A4.1
Long-billed Murrelet	B?, N	1984-1987	100s	U	A1, A4.2

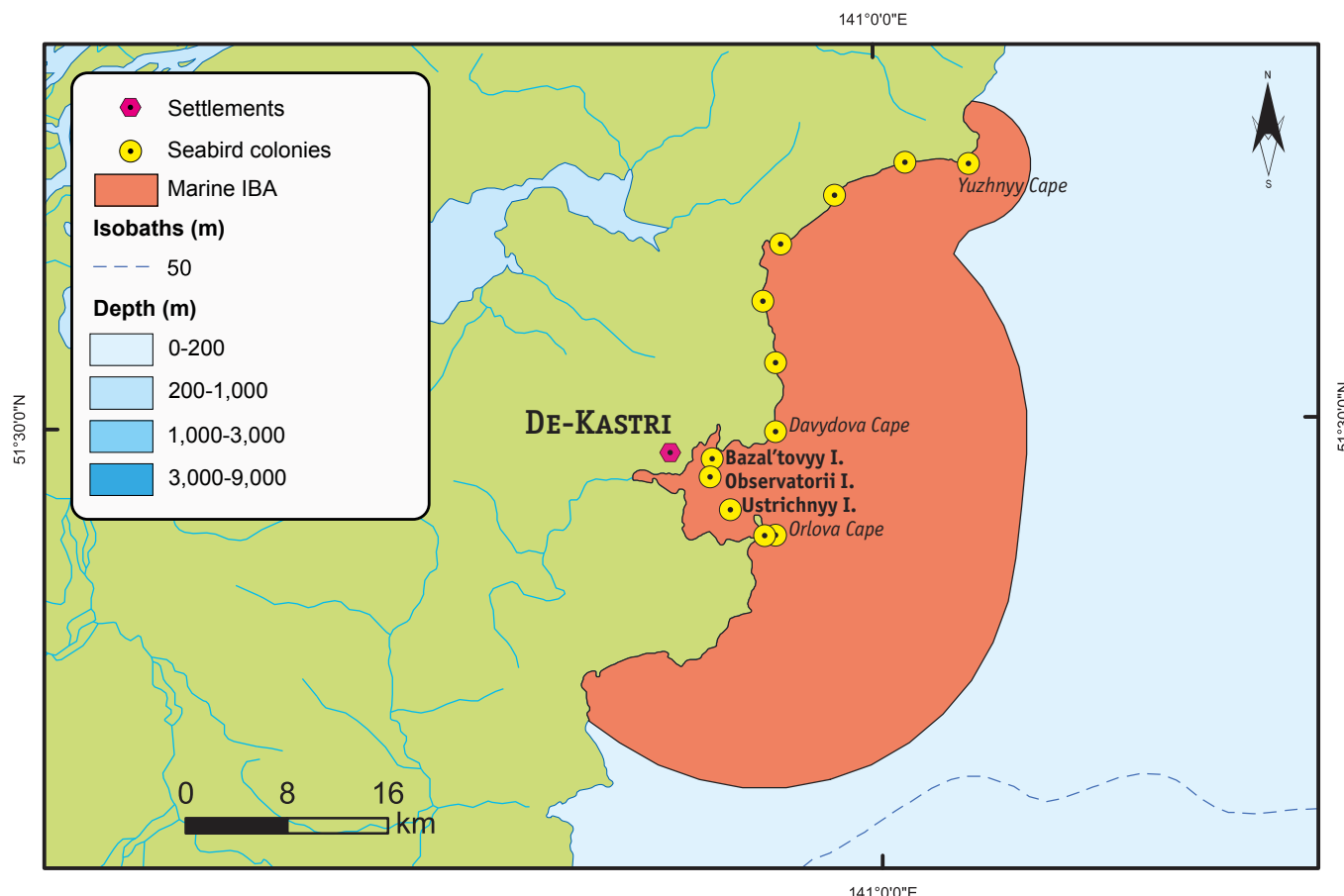
CHIKHACHEVA GULF

Mean Coordinates: 51° 27' 09"N 140° 58' 35"E
Marine Area: 104,604 ha

Geographical Coordinates:

51° 43' 31"N 141° 06' 40"E
 51° 41' 05"N 141° 10' 35"E
 51° 14' 51"N 140° 53' 40"E
 51° 19' 17"N 140° 40' 02"E

31



Site Description

The Chikhacheva (De-Kastri) Gulf is located on the western shore of the Tatarskiy Strait in the northern area of the Sea of Japan. The gulf is surrounded by rocky coasts. The depth of gulf reaches 9 m, and in the waters surrounding the Tatarskiy Strait it reaches up to 50 m. There are two tides per day in this region, the tidal range being 1 m. There are 4 islands in the gulf, upon which are situated the nesting sites of different seabird species. The largest island – Orlova Island – was once a peninsula, but at the end of the 20th century it became separated from the coast after the unfortunate excavation of ground on the isthmus. A lighthouse has been erected on the island. The sea shore north of the gulf towards Cape Yuzhnyy forms a chain of small bays (the largest of them is Tabo Bay), bordered by rocky precipices with heights of 100 m and beyond.

Ustrichnyy Island, a Nature Monument, is situated in the gulf 2.3 km from the coast; its surface is almost completely covered by forest, with rocky cliffs up to 100 m. Bazal'tovyy Island is situated closer to the coast and 800 m from the port of De-Kastri; its upper levels are covered in burnt deadwood, and its rocky cliffs are up to 20 m high. Observatorii Island is situated 1.8 km from the port (between Bazal'tovyy Island and Ustrichnyy Island). Its entire surface is covered by forest, and its rocky cliffs can reach heights of up to 20 m. One of the largest islands – Orlova Island – is covered by forest, and its cliffs at the south-eastern side are around 100 m in height.

The water area under consideration consists of the entire area of the Chikhacheva Gulf and the adjacent area of the Tatarskiy Strait. The western border of the water area passes through the coastline, the eastern border is an arc of a circle with a radius of 20 km from Cape Orlova in the south and a radius of 5 km from Cape Yuzhnyy in the north (on the average distances of foraging flights of the Ancient Murrelet and Spectacled Guillemot).

Ornithological Importance

A key breeding site for 3 colonial seabird species – the Japanese Cormorant, Spectacled Guillemot and Ancient Murrelet.

Japanese Cormorant. Within the borders of the considered territory the species breeds on the rocks of Cape Orlova and on steeper areas of the shore from Cape Davydova to Cape Yuzhnyy. In 2001, the bird population in the colonies was estimated at 340-410 specimens. In the next year, the maximal numbers ranged from 590-780 specimens.



*Islands in the Chikhacheva Gulf
(photo by I.M.Tiunov)*

However in 2005-2006 a decline in breeding birds to 310 specimens was recorded as a result of explosive works in the open mine on Davydova mountain (Blokhin, Tiunov, 2003, 2007). In the Chikhacheva Gulf the birds arrive from the end of April – beginning of May, and egg-laying occurs in the first half of June. The colonies are situated on the costal rocks, at heights ranging from 20-100 m. The young birds disperse at the end of August. Being a coastal species, the Japanese Cormorant in the Chikhacheva Gulf (and its vicinities) spends the entire period of its stay near the colonies, obtaining food from shallow waters.

Spectacled Guillemot. Breeds on Ustrichnyy Island (600 specimens), Bazal'tovyy Island (100), Observatorii Island (100-140), on the stony taluses of Orlova lighthouse (200), and on the sea shore from Cape Davydova to Cape Yuzhnyy (to 2,000). During an observation period from 2001 until 2006, no considerable changes in the bird population were registered within these colonies (Blokhin, Tiunov, 2003, 2007). The Spectacled Guillemot arrives and migrates in the Chikhacheva Gulf at the end of April – beginning of May. The breeding season lasts from the second half of May until the end of August. It primarily breeds in taluses and in stony places, sometimes in the cracks of rocks. After the chicks fledge and take to the water, the guillemot numbers near the colonies declines, because the birds scatter along the coast in search of sites richer in food resources. The Spectacled Guillemot is strictly a coastal species, and consequently during the breeding period it feeds in the direct region of the colonies, no further than several kilometres from the coast.

Ancient Murrelet. According to the data from counts in 2005-2006, the population in the colonies on the islands of the Chikhacheva Gulf comprised (in thousands of specimens): Ustrichnyy – 0.8, Bazal'tovyy – 4-6, Observatorii – 20-24, Orlova – 0.6; and another 1,000 specimens on Cape Davydova (Blokhin, Tiunov, 2003,

2007). The spring arrival and migration of the Ancient Murrelet in the region of Chikhacheva occurs in May. At the end of May – beginning of June egg-laying and incubation begins. The nests are situated in hides among stony places and rocks, and sometimes the Ancient Murrelets occupy old burrows of the Rhinoceros Auklet. The chick hatchings occurs in July – early August. After several days in the nest, the chicks fledge and move into the water, where their parents continue to feed them over the month. The Ancient Murrelet is not a coastal species, therefore after the chicks fledge and take to the water the chicks travel far from the coast into the sea. In the breeding period this species feeds in the Chikhacheva Gulf and its vicinities.

Besides the key species on the islands, the Chikhacheva Gulf shore and its vicinities, a number of other colonial seabirds breed, whose maximal number during the observation period in 2001-2006 comprised: Great Cormorant – 1,000 specimens, Pelagic Cormorant – 250, Black-tailed Gull – 760, Slaty-backed Gull – 13,200 (according to counts in 2003, but in 2006 this declined to 2,080 specimens), Common Guillemot and Brünnich's Guillemot (760). The breeding of separate pairs of Horned Puffins and Tufted Puffins is also recorded, and the breeding of Parakeet Auklets is presumed (Blokhin, Tiunov, 2007).

Use, Management

The De-Kastri sea port is situated in the gulf; its main cargo consists of timber and raw oil for export. An oil terminal works at the port. Ships navigate here all year round (with ice-breakers in winter). The human population in the De-Kastri settlement equals 3,086 (2012).

Existing Threats

The development of infrastructure in the territory, poaching (egg collecting in the colonies), recreational load (from inhabitants of the De-Kastri settlement on the islands), disturbance factor.

Conservation Status

In 1997 Ustrichnyy Island was declared a Nature Monument of regional importance on an area of 400 ha. The water area has no conservation status.

Necessary Conservation Measures

Monitoring of the protected regime of the "Ustrichnyy Island" Nature Monument. Introduction of visitation restrictions by people from the islands-colonies (Bazal'tovyy, Ustrichnyy, and Observatorii Islands) during the breeding period. Prohibiting egg collecting in the gull colonies. Prevention of oil spills and the provision of measures to combat oil pollution in the Chikhacheva Gulf during loading and transportation.

Author-compiler: Tiunov I.M.

Species	Status	Survey year	Number	Estimation precision	Criteria
Japanese Cormorant	B	2001-2006	180-750	A	A4.1
Spectacled Guillemot	B	2001-2006	2,860-3,140	A	A4.2
Ancient Murrelet	B	2005-2006	26,400-32,400	A	A4.2

SHMIDTA PENINSULA (the eastern shore)

Mean Coordinates: 54° 18' 11"N 142° 49' 55"E

Marine Area: 27,569 ha

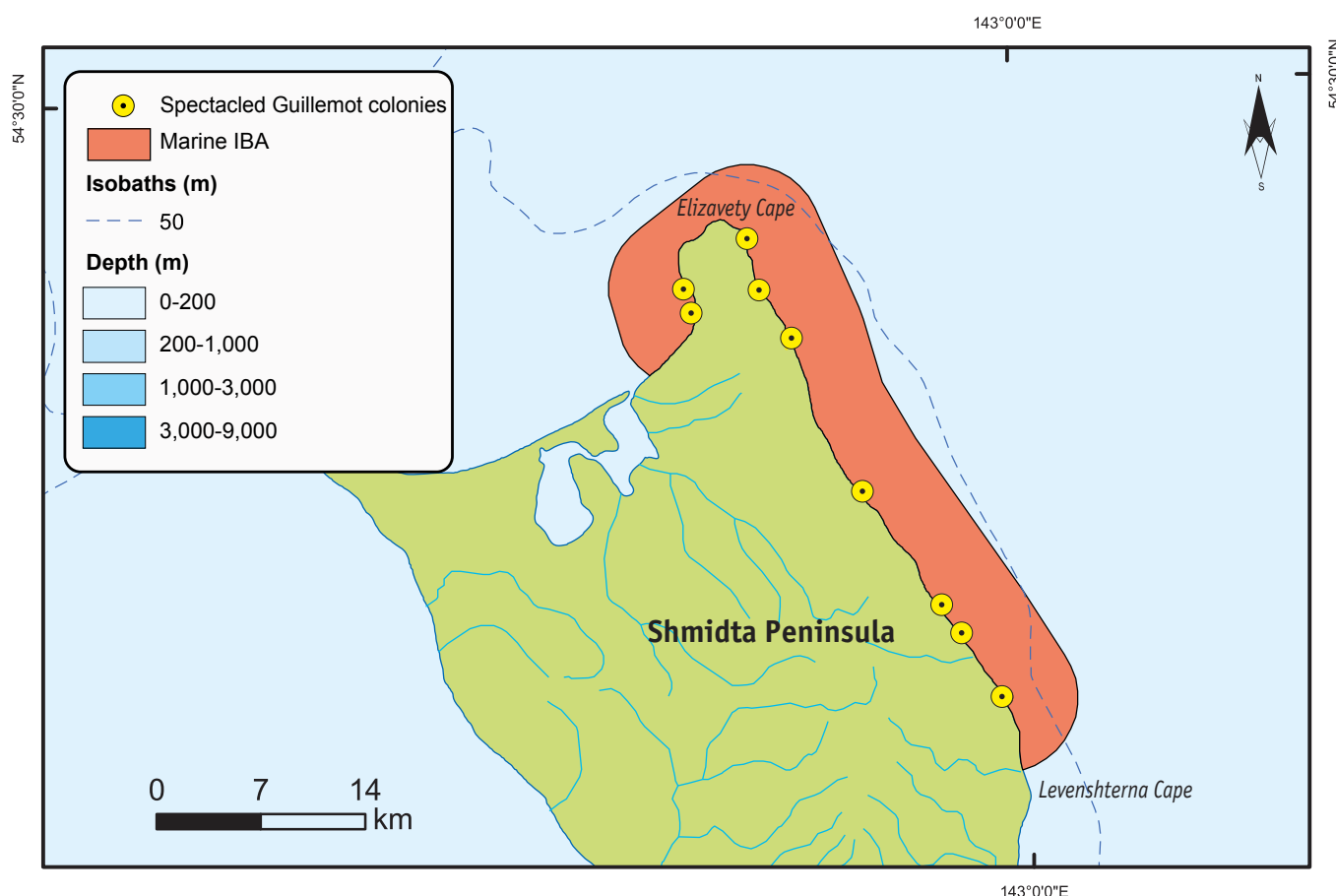
Geographical Coordinates:

54° 27' 26"N 142° 43' 32"E

54° 08' 20"N 143° 03' 02"E

54° 05' 36"N 142° 59' 32"E

54° 22' 54"N 142° 35' 17"E



Site Description

The northernmost peninsula of Sakhalin Island, washed from the east by waters of the Sea of Okhotsk, and from the west by the Sakhalinskiy Gulf. The topography of the peninsula is mountainous, formed by two parallel mountain ridges. The western ridge is comparatively lower, the eastern extends along the shore for 50 km from Cape Elizavety to Kheyton Lake and has the highest summits on the peninsula (Tri Brata mountain reaches 623 m a.s.l.). The slopes of the ridge which face the sea are cut through by narrow river valleys. The lower belt of the mountain slopes is covered by forest, whereas the upper slopes are covered by windswept shrubs. The coastline is strongly indented. The eastern coast of the peninsula is less steep in comparison with the western coast, with sandy-pebble and stony beaches. The coastal belt forms a series of clayish-sandy screes and rocky outcrops with small bays, rocky screes and heaps of stones on the shore.

There is a monsoon climate in this region, with clear seasonal alternation of transfer of the continental and marine air masses. Summer is cool and rainy, with dense fogs and cold winds. Ice cover is observed from October until the middle of May. Pieces of ice are evident on the coasts until the end of June, brought across from the Sea of Okhotsk. Frosts are possible until the end of June.

The border of the waters under consideration passes through the coast and by through arcs of circles with a 5-km radius, drawn from the location points of the Spectacled Guillemot colonies.

Ornithological Importance

The key breeding region of the Spectacled Guillemot.

Spectacled Guillemot. During an investigation of the Shmidt Peninsula shore by motor boat at the end of July 2003, 9 main colonies were discovered, in which the bird population varied from 80 to 500 specimens. Another small



Eastern shore of the Shmidt Peninsula (photo by I.M. Tiunov)

quantity of guillemots was recorded sporadically along the sea shore. The total number of this species within the limits of the selected territory comprised 1,900 specimens (I.M. Tiunov, A.Yu. Blokhin, unpublished data). In the past the Spectacled Guillemot was found in this territory on Cape Elizavety, but its numbers were not determined (Nechaev, 1991).

Besides the Spectacled Guillemot, other colonial seabirds are present within the borders of this territory. To the north of Cape Levenshterna there are 3 Slaty-backed Gull colonies consisting of 50, 60 and 100 specimens (Tiunov, Blokhin, 2005), and the breeding of dozens of Ancient Murrelets, Horned Puffins and Tufted Puffins is probable (Blokhin, Tiunov, 2005). In 2003 during summer on this area of the sea shore the presence of non-breeding Pelagic Cormorants (up to 450 specimens) and several species of gulls (Common Black-headed Gull, Common Gull and Black-legged Kittiwake) with a total number of greater than 2,500 was recorded. In the waters near the coast there are concentrations of moulting Harlequin Ducks (in total up to 650 specimens) and Red-breasted Mergansers (up to 600).

Use, Management

Practical development of the territory is not conducted due to its difficult accessibility and the nature-conservation status of the territory.

Existing Threats

In recent years during the period of salmon fishing on the Shmidt Peninsula more and more fishers' camps appear, which violate the Game Reserve's policy, and this includes the borders of the considered territory. During construction works and subsequent use the bird habitats are being destroyed, and there are disturbance factors.

Conservation Status

Since 1978, the land territory of the Shmidt Peninsula has been classified as "Northern" State Game Reserve. The water area has no nature conservation status. The peninsula region covering an area of 164,300 ha, including 45,000 ha of water, is included in the catalogue of wetlands of the Russian Southern Far East (Bocharnikov, 2005).

Necessary Conservation Measures

Control for the adherence to the protected regime of the "Northern" Game Reserve. The establishment of the "Shmidt Peninsula" Nature Park is presumed in the future (Bocharnikov, 2005).

Author-compiler: Tiunov I.M.



Spectacled Guillemots (photo by Yu.B. Artukhin)

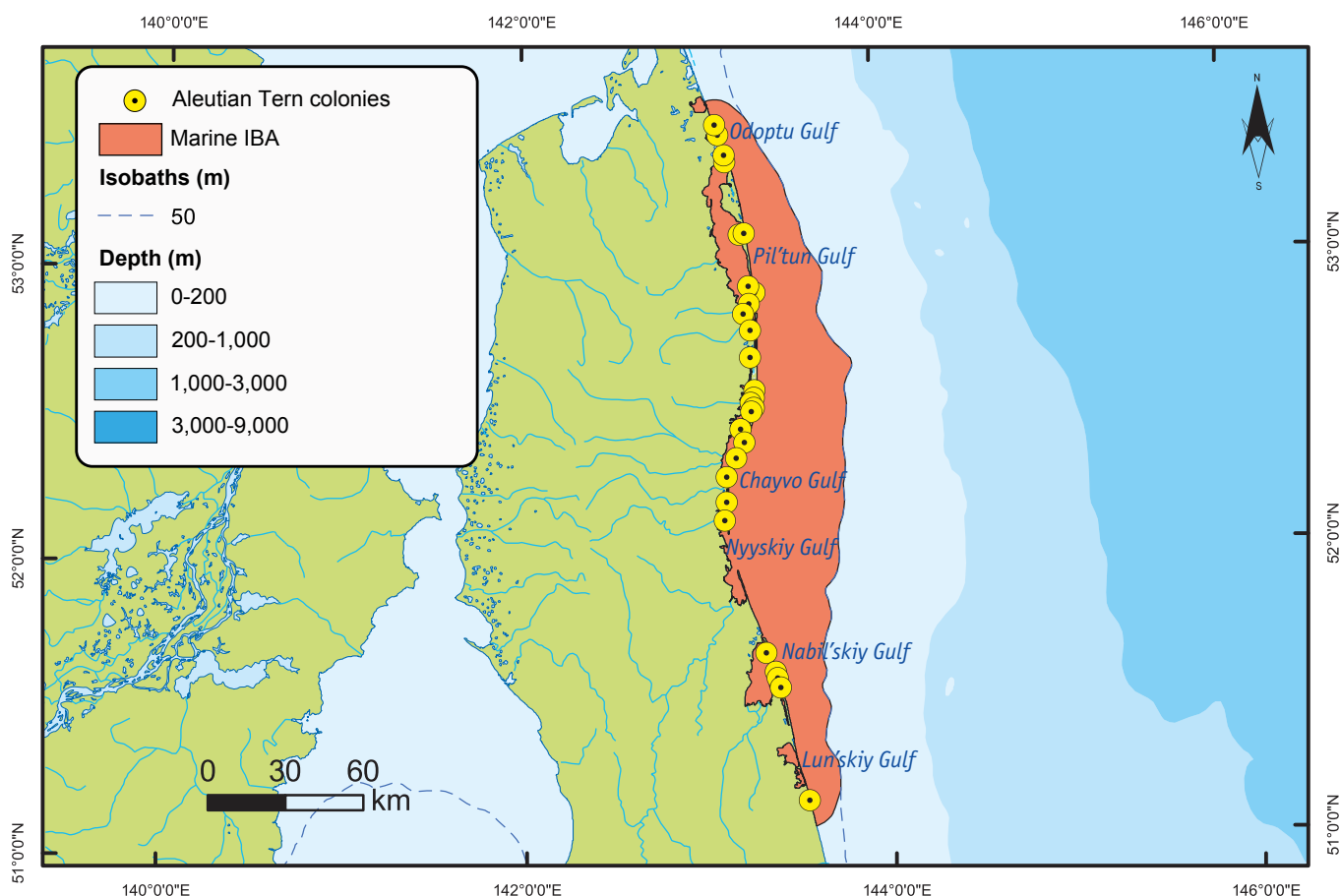
Species	Status	Survey year	Number	Estimation precision	Criteria
Spectacled Guillemot	B	2003	1,900	A	A4.2

LAGOONS OF THE NORTH-EASTERN SHORE OF SAKHALIN ISLAND

33

Mean Coordinates:
52° 21' 58"N 143° 27' 06"E
Marine Area:
818,665 ha

Geographical Coordinates:
53° 35' 10"N 143° 01' 39"E
52° 39' 54"N 143° 51' 08"E
51° 04' 59"N 143° 34' 29"E
53° 33' 56"N 142° 57' 54"E



Site Description

The territory occupies saline water bodies of the coastal belt and the adjacent upper area of the shelf zone belonging to the Sea of Okhotsk. There is a group of shallow (with depth of 3 m) lagoons connected with the sea by narrow straits. The largest gulfs are Pil'tun (435 km²), Nabil'skiy (181 km²) and Chayvo (121 km²). The water level, temperature and salinity in lagoons are sharply changing within 24 hours as a result of tidal currents, wind surges and significant river flow. The numerous lakes and swamped lowlands are located on sandy spits, forming favourable conditions for the breeding of waterbirds. On the shallow areas of the gulfs, the islands are scattered, occupied by mass colonies of larids. During low tide (up to 2.3 m) in the intertidal zone the extensive mud flats are formed, on which hundreds of thousands of shorebirds stop during the summer and autumn migration. The adjacent shallow water surface of the Sea of Okhotsk serves as a food habitat for breeding waterbirds, and in summer the mass moulting sites of sea ducks form here. Shallow gulfs and coastal shoals are favourable for the rapid restoration of rich benthos communities, which provide food not only for anatids who concentrate here for moulting, but also for Grey Whales of the vanishing Okhotsk-Korean population.

The territory border goes through the east on the 50-m isobath, in the west on the lagoon's contour, in the north and the south on the circumference with a radius of 10 km, lined from two marginal colonies of the Aleutian Tern.

Ornithological Importance

The lagoons of the north-eastern shore of Sakhalin Island support more than a third of the world population of the Aleutian Tern, and the largest breeding congregations among all known colonies for this species are situated here.

Some of the largest in the Far East Russia concentrations of moulting sea ducks are formed in the coastal waters and foraging and nomadic sites of the Long-billed Murrelet are situated here too.

Greater Scaup. Low in numbers (in the north-eastern shore of the island it is a common species) breeding, numerous migratory and summering species of Sakhalin Island, and breeds on the shores of the Nabil'skiy, Nyyskiy, Chayvo and Pil'tun Gulfs (Tiunov, Blokhin, 2011). The spring migration begins in April, and its peak takes place in the second and third ten-day periods of May. Some birds stay to wander near the shore. The summer nomadic movements of the Greater Scaup in the sea become mass nomadic movements at the end of June, being greater in July and August. The moulting concentrations in the inner wetlands occur more rarely, their number in June – July does not exceed 30-50 specimens. Most of the birds moult in the coastal sea water areas. The Greater Scaup stays above a depth of 20 to 50 m. Concentrations do not exceed 6,000 and usually consist of 300-600 specimens. Maximal concentrations, consisting of several congregations, reach 20,000 (10th August 1999 – the coast of Chayvo Gulf). The total number of the Greater Scaup in summer near the coasts of the Northern Sakhalin Island within the limits of territory, according to data for 1988-2003, comprises usually of 70,000-150,000, but in favourable seasons reaches 300,000 specimens (Blokhin, Tiunov, 2005).

Harlequin Duck. Likely to be breeding, usually summering and making numerous passages to Sakhalin Island. On the northern shore of the island these ducks spread everywhere and in their numbers, when the sea is free of ice. Sometimes the Harlequin Duck occurs in the gulfs, on lakes and in the river mouths near the sea. The spring migration lasts until the end of May, since mid-June summer nomadic movements begin and they last until the end of September. In the sea the Harlequin Ducks mainly stay in the surf belt at a distance of 250-300 m from the coast (to isobath of 10 m). Concentrations seldom exceed 1,000 specimens, and usually consist of 200-600 ducks. The total number in summer near the coasts of the Northern Sakhalin Island, according to data for 1988-2003, is estimated at 30,000-50,000 specimens (Blokhin, Tiunov, 2005; Tiunov, Blokhin, 2011), among them 15,000-20,000 are within the limits of the territory under consideration. **White-winged Scoter.** A rarely breeding, numerous summering and rarely wintering species of Sakhalin Island. In spring the White-winged Scoters appear with the first thawed patches of water in the sea. The mass passage lasts from late-April until mid-May. Nomadic birds stay near to the shore until autumn, and their number reaches its maximum in August. Near the north-eastern shore of the island the White-winged Scoters sometimes form concentrations of up to 250,000 specimens, while concentrations of 10,000-50,000 specimens occur regularly. The species distribution gravitates to isobath of 20 m. Among birds concentrating for moulting, males dominate – 93.4 % (Gluschenko, Gluschenko, 2008). The total number of nomadic White-winged Scoters within the IBA limits according to data for 1988-2003 is estimated at 1,000,000-2,000,000 specimens (Blokhin, Tiunov, 2005; Tiunov, Blokhin, 2011).

The current situation with the moulting sea duck concentrations is unknown. In the 2000s near the north-

eastern coasts of Sakhalin Island two marine drilling platforms besides those which already existed were included in exploitation and they were served by a number of vessels and air transport. In connection with an increased disturbance factor there are concerns that the status of the moulting sites became worse.

Aleutian Tern. The main breeding colonies are situated on the islands and sea spits of the following gulfs: Nabil'skiy, Nyyskiy, Chayvo, Pil'tun and Odoptu. The largest settlements are situated on the following islands: Bol'shoy Vrangelevskiy in the Pil'tun Gulf, Lyarvo in the Nyyskiy Gulf and Chayka in the Nabil'skiy Gulf. For the last 30-40 years the number of terns at these sites did not sufficiently change. In the 1970-1980s on Chayka Island up to 1,400 birds bred, on Lyarvo Island – up to 1,000, and on Bol'shoy Vrangelevskiy – roughly 800 (Nechaev, 1991), so in 1991 among these colonies there were 4,000 specimens in each, and in 2012 – 4,300, 2,300 and 3,000 specimens, respectively (Tiunov, Blokhin, 2014). The feeding habitats of the Aleutian Terns, breeding on Chayka Island, are situated in the Aslanbekova Strait and along the shore of the Staryy Nabil' Spit, those from Lyarvo Island – near strait, in the Dagi River mouth, in the Sea of Okhotsk near the northern spit of the gulf and also in the Kleyye Strait (Chayvo Gulf) 30 km from the colony. The terns, breeding on Vrangelevskiy Islands, mainly get their food near strait, in the coastal water area and surrounding islands.

Long-billed Murrelet. Breeds in the coastal belt, a nest was found in the larch forest 2 km from the Chayvo Gulf (Nechaev, 1991). Breeding birds fly to get their food from the sea, and their post-nesting nomadic movements take place here. During counts in the coastal zone between the Lun'skiy and Nabil'skiy Gulfs in 2009, a total of 475 murrelets were recorded passing by the seaside in early morning, and in 2010 – 112 specimens were counted (Gluschenko et al., 2012). The species is commonly found during summer in the northerly sea, against the Nyyskiy, Chayvo and Pil'tun Gulfs, and in low numbers during the autumn nomadic movements: according to the data from ship censuses during 1998-2003, the average occurrence comprised respectively of 1.5 and 0.1 specimens per hour of observations (Gluschenko, Gluschenko, 2008).

Besides the above-mentioned key species, the territory under consideration has an important significance for a range of other waterbirds. Gulls and terns, ducks and waders, including Nordmann's Greenshank breed on the sea spits and islands of the gulfs. During the summer-autumn migration on the littorals, opening during tides, hundreds of thousands of waders halt for rest and the accumulation of their fat reserves before the further spurt to the coasts of Japan, Korea and China. At the same time the swans and dabbling and diving ducks stay in shallow, sealed and blind spots of the gulfs. There are maximal concentrations of birds: in the Lun'skiy Gulf – 12,000 ducks, 6,700 gulls and 700 waders; in the Nabil'skiy Gulf – about 76,000 ducks, 1,500 gulls and 1,000 waders; in the Nyyskiy Gulf – 5,000 swans, 20,000 ducks and about 11,000 waders; in the Chayvo Gulf – about 3,000 swans, 32,000 ducks and up to 3,000 waders; in the Pil'tun Gulf – up to 55,000 swans, about 66,000 ducks and 3,500 waders; in the Odoptu Gulf – up to 30,000 ducks and about 30,000 waders (Tiunov, Blokhin, 2011). At the end of summer –



Concentration of moulted Harlequin Ducks, marine drilling platform is in the background (photo by I.M. Tiunov)

beginning of autumn on the shelf of the North-Eastern Sakhalin, considerable concentrations of trans-equatorial migrants are recorded – shearwaters of *Puffinus* genus, including the Sooty Shearwater, who comprise about a third of nomadic birds (Gluschenko, Gluschenko, 2008; Gluschenko et al., 2011).

Use, Management

Seismic surveying and extraction of oil and gas are conducted in adjacent water areas of the Sea of Okhotsk. Near the north-eastern shore of Sakhalin Island five sea drilling platforms are in operation, for whose service involve a number of vessels and air transport. In summer, small fishing teams catching salmon are working in the Chayvo, Nyyskiy and Nabil'skiy Gulfs. On the sea spits and gulfs the recreational hunting of waterfowl takes place, and the indigenous people shoot breeding ducks in the vicinities of their nomadic camps.

Existing Threats

Development of infrastructure of the territory, industrial transformation, poaching, disturbance factor.

Conservational Status

In the territory, the Nature Monuments of regional importance are situated: "Vrangelya Island" (established in 1987

on an area of 85 ha), "Lyarvo Island" (in 1983 – 100 ha), "Chayachiy Island" (in 1986 – 118 ha) and "Lun'skiy Gulf" (in 1997 – 22,100 ha of water area). Lagoons are included in the shadow list of Ramsar habitats (Krivenko, 2000) and the catalogue of wetlands of the Russian Southern Far East (Bocharnikov, 2005). In 2009 the World Wildlife Fund was supposed to set up "Sakhalin Maritime" Game Reserve in the region of the Pil'tun Gulf, for the conservation of the Okhotsk-Korean population of Grey Whales, but this proposal has not yet been realised.

Necessary Conservation Measures

Controlled observation of the conservation regime of ornithological Nature Monuments. The introduction of restrictions on visitors to the islands with colonies during breeding periods. Prevention of egg-collecting in tern colonies. Avoidance of oil spills and provision of measures for combating oil contamination in the regions of oil extraction and transportation. Companies extracting and transporting hydrocarbons must adhere to the rules of navigation and movements of helicopters, securing a quiet environment at moulting sites for sea ducks in the coastal zone.

Author-compiler: Tiunov I.M.

Species	Status	Survey year	Number	Estimation precision	Criteria
Greater Scaup	N	1988-2003	70,000-300,000	A	A4.1
Harlequin Duck	N	1988-2003	15,000-20,000	A	A4.1
White-winged Scoter	N	1988-2003	1,000,000-2,000,000	A	A4.1
Aleutian Tern	B	2012	15,600	A	A4.1
Long-billed Murrelet	B	1998-2010	100s	U	A1, A4.2

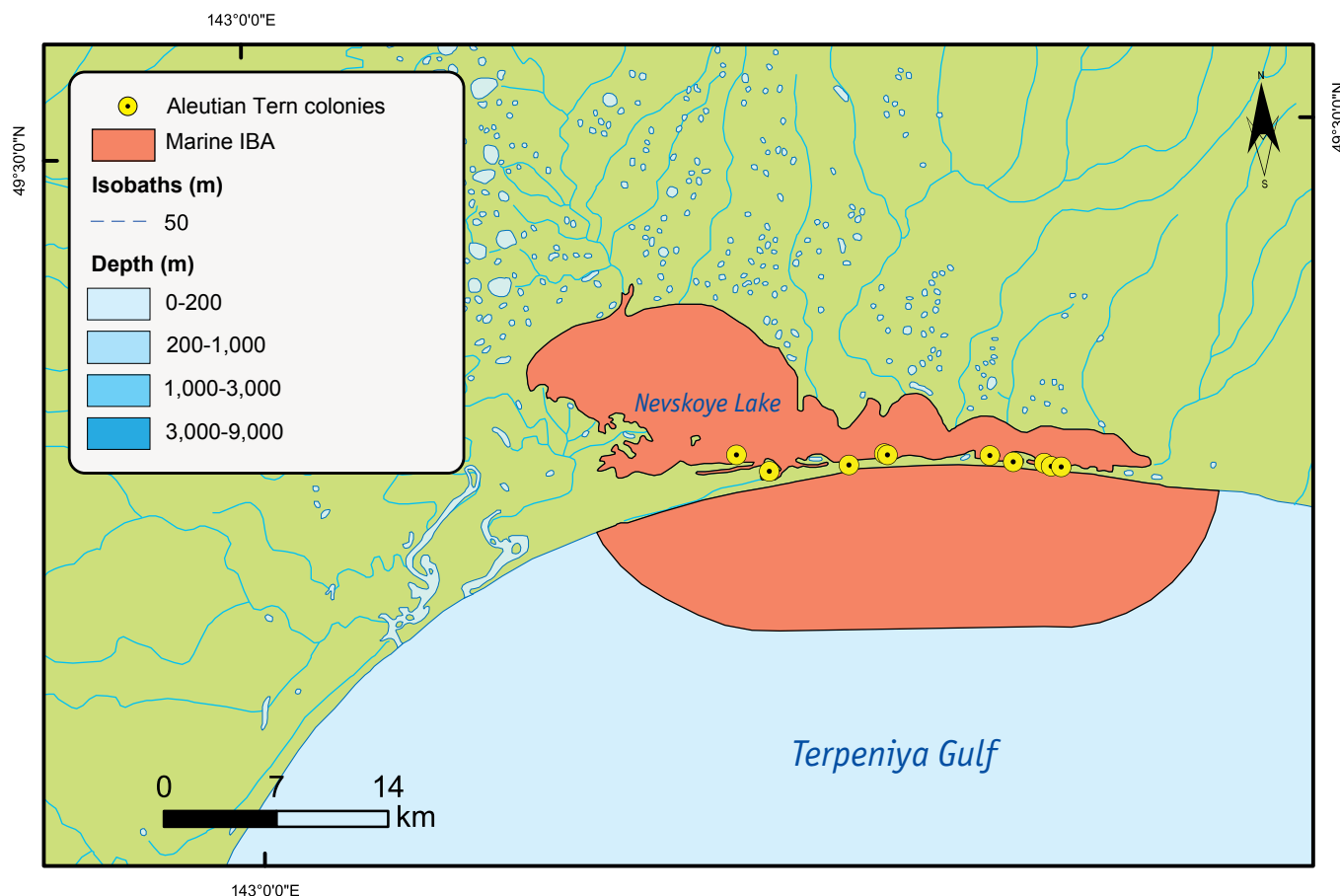
NEVSKOYE LAKE

Mean Coordinates: 49° 18' 06"N 143° 30' 47"E
Marine Area: 49,470 ha

Geographical Coordinates:

49° 25' 20"N 143° 19' 31"E
 49° 17' 46"N 143° 48' 52"E
 49° 13' 27"N 143° 41' 09"E
 49° 22' 31"N 143° 14' 02"E

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Site Description

Nevskoye Lake is situated on the Terpeniya Gulf shore in the middle of Sakhalin Island. The surface area of the lake is 178 km² and it resembles a lagoon with shallow, saline waters (its depths do not exceed 1-2 m). The water level depends on tidal currents and flood waters, and at the bottom the sediments are sandy and silty. The coasts are low and sandy, and in the coastal area of the lake the tides reach up to 1 m in height, while in the Terpeniya Gulf they reach up to 1.5 m.

In summer the lake is overgrown by aquatic vegetation. Many brooks and rivers flow into the lake; from the north, east and west it is surrounded by the swampy Poronayskaya Lowland, covered by sparse forest, shrubby thickets, and grassy and mossy bogs. The lake is separated from the Terpeniya Gulf by a sandy spit with a width ranging from several tens of meters to 2 km. The spit is predominately covered by grassy vegetation: *Leymus* and various meadow grasses, and on wetter areas by reeds; there are small areas of larch forest with Japanese Stone Pine thickets, Wild Rose thickets and spots of tundra-like vegetation. In the southern part of the lake along the sea spit, small lowland islands are located which are overgrown by grassy vegetation, and on some there are areas of forest and shrubs.

There is a monsoon climate at the site. In summer the winds of the southern and south-eastern directions predominate, while in winter those of the northern and north-western directions predominate. Spring is cold and prolonged, with frosts and snowfall until the end of May towards the first half of June. The East Sakhalin Current has a cooling effect. This current travels along the eastern shore of Sakhalin Island from north to south. The snow melts and the ice on the lakes deteriorates during the second half of May towards the first ten-day period of June. Summer is cool, with frequent rain and fogs. The maximal amount of precipitation, connected with increasing cyclonic activity above the ocean, is observed in August – September. The precipitation is marked by its great intensity. During August and the first half of September typhoons are also recorded (Bocharnikov, 2005).

The considered waters include the entire area of Nevskoye Lake and the coastal zone of the Terpeniya Gulf adjacent to it, whose border passes through at a distance of 10 km from the Aleutian Tern colonies.



Overgrowing vegetation shallow waters on Nevskoye Lake (photo by V.B. Zykov)

Ornithological Importance

One of the most important nesting sites of the entire range of the Aleutian Tern species is situated on Nevskoye Lake.

Aleutian Tern. According to data from A.I. Gizenko (1955), in 1949 the Aleutian Tern was a common species on Nevskoye Lake, but its exact number was not determined. According to the results of studies from 1967, the species nested on the Nevskoye Lake shore in 3 colonies with a total number of 194 specimens (Kovalev et al., 1980). In the 1970s the terns continued to breed on the lake, in all probability within the same colonies, and their numbers somewhat increased – to 250-300 specimens (Voronov, Eremin, 1981). Data derived from counts in 2007-2008 indicate that 1,580 specimens of the Aleutian Tern were situated here, including 1,076 on 7 islands and 504 in 3 colonies on the sea spit (Revyakina, Zykov, 2010). Thus, over a 40-year period on Nevskoye Lake the number of colonies of this species increased, and the population increased by more than 8 times. The feeding habitats of the Aleutian Terns are situated in the channels that connect the sea with the lake and in the adjacent waters of the Terpeniya Gulf.

Additional larids that breed alongside the Aleutian Tern on the islands of Nevskoye Lake include: Common Tern (2,670 specimens), Black-tailed Gull (352 specimens), Slaty-backed Gull (54 specimens), and separate pairs of the Common Black-headed Gull and Arctic Tern (Revyakina, Zykov, 2010). In the coastal zone of the lake, there are about 25 breeding sites of the Steller's Sea-eagle and 2-3 of the White-tailed Sea-eagle. The mass migrations of waterfowl and seabirds pass through the Terpeniya Gulf shore and

through the lake area. Concentrations of dabbling and diving ducks form on the lake during the migratory period (up to 9,000 specimens), along with Whooper Swans (up to 1,500). Concentrations of White-winged Scoters form in the coastal waters of Terpeniya Peninsula during mid-May, which consist of many thousands of birds (Pirogov, 2001), but their numbers in the Nevskoye Lake region is not directly known. During spring in the sea, concentrations of American Scoters are observed in numbers of greater than 1,000 birds (Voronov et al., 1983).

Use, Management

In the second half of the 20th century a considerable part of the territory was subject to intensive human activity. In the 1960s a dam was built on the lake which divided its surface into two parts, each isolated from the other. In the past few decades the economic activity on the lake banks reduced: 3 settlements were liquidated on the sea spit, part of the narrow-gauge railway situated on the sea coast was destroyed, and hay stocking was stopped on the lake banks.

At the present time in the coastal zone on the area of spit separating the lake from the sea, salmon and Saffron Cod fishing is conducted. Nevskoye Lake and its vicinities are a popular site for recreational hunting and fishing, wild berry and plant gathering and a resting site for the inhabitants of the Poronayskiy District and Yuzhno-Sakhalinsk town. This is a region of traditional life for the Nivkhs – the native nation of Sakhalin; on the sea spit there are several clan farms, which primarily deal with subsistence fishing. The hunting of waterfowl is conducted during spring and autumn, primarily on those areas of the lake where there are walkways leading out to the coast;



A banner on the protected zone border of the Poronayskiy Nature Reserve (photo by V.B. Zykov)

several hunter's houses are located here. Movements across the lake are carried out via motor boat, and on the sea spit the country-side roads and sandy beach are used. In recent years the habitat's accessibility has increased in connection with the use of snowmobiles and ATVs.

Existing Threats

The hydrological regime of lake was altered by the dam, and as such the eastern part of the lake acquires progressively more silt and is becoming shallow. Weak water circulation facilitates the accumulation of organic matters and the rapid development of blue-green algae that can lead to a phenomenon of mass mortality of fish,



Aleutian Tern on its nest (photo by V.B. Zykov)

which will be negatively reflected in the food base of waterbirds. In the 1990s hay stocking in the bird colonies represented a great threat; at the present time mowing is not practised, but in the case that this agricultural situation were to change, mowing could be reactivated again. There is a risk of contamination to the water area and shore during oil spills from emergency ships. Instances of poaching are observed regularly (hunting during undetermined dates, the shooting of rare species, illegal fishing and collecting of gull and tern eggs). The recreational load level is high (local people use the territory for rest, in addition to hunting, fishing, collecting scallops from storm emissions and the gathering of wild plants). Forest and grass fires are most commonly connected with the presence of humans on the territory, which provides a threat to colonial bird settlements. The intensive hunting of waterfowl sufficiently decreases the availability of food within the lake for bird migrants.

The Aleutian Tern colonies' status greatly depends on the natural-climatic phenomena. In separate years the mass loss of clutches and chicks occurs as a result of the flooding of the islands during cyclones, accompanied by prolonged rains and rising water levels in the lake.

Conservation Status

The eastern part of the water area of Nevskoye Lake (to the channel that connects the lake with the sea) and the adjacent coastal zone with a width of 500 m is included in the composition of the protected zone of the State Nature Reserve "Poronayskiy". According to regulations of the Reserve, many activities are restricted in the territory of the protected zone. However, a special regime has been introduced in the Nevskoye Lake area, which permits the hunting of migratory game during the dates determined for the Sakhalin Region. Nevskoye Lake and the lowland adjacent to it on an area at 73,000 ha are included in the shadow list of Ramsar habitats (Krivenko, 2000) and the catalogue of wetlands of the Russian Southern Far East (Bocharnikov, 2005).

Necessary Conservation Measures

It is necessary to prohibit hunting in the protected zone of Poronayskiy Reserve in the region of Nevskoye Lake, and to limit the dates and regions of its conduction on the rest of the territory. Furthermore, it would be useful to set up ornithological nature monuments at the colony sites, whose regime would prohibit all types of practical activity and the visitation of colonies during the nesting period. It is important to strengthen state control over the protection of wildlife to prevent poaching, egg-collecting in the colonies, and in order to carry out ecological-educational work with the local population.

Authors-compilers: Zykov V.B., Revyakina Z.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Aleutian Tern	B	2007-2008	1,580	A	A 4.1

TYULENIY ISLAND

Mean Coordinates: 48° 29' 56"N 144° 37' 42"E

Marine Area: 497,491 ha

Geographical Coordinates:

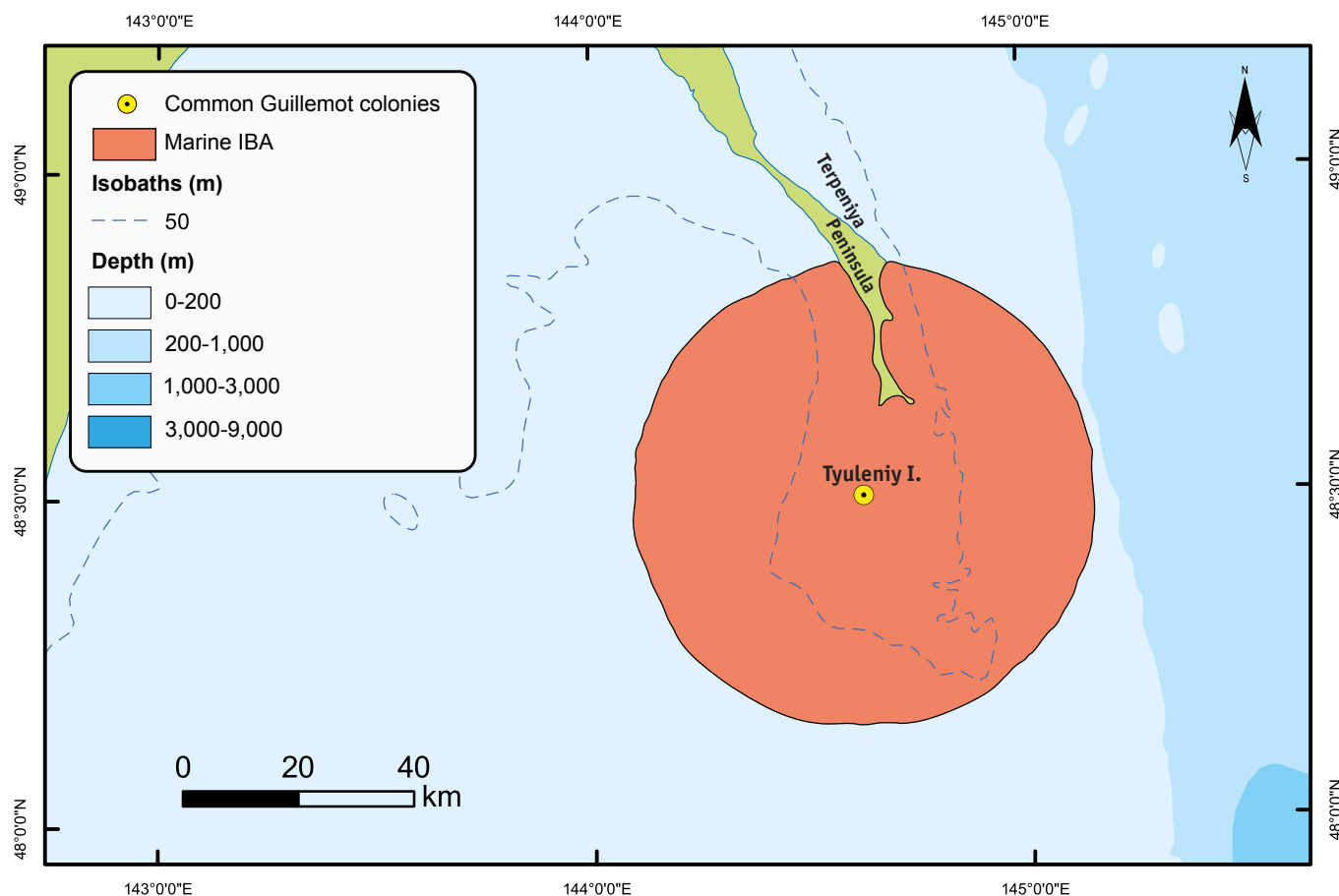
48° 51' 41"N 144° 34' 13"E

48° 28' 25"N 145° 09' 32"E

48° 09' 01"N 144° 37' 03"E

48° 27' 51"N 144° 05' 43"E

35



Site Description

Tyuleniy Island is situated near the eastern coast of Sakhalin Island, 16 km south of Cape Georgiya on the south-western edge of the Terpeniya Peninsula. The island stretches from the north-east to the south-west by 700 m (with a width of about 100 m) and is characterised by flat rocks with a height of around 15-18 m, surrounded from all sides by narrow (10-50 m) sandy-pebble beaches. A spit juts out to the south from the island. Kamen' Sivuchiy is located 2 km away – this is an inselberg with a height of 2.1 m, and a shoal with protruding stones is stretched between it and the island. Rips are commonly observed above the shoal. The island is situated near the eastern border of the Terpeniya Gulf, whose depths do not exceed 50 m; prolonged, shallow zones dominate the area around Tyuleniy Island. Zooplankton biomass reaches high indices during the summer-autumn period in the gulf waters, as well as along the entire eastern shore of the Sakhalin Island.

The climate in the region of Tyuleniy Island is one of typical maritime, being influenced by the cold East Sakhalin Current that passes through Sakhalin shore from north to south. Winter is cold, with a great amount of snow and strong winds from the northern and north-western directions. The average-monthly air temperature in January comprises –13 °C. Stable snow cover forms in November, which deteriorates in the first half of May. In November the water area adjacent to Tyuleniy Island is covered by dense ice, which lasts until spring; considerable areas of open water are absent here during winter, excluding a coastal area near Cape Terpeniya. Spring is cold and prolonged; frosts occur until mid-June. Summer is cool and rainy, with frequent fogs and a dominating southerly wind. The average temperature of the warmest month – August – is about +13 °C. The temperature declines in the second half of September. In autumn there are fewer foggy days than in summer, but strong winds are often present (Bocharnikov, 2005).

Tyuleniy Island is one of the few breeding sites of the Northern Fur Seal in the world, and for a long time (since the end of the 19th century) this rookery was exploited by humans. As a result, the community of seabirds was established on the island in conditions of close contact with humans and seals.

The border of the considered waters is 40 km from Tyuleniy Island – the average distance of foraging flights of the Common Guillemot.



Common Guillemot (photo by Yu.B. Artukhin)

Ornithological Importance

On Tyuleniy Island a specific seabird colony is situated, whose base is primarily formed by plane colony of Common Guillemots – one of the largest colonies throughout the entire range of this species in the world.

Common Guillemot. Population estimates on the island were first recorded in 1946 – over 250,000 specimens (Kuznetsov, Il'ina, 1949). However in 1947-1948 A.I. Gizenko (1955) has estimated figure at 628,000-650,000. It is likely that the second estimation was closer to the real number for that time. In 1963-1965, up to 150,000 guillemots were counted on the island, including 80,000-100,000 breeding ones (Bychkov, 1975). In 1965, explosion works were carried out to break down the eastern cornices of the plateau. This was to expand the territory for the lairs of the Northern Fur Seals in regions which were previously unreachable. The third area of the plateau in the south was surrounded by fences and was

inaccessible for fur seals, and as a result the specific reserve for guillemot breeding was established here. In 1966, the number of breeding birds was recorded at 152,000 specimens (Golovkin, Georgiev, 1970). In 1988-1994 the guillemots nested in their designated area "reservation", with the maximal density occupying two isolated areas with a total area of about 0.4 ha on the southern half of the plateau. In this period the species' population number, calculated using plot census techniques, was determined at 200,000-230,000 specimens (Trukhin, Kuzin, 1996). In 2006, the guillemots began to breed outside the borders of the previous territory at some sites which were unavailable for fur seals, and bird numbers increased to up to 250,000 specimens (Trukhin, 2006).

Besides the Common Guillemot on Tyuleniy Island, the breeding of another 12 colonial seabird species was registered. The most numerous are the Black-legged Kittiwakes (1,230-2,666 specimens) and Crested Auklets (1,200-3,000). The Slaty-backed Gull (16-146 specimens), Rhinoceros Auklet (40-206), and also dozens of Brünnich's Guillemots, Ancient Murrelets, Least Auklets, Parakeet Auklets and Tufted Puffins breed regularly. The Northern Fulmar, Pelagic Cormorant and Horned Puffin have nested here in the past (Trukhin, Kuzin, 1996; Trukhin, 2006). In total, 110 bird species were registered on the island (Nechaev, Timofeeva, 1980), and their major part is connected with wetlands.

Use, Management

Prior to the beginning of the 21st century on Tyuleniy Island, hunting operations were annually conducted and were associated with the limited hunting (several thousands of specimens) on the Northern Fur Seal. In the 1950s, several houses were built on the south-western



Southern part of the Common Guillemot colony on plateau (photo by Yu.B. Artukhin)

shore as accommodation for hunters, inspectors and scientists who monitor the trade. Around 25-30 people usually lived on the island annually during the trading season (the second half of June – July). By 2010, owing to a series of economic factors, the fur seal trade collapsed and has become irregular; its future is under question. In the trading period on the separate limited area of the plateau the Common Guillemot egg collecting annually occurred at a scale of 2,000-3,000.

Existing Threats

Tyuleniy Island is known as the breeding site of otariids – the Northern Fur Seal and Steller Sea Lion. In the 1960s, in order to increase the suitability of the territory for the use of fur seals, several biotechnical measures were conducted, which resulted in a change of the geomorphological appearance of the island. This change has led to a considerable decrease in the size of the guillemot nesting site area. Artificial fences that were erected about half a century ago divided the guillemot colony and fur seal rookeries on the plateau, and at present these are completely demolished. At some sites their collapse occurred because the fur seals began to cross into the breeding territory of birds, eradicating clutches and chicks. If this situation continues, it will inevitably lead to declining guillemot colonies on the plateau. The direct contact between fur seals and other bird species does not occur, due to peculiarities in the nesting ecology of the latter.

Conservation Status

Neither Tyuleniy Island, nor its surrounding waters have any official nature conservation status. The coastal waters along the Terpeniya Peninsula with a width of 500 m in the Terpeniya Gulf and 1,000 m in the Sea of Okhotsk are in a protected zone of the State Nature Reserve “Poronayskiy”. Economic activity is regulated by the Fishery Rules for the Far-Eastern Fishery Basin, according to which at a 30-mile zone around Tyuleniy Island the catching of water bioresources is prohibited excluding coastal fishery within the borders of two designated sectors. Tyuleniy Island is included in the catalogue of wetlands of the Russian Southern Far East (Bocharnikov, 2005).

Necessary Conservation Measures

To conserve the Common Guillemot nesting sites from being entirely stolen by fur seals, it is necessary to urgently restore the fences which separated the bird colony territory from the rookery of fur seals. Tyuleniy Island justifiably requires a nomination for a Specially Protected Territory status, as it is a mass nesting site of seabirds and one of the few breeding sites of the Northern Fur Seal and Steller Sea Lion.

Author-compiler: Trukhin A.M.

Species	Status	Survey year	Number	Estimation precision	Criteria
Common Guillemot	B	2006	250,000	A	A4.2



*Part of the Common Guillemot colony on rock ridge and roofs of houses
(photo by Yu.B. Artukhin)*

MIDDLE KURIL ISLANDS

36

Mean Coordinates: 48° 19' 33"N 153° 20' 13"E

Marine Area: 2,348,599 ha

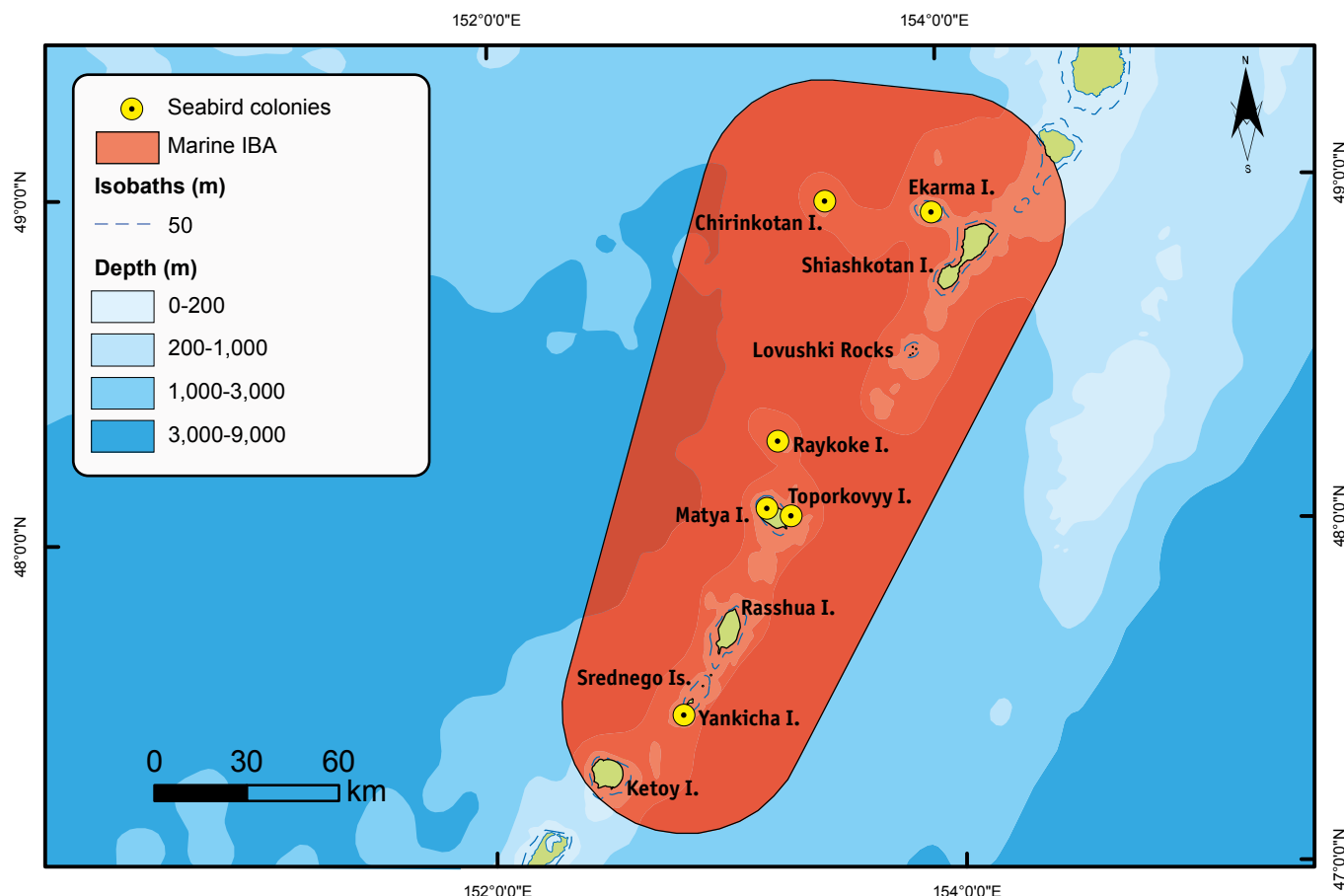
Geographical Coordinates:

49° 20' 14"N 153° 26' 32"E

48° 57' 21"N 154° 32' 49"E

47° 09' 18"N 152° 51' 22"E

47° 28' 59"N 152° 17' 13"E



Site Description

The territory covers the group of islands and rocks in the central part of the Great Kuril Ridge, from Chirinkotan Island and Ekarma Island in the north to Ketoy Island in the south. Each island is a single or double volcano, or volcano fragments. Within the borders of the territory there are 9 active or potentially active volcanos. The islands are formed by igneous rocks (andesites and tuffs) and marine sediments. The surface area of the islands varies from 1.3 to 122 km² and the highest point is 1,446 m (Sarycheva volcano on Matua Island). The islands are separated by straits, the widest (74 km) and deepest (1,990 m) among them being Kruzenshterna Strait, between Shiashkotan and Raykoke Islands. The contour of the sea bed is characterised by a narrow shelf, which surrounds the land in an interrupted strip; most of the territory is in the zone of the continental slope.

The climate is typically maritime: wet, with a cool summer and mild winter, high precipitation, frequent and prolonged fogs and strong winds.

The oceanology conditions in the central part of the Kuril Ridge are formed under the influence of the Kuril Current (a continuation of the East-Kamchatka Current), by which cold water flows through from the straits of the Sea of Okhotsk. In addition, stable cyclonic whirlpools form and there is a powerful upwelling in the region. Together these cool the surface water and enrich it with their nutrients. As a result, dynamic and patchy hydrological and hydrochemical characteristics are exclusively observed here, and are associated with considerable bioproductivity of the Kuril waters (Shuntov, 2001).

Owing to the upward movement of the deep sea water mass and intensive tidal mixing in the coastal zone, the water temperature in August reaches only +4-5 C°. This phenomenon also slows down the formation of ice; so that in winter, the sea remains free of ice. The tides are irregular diurnal, the average tidal range is 1.4 m, with a maximum of 2 m. Currents running between the islands are rapid (reaching up to 12 knots) and are accompanied by rips, waves and whirlpools. The water level fluctuations also result in the phenomenon of wind surges, arising under the influence of strong winds; during the passage of cyclones they reach 1.5-2 m (Kotlyakov et al., 2009).

Seabirds inhabit all islands and large rocks within the territory, without exception. However, the colonies of species which satisfy the criteria of international importance are only present in 6 locations. The boundaries of the key water area, with respect to ornithological value, is mainly based on the characteristics of these nesting sites. The boundaries of the territory held by the tangent to the 40-km circles from the peripheral colonies (being the average distance of foraging flights of the indicator species – Crested Auklet and Tufted Puffin).

Ornithological Importance

In total, a minimum of 2,400,000 colonial seabirds breed within the borders of the territory. In 6 out of 18 breeding species the number of birds in the nesting sites exceeds 1 % of their world population. Due to the lack of accessibility of the nesting colonies, these have seldom been investigated, and only during brief visitations. As a result of this secretive breeding, the existing population estimations are only provisional.

Northern Fulmar. Breeds on all islands, excluding Srednego, and its total population is around 448,000 specimens. The birds of dark morph overwhelmingly predominate. The key colony of this species is situated on Raykoke Island. In 2000, its number was estimated at 240,000 specimens (Artukhin et al., 2001). On this island the Northern Fulmars occupy all sites suitable for nesting along coastal cliffs, volcano slopes and on the near vertical walls of the crater.

The Northern Fulmars disperse widely throughout the water areas in search of food. In the Central-Kuril region this species' average distribution density is 24 specimens/km², and it reaches its highest value in the waters around Raykoke Island, at 266 specimens/km² (Artukhin, 2003c). Mass concentrations of this species in the sea also occur in the northern part of the territory within the straits of Severgina and Ekarma, which are probably formed in major part by birds from Ekarma Island, where 80,000 fulmars breed.

Leach's Storm-petrel and Fork-tailed Storm-petrel. Both species inhabit the majority of the large islands in the central part of the Kuril Ridge. However, due to secretive breeding and nocturnal activity on the land there is very limited information on the distribution and number of their colonies. Only one joint colony of both species situated on Ekarma Island responds to the A4.2 criteria. According to results from repeated observations conducted in the second half of the 1990s, the numbers of Leach's Storm-petrels and Fork-tailed Storm-petrels



Crested Auklet "swarming" on Yankicha Island on the 14th July 2009 (photo by Yu.B. Artukhin)

on this island are estimated at 500,000 and 150,000, respectively (Artukhin et al., 2001). The birds dig burrows in all suitable sites, and spread up the volcano slopes – the Leach's Storm-petrel to 700-900 m and the Fork-tailed Storm-petrel to 250 m a.s.l.

Counts from ships indicated that within the Middle-Kuril waters in the region of the islands the distribution density of both species is inverted: the Fork-tailed Storm-petrels are present in an average density of 1.1 specimens/km², whereas the population density of Leach's Storm-petrel is only one tenth of this number (Artukhin, 2003c). The Leach's Storm-petrel prefers to feed in open ocean waters, while the Fork-tailed Storm-petrel also flies out alongside the Sea of Okhotsk and across the straits (Shuntov, 1998).

Crested Auklet. More than 950,000 specimens breed in this territory (Artukhin et al., 2001; Artukhin, 2003a; Yu.B. Artukhin, unpublished data). The key colonies, in which the main proportion of the population is concentrated (at minimum 900,000) are situated on the islands of Chirinkotan, Matua and Yankicha, where this species occupies the stony taluses on slopes and around the base of volcanoes. Due to brief observation periods the bird population estimates are based on the results of counts during their evening aerial demonstrations – so called "swarming" – and therefore only reflect a minimum number in the colonies: as is recognised (Kondratyev et al., 1992b), data of such surveys at times are inferior to the real number of birds on breeding grounds.

The sizes of the colonies on Chirinkotan Island were estimated at 100,000 specimens on two occasions – in 1963 and 2000 (Velizhanin, 1972; Artukhin et al., 2001).

Ekarma volcano (photo by Yu.B. Artukhin)





Kraternaya Bay on Yankicha Island (photo by Yu.B. Artukhin)

On Matua Island the number of Crested Auklets counted on the 11th July 2003 was at least 200,000 specimens (Artukhin, 2003a). On the assumption that the mates of the birds under observation at this time were at the nests, the minimum colony number can be determined at 400,000. This estimate exceeds the previous one (Velizhanin, 1972; Artukhin et al., 2001), but this is only a consequence of the imperfect counting methodologies. During the powerful eruption of Sarycheva volcano in June 2009, the lava flows covered a considerable area of Matua Island (Grishin et al., 2010), exterminating part of the Crested Auklet colony and the colonies of other species. Specific information regarding the impact on the bird population is unavailable, but during observations from a ship on the 6th June 2011 the evening movements of auklets around the island were not less than those of the previous years (Yu.B. Artukhin, unpublished data).

The first estimations were similar for Yankicha Island (200,000 and 160,000 specimens in 1963 and 2000, respectively), but the authors suggested that numbers are underestimated (Velizhanin, 1972; Artukhin et al., 2001). During an investigation of the island during “swarming” in the evening of 14th July 2009 there were at least 200,000 auklets in the observer’s field of vision (Yu.B. Artukhin, unpublished data), and hence by doubling results of direct counts the size of the colony can be determined at a minimum of 400,000 specimens.

The Crested Auklets prefer to feed in the straits between the islands and in the waters around them. The main routes along which the birds move are through the straits, and between the colonies and foraging areas. The main region of auklet concentrations in the sea occurs between the Krenitsina Strait and the deepest part of Kruzenshterna Strait. Further to the south mass concentrations form in the Straits of Nadezhdy (especially in its shallow northern part) and Srednego.

Whiskered Auklet. The Central Kurils – one of the main breeding regions of this species. On the territory under consideration it breeds on the majority of the islands and large rocks, but due to difficulties during the count the estimations of its colonies are somewhat speculative. The key colonies are situated on the islands of Ekarma, Raykoke and Yankicha, where some tens of thousands of specimens breed, and on the islands of Chirinkotan and

Matua – where there are several thousand specimens (Artukhin et al., 2001).

During the breeding period the Whiskered Auklets feed in the neighbouring straits between rips formed on fronts of tidal flows. Considerable concentrations of feeding birds are observed in the Ekarma Straits, the northern part of Kruzenshterna, Golovnina and the northern part of Nadezhdy.

Tufted Puffin. Within the borders of the territory the species breeds on all islands. It has a total population of about 200,000 specimens, and the main colonies are situated on the islands of Ekarma and Toporkovyy – 90,000 on each (Artukhin et al., 2001). The previous estimates (Gizenko, 1955; Velizhanin, 1972) were dozens of times less. The difference regarding the first colony can be explained by methodical differences in the count, whereas the figures for the second colony reflect a true increase in numbers (in the past it was intensively exploited by man).

In the Central Kuril region the summer density of the Tufted Puffin distribution comprises in the average 20 specimens/km² (Artukhin, 2003c). The mass concentrations (up to 328 specimens/km²) are observed near northern shore of Shishikotan Island facing the Severgina Strait. Generally in waters around Kuril Islands the Tufted Puffin is common at a distance of a few tens of miles from land (Shuntov, 1998), but in open waters its number is much lower than in the coastal waters

Use, Management

At the present time the islands are uninhabited. In the past century Matua Island was inhabited, initially with a large Japanese Army base and after the Second World War by a Soviet military unit, of which the border post was situated until 2000. As a result, this island has been transformed at some sites by fortifications. Within the borders of the territory and the surrounding waters commercial fishing takes place, primarily for greenlings, salmon, squids and crabs (Buslov, 2013). The routes of sea cruises pass through here; the most attractive destinations for tourists are Yankicha Island with a visitation of seabird colonies, and Kraternaya Bay to see the Ushishir volcano crater. Scientific expeditions conduct research on islands; on Raykoke Island and the Lovushki Rocks stationary observations

on reproductive rookeries of Steller Sea Lions have been conducted over several years, and on Matua Island a historical and geographical expedition has taken place since 2003.

Existing Threats

On the islands of Chirinkotan, Ekarma, Raykoke and Matua, volcanic eruptions represent the greatest danger; eruptions have occurred on each of these islands during the past 100 years. On Yankicha Island the seabirds are the most significant prey of the Arctic Foxes brought to the island by humans. Predation by Arctic Foxes has led to a degradation of the nesting sites of the Northern Fulmar and Tufted Puffin. Driftnet fishing for salmon in the surrounding ocean (banned since 2016) was the cause of high mortality among the Northern Fulmars and Crested Auklets, supposedly, from the neighbouring Kuril colonies (Artukhin et al., 2010).

Conservation Status

In 1987 Kraternaya Bay (with an area of 20 ha, including 15 ha of water) was declared a State Game Reserve of regional importance for nature conservation – the ecological system, where organic substances form, both by photosynthesis and bacterial chemosynthesis. The remaining water territory has no protected status. The Fishery Rules for the Far-Eastern Fishery Basin prohibit the catching of all marine bioresources around all the islands of this territory within the boundaries of the inner sea waters



*Fork-tailed Storm-petrels in the search of food
(photo by Yu.B. Artukhin)*

of the Russian Federation, excluding Chirinkotan Island, for the purpose of conservation of valuable marine mammals.

Necessary Conservation Measures

The Middle Kuril Islands are included in the list of the prospective Specially Protected Nature Sites and deserve protected status at the federal level (Krever et al., 2009).

Author-compiler: Artukhin Yu.B.

Species	Status	Survey year	Number	Estimation precision	Criteria
Ekarma Island					
Leach's Storm-petrel	B	1995-2000	500,000	B	A4.2
Fork-tailed Storm-petrel	B	1995-2000	150,000	B	A4.2
Whiskered Auklet	B	1995-2000	10,000	B	A4.2
Tufted Puffin	B	2000	90,000	B	A4.2
Chirinkotan Island					
Crested Auklet	B	1963, 2000	>100,000	U	A4.2
Whiskered Auklet	B	2000	1,000s	U	A4.2
Raykoke Island					
Northern Fulmar	B	2000	240,000	B	A4.2
Whiskered Auklet	B	2000	10,000	U	A4.2
Matua Island					
Crested Auklet	B	2003	>400,000	U	A4.2
Whiskered Auklet	B	2000	1,000s	U	A4.2
Toporkovyy Island					
Tufted Puffin	B	2000	90,000	B	A4.2
Yankicha Island					
Crested Auklet	B	2009	>400,000	U	A4.2
Whiskered Auklet	B	2000	10,000	U	A4.2

LESSER KURIL RIDGE AND KUNASHIR ISLAND

Mean Coordinates: 43° 58' 33"N 146° 23' 02"E

Marine Area: 2,182,905 ha

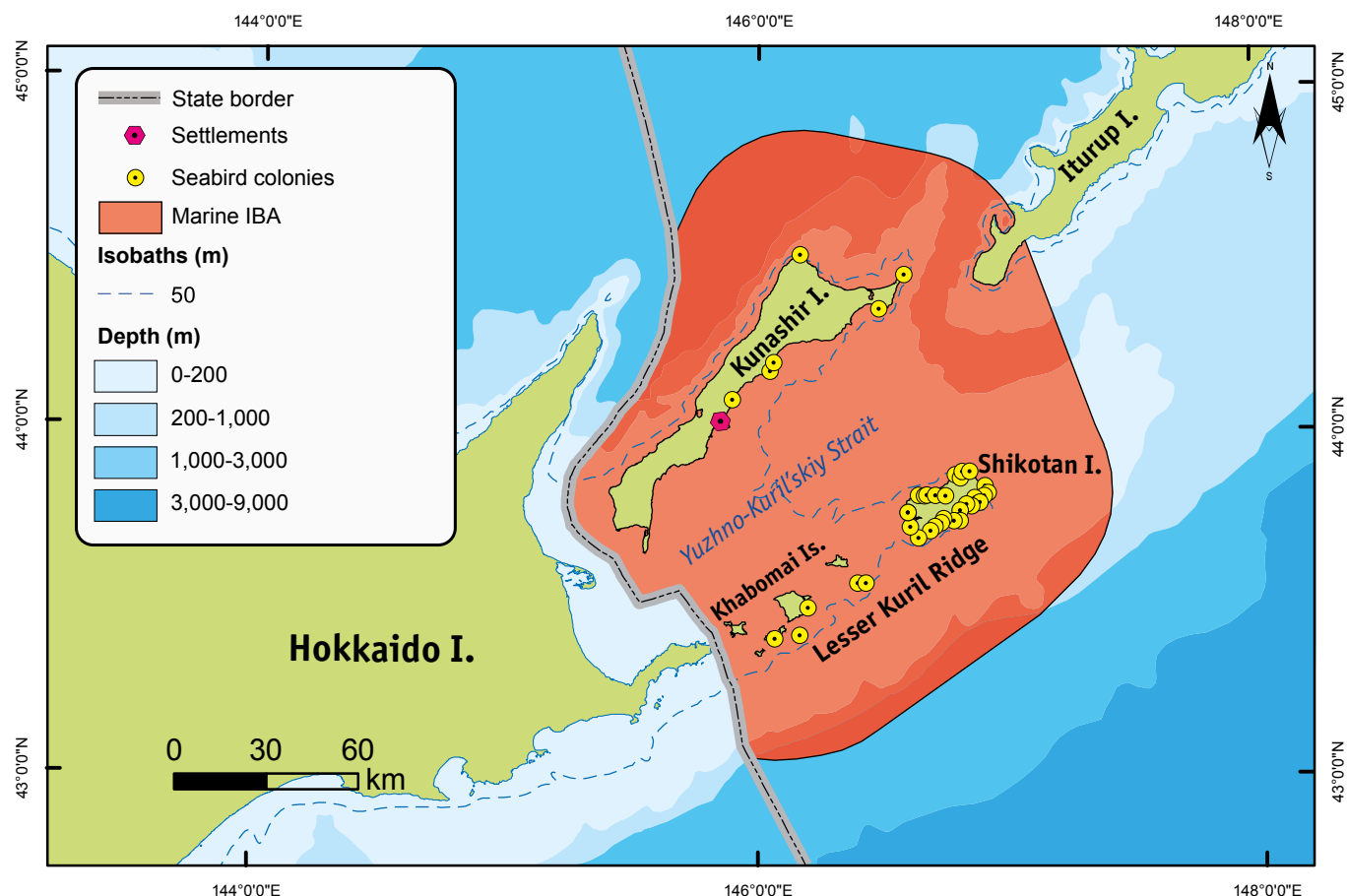
Geographical Coordinates:

44° 52' 31"N 146° 10' 36"E

43° 49' 09"N 147° 24' 37"E

43° 03' 17"N 146° 03' 35"E

43° 46' 51"N 145° 14' 33"E



Site Description

The Malaya Kuril'skaya/Lesser Kuril Ridge and Kunashir Island – a group comprising the Yuzhnyye Kuril'skiye/South Kuril Islands, situated in the north-western part of the Pacific Ocean on the border of the Sea of Okhotsk. Kunashir Island is the southernmost and one of the largest islands (1,490 km²) of the Greater Kuril Ridge. The island's composition is fairly mountainous, volcanic, and predominately forest; its highest point is Tyatya volcano (1,819 m a.s.l.). The coasts are slightly indented, primarily rocky and precipitous, but in some places sloping gently with sandy beaches and dunes.

The Lesser Kuril Ridge is situated to the south-east of Kunashir Island, past the Yuzhno-Kuril'skiy Strait – this features a chain of islands 100 km from Hokkaido Island. The largest in its composition is Shikotan Island (225 km²). The cluster of islets comprising the Khabomai Islands is situated to its south-west, and they are also referred to as the "Flat Islands": Polonskogo, Zelyonyy, Yuriy, Anuchina, Tanfil'yeva, Dyomina, Oskolki (Lis'i, Shishki) et al. The surface of Shikotan Island is low, mountainous, and hilly, with a strongly indented coastline, largely covered by sparse mixed forests with thickets of Kuril Bamboo and heath; the other islands are plain, with sedge-grasses-herb meadows.

The climate is typically maritime. Summer is cool and rainy, with frequent fogs, and southerly and south-easterly winds; winter is gentle, with a great amount of snow with intermittent thaws, and northerly and north-westerly winds. Ice begins to drift out from the Sea of Okhotsk into the Yuzhno-Kuril'skiy Strait from the beginning of January. In warmer winters the waters are free of ice, but in colder winters solid ice cover can form at some sites, which remains until the end of March towards the beginning of April.

The ocean environment is influenced by powerful currents entering this region – the cold Oyashio (from the north-east) and the warm Kuroshio (from the south-west) and Soya (from the Sea of Okhotsk). Under these interactions a complicated system of currents, whirlpools and ocean fronts are formed, which provide an inflow of nutrients into the surface layers. This forms favourable conditions for the development of rich and diverse communities of sea organisms.

The considered waters cover the area around Kunashir Island and the islands of the Lesser Kuril Ridge, including the following straits: Yekateriny, Yuzhno-Kuril'skiy, Sovetskiy, Izmeny and Kunashirskiy. In the west the perimeter of

the territory passes along the state border, and in the remaining areas it passes at a distance of 40 km from the marginal colonies of the key bird species.

Ornithological Importance

The area forms the breeding site of about 800,000 specimens of 12 colonial species, including one of the greatest groups of Rhinoceros Auklets in the world. It is also a region of mass concentrations of waterfowl and seabirds in the periods of migrations and overwintering.

Harlequin Duck. A common overwintering species of Shikotan Island, where the species predominates among other waterfowl (Dykhan, 1990). It remains in flocks of up to 50 specimens on the areas of rocky shore with reefs and pillar rocks. In the winter of 1984/1985, 2,368 birds were counted on the Pacific shore of the island from Cape Uglovoy to Malokuril'skaya Bay. In 1985/1986 this figure increased to 3,744, representing an increase in density from 228 and 360 birds per 10 km, respectively. It also overwinters in small numbers near the coasts of other islands of the Lesser Kuril Ridge and on Kunashir Island (Nechaev, 1969).

Short-tailed Albatross. This species' migrations pass through the South-Kuril waters (Suryan et al., 2006; O'Connor, 2013; Deguchi et al., 2014). The Short-tailed Albatross was sighted from ships 11 times from 2009 until 2015, with a total number of 30 specimens spotted in the Russian part of this region. The birds were observed in April – June, up to 11 specimens simultaneously (Karyakin, 2010; Artukhin, 2011c). In all probability, a considerable part of the population flies through this region.

Sooty Shearwater and Short-tailed Shearwater. The numerous migratory species; their mass migrations occur from May until August. Considered together, the Sooty Shearwater population dominates (Shuntov, 1998), but the ratio of these species varies considerably. Thus, in the first ten-day period of August 2000 the Sooty



*Eastern coast of Shikotan Island
(photo by M.A. Antipin)*

Shearwater absolutely dominated (99 %) along the Pacific side of Shikotan Island, but in the straits between the Khabomai Islands both species flew in approximately equal numbers. At the same time the Sooty Shearwater was significantly rarer (on average comprising 21 % of birds) closer to Kunashir in the Yekateriny Strait and the Yuzhno-Kuril'skiy Strait. The mean distribution density of the birds in the South-Kuril region was 107 specimens/km² (Artukhin, 2003c). The shearwaters occasionally form huge congregations on stops: during mid-July 2002 in the region of Yuzhno-Kuril'skaya Bay (on the eastern side of Kunashir Island) at least 1,200,000 specimens gathered (Ushakova, 2003).

Japanese Cormorant. A breeding species, low in numbers. The distribution of the colonies (and the populations within them) on the islands are subject to considerable inter-annual variation. On Shikotan Island from 1963 until 2015 the number of breeding cormorants of this species varied within the limits of 292 to 728



*Surface of Rogacheva Island covered Rhinoceros Auklet's burrows,
the shore of Kunashir Island is in the background (photo by T.A. Obozova)*

specimens, on Lis'i Islands of the Khabomai Archipelago – this figure ranged from 110 to 616 (Sleptsov, Zelenskaya, 2015). According to data from the last comprehensive survey, covering all islands of the territory, the number comprised 1,488 specimens: 660 on Kunashir, 292 on Shikotan and 536 on the Khabomai Islands. For the last quarter of a century a growth in this species has been observed. This is likely attributable to strengthening conservation measures resulting from the establishment of the Kuril'skiy Nature Reserve in 1984, along with a greater provision of food due to an explosion in the Japanese Sardine resources (Artukhin et al., 2001).

Red-faced Cormorant. The breeding sites of this species in the study area are located at the southern border of its range – during the last complete survey in 2000, 114 breeding birds were counted here. This number was to rapidly increase: by 2015 it had increased from 34 to 272 specimens on Shikotan Island, and on Lis'i Islands from 74 to 1,466 (Artukhin et al., 2001; Sleptsov, Zelenskaya, 2015). However, in the past years an assessment of all the colonies has not been undertaken, therefore the current status of the species has not been thoroughly determined. Spectacled Guillemot. An investigation of all the islands in 2002-2005 (Ushakova, 2010), revealed 44 breeding locations of this species; its total population was estimated at 5,340 specimens: 260 on Kunashir, 2,280 on Shikotan and 2,800 on the Khabomai Islands. The largest colonies are situated on the Dyomina Islands (over 1,600 specimens) and Lis'i Islands (about 800). Judging on the data from counts in 2015 (Sleptsov, Zelenskaya, 2015), the species' status in the recent period has been stable: on Shikotan Island its numbers remained the same (2,300 specimens), and on Lis'i Islands they slightly increased (1,016 specimens).

Rhinoceros Auklet. The most numerous species among seabirds breeding on the South Kuril Islands. Stationary studies conducted in 2002-2005 (Ushakova, 2007a) indicated that 24 colonies were present, and the population was determined at 740,000 specimens. The main colonies are situated on Shikotan (Devyatyy Val Island – 260,000 specimens) and Kunashir (Piko Island and Rogacheva Island – 140,000 and 104,000, respectively). Among the Khabomai Islands there is a large colony only on Dyomina Islands (37,700). This estimation exceeded previous estimations by ten times, based on short-term

expeditionary investigations of the islands (Velizhanin, 1972; Artukhin et al., 2001). These differences are caused both by varying methodological approaches and by natural processes occurring within the population (its growth and expansion to the north). During the breeding period the Rhinoceros Auklets primarily feed in the South-Kuril straits, but also fly to the south-western shore of Iturup Island. The majority of sightings in the sea occur in shelf zones and sharp ledges of the seabed, 40 km from land (Shuntov, 1998; Artukhin, 2003c; Ushakova, 2007b; Yu.B. Artukhin, unpublished data).

Use, Management

Intensive commercial catch of fish and invertebrates takes place within the borders of the waters under consideration and the surrounding waters of the Sea of Okhotsk and Pacific Ocean. In the settlements on the Kunashir Islands (Yuzhno-Kuril'sk) and Shikotan (Krabozavodskoye, Malokuril'skoye) there are large fish processing plants. The development of marine culture is planned in the coastal zone of Kunashir. The routes of ships which provide regular cargo and transport between the islands and mainland pass through the waters. On Yuzhno-Kuril'sk the ocean ships which operate between North America and South-Eastern Asia are dock to refuel. The territory is used for recreation by the local population, and both native and foreign tourism is developing.

Existing Threats

Bird mortality due to fishing gears during fishery of the sea hydrobionts. Contamination to the water area by oil products during pumping and in the case of ships accidents, and also from household waste at human settlements. Collection of eggs and chicks in the seabird colonies. Development of gold deposits by open caste mining in the north-west of Kunashir presents risks of contamination by cyanides in the adjoining waters of the sea.

Conservation Status

In 1984 on the South Kuril Islands a State Nature Reserve "Kuril'skiy" was established on an area of 65,365 ha, including 2 areas on Kunashir and islands of the Lesser Kuril Ridge – Dyomina Islands and Oskolki Islands. Five regions of a 1-mile protected marine zone with a total area of 33,000 ha surround the protected territory. A State Game Reserve "Lesser Kurils", established in 1982, comes under the administration of the State Nature Reserve. The majority of the islands of the Lesser Kuril Ridge including part of Shikotan are included in its composition. The total area of the Game Reserve compiled 67,892 ha, including a 40,900 ha area of seawater. Kunashir Island and the Lesser Kuril Ridge are included in the shadow list of Ramsar wetlands (Krivenko, 2000) and the catalogue of wetlands of the Russian Southern Far East (Bocharnikov, 2005).

Necessary Conservation Measures

Control for the observance of the protected regime in the protected territories. An inclusion of the South Kuril Islands in the UNESCO List of World Heritage Sites is proposed.

Author-compiler: Artukhin Yu.B.



Rhinoceros Auklet (photo by Yu.B. Artukhin)

Species	Status	Survey year	Number	Estimation precision	Criteria
Kunashir Island, Piko Island					
Rhinoceros Auklet	B	2002-2005	140,000	A	A4.2
Kunashir Island, Rogacheva Island					
Rhinoceros Auklet	B	2002-2005	104,000	A	A4.2
Shikotan Island					
Harlequin Duck	W	1986	>3,744	U	A4.1
Japanese Cormorant	B	2015	728	A	A4.1
Spectacled Guillemot	B	2015	2,300	A	A4.2
Rhinoceros Auklet	B	2002-2005	468,000	B	A4.2
Khabomai Islands					
Japanese Cormorant*	B	2015	616	A	A4.1
Red-faced Cormorant*	B	2015	1,466	A	A4.1
Spectacled Guillemot	B	2005	2,800	A	A4.2
Rhinoceros Auklet**	B	2002-2005	37,680	B	A4.2
Water area					
Short-tailed Albatross	Vn	2002-2015	10s	U	A1
Sooty Shearwater	Vn	2000-2003	100,000s	U	A1, A4.2
Short-tailed Shearwater	Vn	2000-2003	100,000s	U	A4.2

* Numerical data only provided for Lis'i Islands.

** Numerical data only provided for Dyomina Islands.



Southern coast of Yuriy Island on Khabomai Islands (photo by M.A. Antipin)

VERKHOVSKOGO AND KARAMZINA ISLANDS

38

Mean Coordinates: 42° 51' 04"N 131° 44' 58"E

Marine Area: 95,482 ha

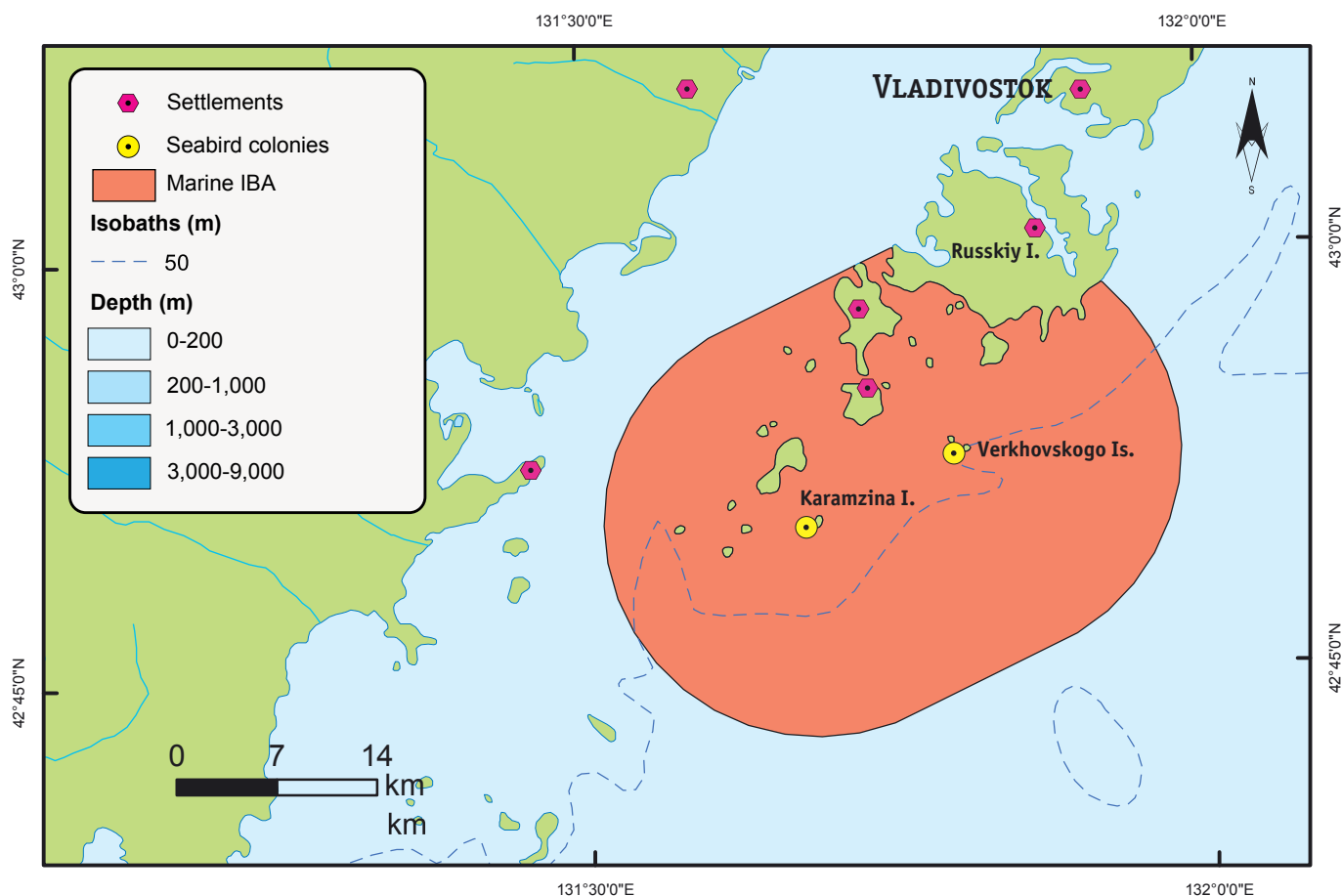
Geographical Coordinates:

43° 00' 06"N 131° 45' 13"E

42° 52' 46"N 131° 58' 55"E

42° 42' 46"N 131° 41' 09"E

42° 50' 29"N 131° 30' 54"E



Site Description

Small islands in the western part of Petra Velikogo Gulf of the Sea of Japan, at 10 km distance from each other. They are included in the group of islands which are positioned as if in continuation of the Murav'yov-Amurskiy Peninsula; the biggest of them is Russkiy Island.

Verkhovskogo Islands are situated 30 km from the city of Vladivostok. They are formed by two groups of bare sharp-edged granite rocks of reddish colour. The total area of the archipelago surface is 2.1 ha. The height of the biggest island – 27 m, length – 250 m. On its top is the automatic lighthouse. The reef stretches to west of it, ending in underwater stones with a deep seaward edge. The surface of the biggest island is covered by grassy vegetation. On the largest pillar rock of small group of rocks, there are only patches of vegetation.

Karamzina Island has a length of about 600 m; from the south it resembles a tall hat and is quite striking. The island summit (at 107 m), is situated in its southern part; it gradually descends to the north. Near the southern edge stands a high sharp-ended pillar rock. The island is formed of stratified precipitous sediment rocks (sandstones, clayish shale), alternating with ancient flows of volcanic rocks. They are very resistant to wind erosion, therefore the island coasts are steep and rocky. On the island there is no tree or shrub vegetation; its upper part is covered by thickets of wormwood, ragwort and other grasses.

The water around the island is shallow; the depth does not exceed 65 m.

The water area under consideration has a radius of 15 km (the average distance of foraging flights of the Black-tailed Gull), drawn from Karamzina Island and Verkhovskogo Islands.

Ornithological Importance

The peripheral, the northernmost and the only colonies in Russia of subtropical seabird species – the Streaked Shearwater and Swinhoe's Storm-petrel – are situated on Verkhovskogo and Karamzina Islands. Karamzina Island has the large breeding sites of the Black-tailed Gull.

Streaked Shearwater. An isolated colony of this species was discovered on Karamzina Island in 1967, bird numbers within it did not exceed 300 specimens. Brief investigations of the colony in June 1992 and September 1999 have shown that its status has not changed significantly in recent years. The shearwaters are settled within a large polyspecies colony mainly in the upper, comparatively flat part of the island. They breed in burrows, that are dug in the soil (Litvinenko, 1976, 2005).

Swinhoe's Storm-petrel. The main nesting site of the species is situated on the bigger of the two Verkhovskogo Islands, where in 1966 about 22,000 specimens were counted. In 1985 15,000 birds were counted here, and in 1988 – 16,740. On the smaller of the Verkhovskogo Islands and on Karamzina Island no more than 200 specimens nest. As regards colonization of Verkhovskogo Islands by the Rhinoceros Auklet, the species number has considerably declined recently, though detailed counts here have not been conducted. In the main colony the Swinhoe's Storm-petrel occupies a slope (on an area of about 9,000 m²), overgrown by grasses (*Leymus*, *Artemisia*, *Calamagrostis*). The average nest density is 0.93 per 1 m². The Black-tailed Gulls, Ancient Murrelets, Rhinoceros Auklets and Spectacled Guillemots breed here. The nests are placed in burrows, which are dug in the turf layer close to the ground surface, and in niches between stones. Sometimes storm-petrels occupy old burrows of the Rhinoceros Auklets and Ancient Murrelet (Litvinenko, 2001; Bocharnikov, 2005).

Black-tailed Gull. The largest colony is situated on Karamzina Island, where gulls occupy its entire surface, except vertical cliffs. According to counts in 1967 about 20,000 specimens nested in the colony, but by 1972 its numbers were reduced to 11,200 birds. On Verkhovskogo Islands in 1985, 200 specimens nested (Shibaev, 1987).

Besides the indicated species on the islands the following birds have been observed breeding: Japanese Cormorant (in total 80-100 specimens), Pelagic Cormorant (about 300), Slaty-backed Gull (150-160), Common Tern (occasional specimens), Common Guillemot (about 1,900), Spectacled Guillemot (about 1,000), Ancient Murrelet (about 1,000) and Rhinoceros Auklet (more 600) (Shibaev, 1987; Yu.V. Shibaev, unpublished data).

Use, Management

In the sea water area, the environment serves as a place for commercial and recreational fishing, the collection



Black-tailed Gull (photo by Yu.B. Artukhin)

of marine products, and recreation for the people of Vladivostok and other regions of the South Primorye. The islands are popular among tourists and divers. Formerly, military accoutrements were located here; Karamzina Island was a part of the aviation training grounds and was used for bombing practice. The automatic lighthouse is situated on one of Verkhovskogo Islands.

Existing Threats

Overcatching of marine hydrobionts, poaching, pressure from recreational use, tourism and disturbance factors. During visits to the islands by people, destruction of nesting burrows occurs because the thin roofs do not withstand human weight. In the past, mass collecting of gulls' eggs took place. On Verkhovskogo Islands the energy source for the lighthouse has been constructed in the open, above ground at the centre of the Swinhoe's Storm-petrel colony and creates high background radiation (Shibaev, 1996).

Conservation Status

In 1984 Karamzina and Verkhovskogo Islands (with a total area of 6.6 ha) were designated as regional zoological Nature Monuments, but the water area does not have a protected status. The islands and surrounding waters are included in the catalogue of wetlands of the Russian Southern Far East (Bocharnikov, 2005).

Necessary Conservation Measures

Observance of the protection regime of Nature Monuments. To include the islands with a 500-m water area around them in the Far-Eastern Maritime Biosphere State Nature Reserve.

Author-compiler: Shibaev Yu.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Streaked Shearwater	B	1999	300	A	A1
Swinhoe's Storm-petrel	B	1988	16,940	A	A1, A4.2
Black-tailed Gull	B	1972	11,200	A	A4.1

RIMSKOGO-KORSAKOVA ARCHIPELAGO

39

Mean Coordinates: 42° 38' 23"N 131° 23' 46"E

Marine Area: 71,129 ha

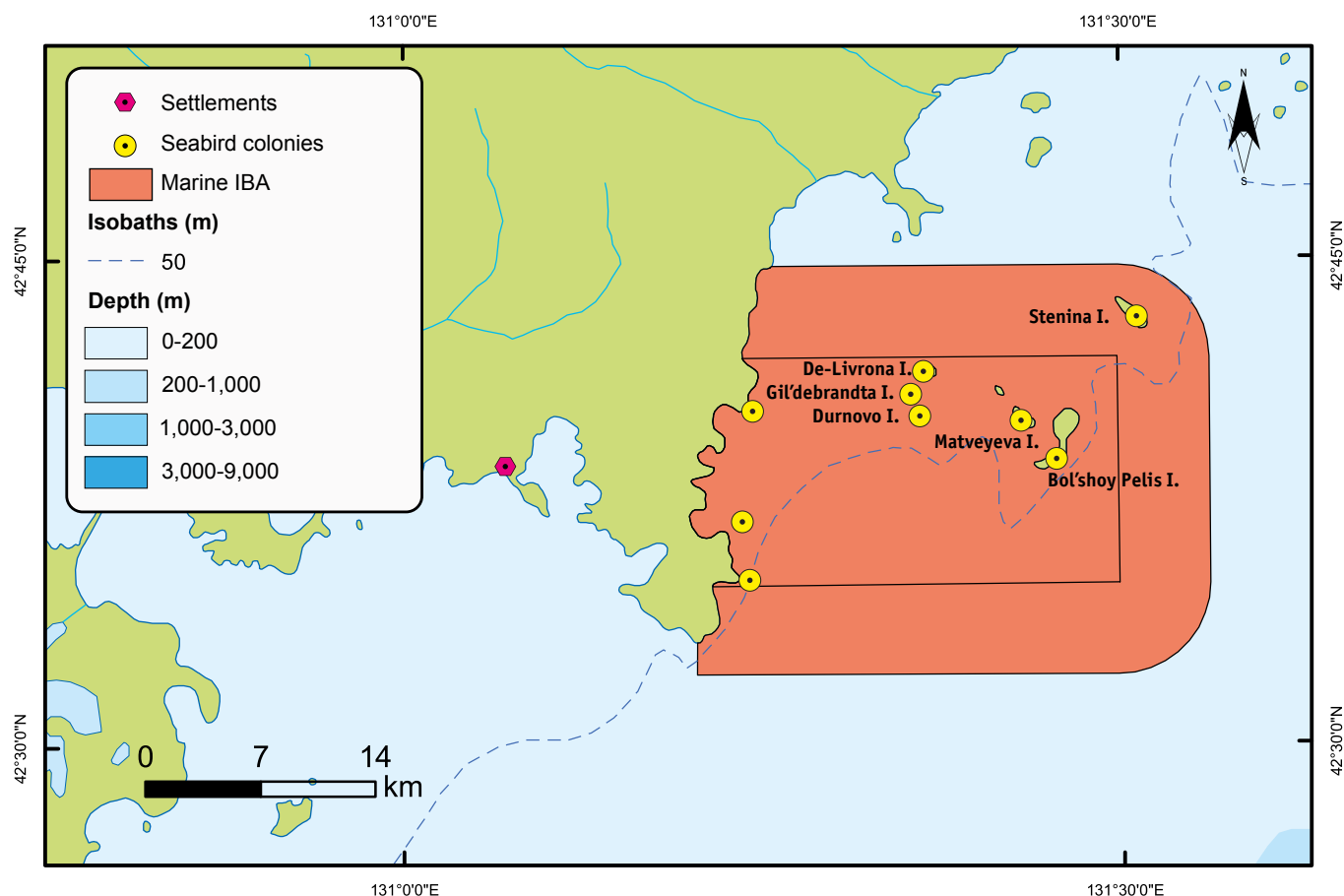
Geographical Coordinates:

42° 44' 48"N 131° 29' 59"E

42° 41' 57"N 131° 33' 46"E

42° 32' 10"N 131° 29' 54"E

42° 37' 07"N 131° 12' 00"E



Site Description

A group of islands and their surrounding waters in the western part of the Petra Velikogo Gulf in the Sea of Japan. The archipelago consists of 6 large islands with areas ranging from 8 to 380 ha (Stenina, Bol'shoi Pelis, Matveyeva, Durnovo, Gil'debrandta, De-Livrona) and 10 smaller islands and pillar rocks. In the passageways between the islands there are rocks, shoals and stones. The biggest island in the archipelago – Bol'shoi Pelis – is situated 16 km east of the mainland shore. The island consists of two raised areas, connected by a low isthmus made up of boulders and smaller pebbles. The highest point of the southern area reaches 120 m, while the northernmost point stands at 193 m.

The shore from Pos'yeta Gulf to Boysmana Bay, that limits the territory from the west, has a strongly indented coastline and tall cliffs; lower parts of the coast only feature in the top of the bays and near the mouths of rivers and brooks.

The landscape adjacent to the coast is mountainous and covered by deciduous forest. Most of the mountain slopes adjacent to the water lack the woody vegetation. The bays indented into the coast are open to the eastern winds. The coast has steep slopes under its waters, especially in its southern areas. There are depths ranging from 12 to 46 m in the passageways between the mainland coast and the Rimskogo-Korsakova Islands, Sibiryakova Island and Antipenko Island. The direction of the current near the coast depends on both the direction and speed of the wind. The tidal streams are weak and have no practical importance. The speed of currents in narrower areas sometimes reaches 2 knots.

Despite neighbouring a large city – Vladivostok – the waters around Rimskogo-Korsakova Islands are distinctly transparent, in comparison to other parts of the Petra Velikogo Gulf, and are clearest near Stenina Island. This is likely a consequence of the currents existing around archipelago, which force out the contaminated waters into other parts of the gulf. The tides occur irregularly (every 12 hours) and do not exceed an amplitude of 0.5 m. The water salinity levels near Bol'shoi Pelis Island are within the limits of 32.5 (August) to 34.0 ‰ (January).

The hydrological conditions are quite contrasting. In January the average sea temperature near the surface drops to –1.8 °C, but in August it reaches +20.5 °C, i.e. in winter the water is similar to Arctic temperatures,



*Kekury Baklan'i rocks and Rinskogo-Korsakova Archipelago, view from the western side
(photo by D.N. Kochetkov)*

while in summer – to subtropical ones. In comparatively shallower depths the temperature is considerably lower than temperatures nearer the surface, which allows for the simultaneous existence of warm-water and cold-water species in one and the same bay.

The territory is characterized by a monsoon climate. The average monthly temperature of its coldest month – January – on Bol'shoy Pelis Island reaches -11.3°C . Winds from the north are common on the islands during winter. Summer is accompanied by abundant precipitations and frequent fogs. The highest average monthly air temperature in August reaches $+19.9^{\circ}\text{C}$. Thus, the climate is characterized by well-expressed contrasts (Tyurin, 2004).

The borders of the waters under consideration coincide exactly with the outer border of the protected zone of the Far-Eastern Maritime Nature Reserve, and follow the coastline to the west.

Ornithological Importance

The territory supports more than 1 % of the world population of two species of colonial seabirds – the Japanese Cormorant and Spectacled Guillemot.

Japanese Cormorant. During counts in 1982, 6 colonies were discovered, where 926 specimens were breeding: 110 on Stenina Island and 110 on Bol'shoy Pelis Island, 212 on Gil'debrandta Island, 60 on Durnovo Island and 434 in the colonies on the western shore of the territory (Shibaev, 1987).

Spectacled Guillemot. A common breeding species. Population estimates, conducted from 1974 to 1982, counted more than 5,600 of these specimens in the territory (Shibaev, 1987). An overwhelming majority of the birds reside on the islands of the Rinskogo-Korsakova

Archipelago, while on the mainland shore along the territory's western border only 120 specimens breed. The biggest colonies are found on the following islands: Stenina (1,940 specimens), Matveyeva (1,480) and Bol'shoy Pelis (1,277).

Besides the aforementioned species of seabirds on the Rinskogo-Korsakova Islands, the following species also breed here: the Pelagic Cormorant (226 specimens), Black-tailed Gull (2,600), Slaty-backed Gull (single birds) and Rhinoceros Auklet (260-500) (Shibaev, 1987; Katin, Tiunov, 2000).

Use, Management

Since setting up the Far-Eastern Maritime Nature Reserve, the territory is mainly used for conducting scientific studies. The Nature Reserve conducts educational ecology tours in the archipelago waters, but they do not anchor or disembark onto the coast.

Existing Threats

Breaching of protective measures, poaching of marine hydrobionts.

Conservation Status

The entire waters are encompassed by the "Eastern" plot of the Far-Eastern Maritime Biosphere State Nature Reserve (45,000 ha) with a 3-mile protected zone around its maritime border.

Necessary Conservation Measures

No additional measures are necessary while the conservation regime of the Nature Reserve is enforced.

Author-compiler: Shibaev Yu.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Japanese Cormorant	B	1982	926	A	A4.1
Spectacled Guillemot	B	1974-1982	5,612	A	A4.2

FURUGEL'MA ISLAND AND TUMANNAYA RIVER DELTA

40

Mean Coordinates: 42° 30' 03"N 130° 51' 59"E

Marine Area: 84,668 ha

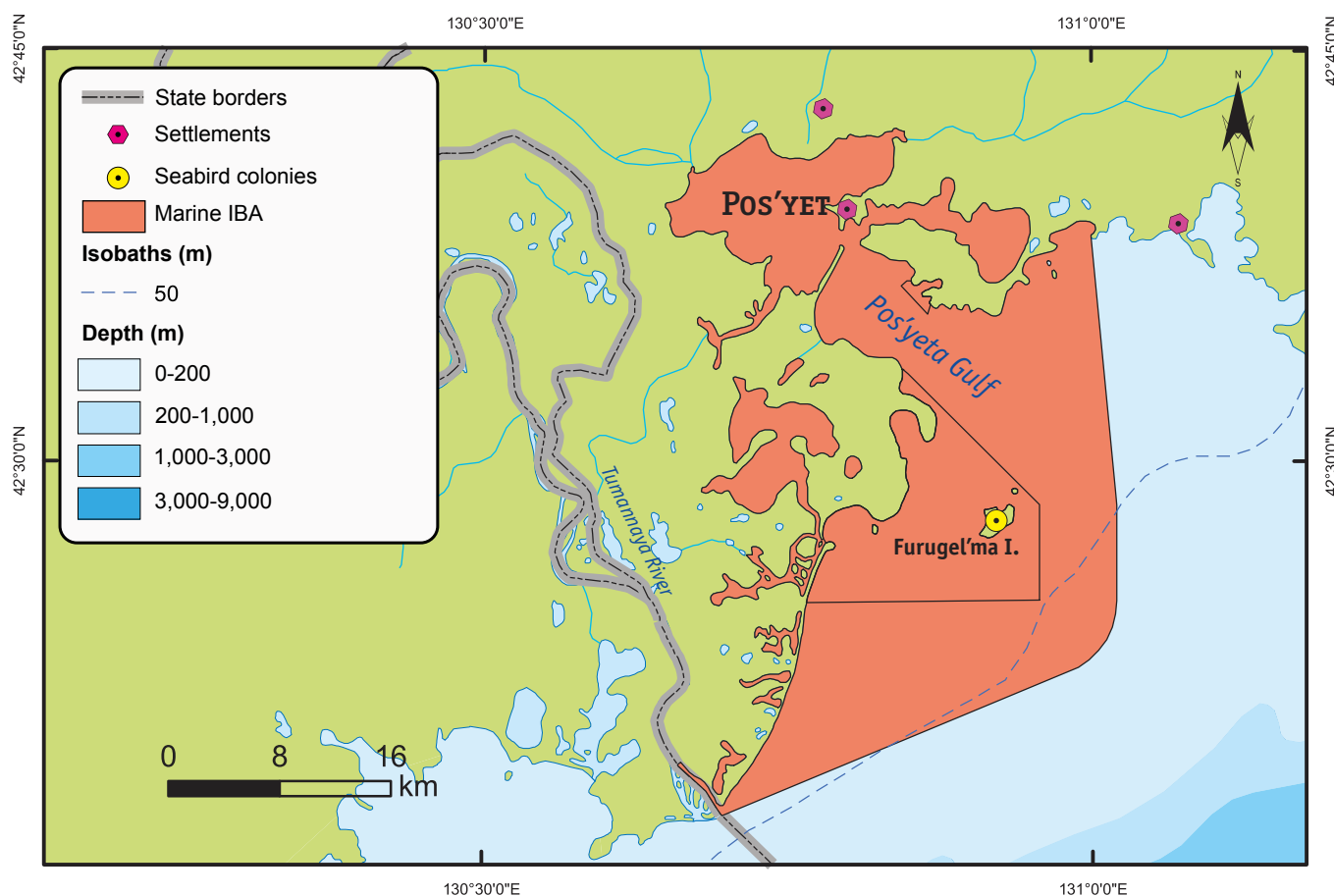
Geographical Coordinates:

42° 42' 14"N 130° 50' 24"E

42° 28' 28"N 131° 01' 15"E

42° 17' 11"N 130° 41' 49"E

42° 39' 29"N 130° 39' 01"E



Site Description

The waters of the Petra Velikogo Gulf in the Sea of Japan, situated to the north of the borders of Russia, North Korea and China. This zone includes the area near the mouth of the Tumannaya (Tumangan) River and a group of saline wetlands in the coastal zone. The coast in the southern area is flat, and in the northern part it can be wild and mountainous, and strongly indented. The Pos'yeta Gulf is indented into the mainland between Suslova Cape and Gamova Cape, and in its western part the large bays of Reyd Pallada, Ekspeditsii and Novgorodskaya are situated, while in the eastern part Kitovyy Gulf is located.

A lowland area between the Tumannaya River delta and south-western shore of Pos'yeta Gulf can be observed, which is covered by a network of lakes and small rivers. There are coastal lagoons, the largest of which is Ptich'ye (Tal'mi) Lake. These wetlands are shallow and some are connected with the sea permanently, others only temporarily in periods of heavy rain and storms. Water, oxygen and salinity levels in these wetlands are variable and depend on amount of precipitation, wind direction, and sea turbulence. On the plots with high salinity the lagoons are overgrown by the Marine Eelgrass. The area of coastal lagoons are the most high-productive, owing to the fact that they serve as important habitats for migratory and breeding waterbirds. In the migration and wintering period there are also shallow bays in the north-western part of the Pos'yeta Gulf and Tumannaya River estuary which have great importance for these birds.

Furugel'ma Island is located at 20 km to the north-east of Tumannaya River and at 5 km from land. This island is the largest breeding site of seabirds in the Petra Velikogo Gulf. The island's dimensions are 1.7 by 3 km, its surface area is about 250 ha, and its height is roughly 120 m. The island is acquiring a smooth profile through erosion of the granite rock from which it is formed. It is surrounded by shallow waters with depths of less than 10 m, where there are stones above and below the water level.

The depths in the eastern part of the Pos'yeta Gulf are even and slope gently towards its shores. The western part of the gulf is shallow; depths of more than 10 m only occur in Reyd Pallada Bay and at the entrance into Novgorodskaya Bay. The seabed of most of the gulf is stony, covered by a layer of sand and silt. Currents mainly depend on the direction and speed of wind. The speed of tidal currents is 0.2 knots, but in windy streams it does not exceed 1 knot. Water salinity in the gulf during summer compiles 27 ‰.

The stable monsoon winds, low annual air temperature, uneven distribution of precipitation, periodical cyclones, and frequent fogs are typical for the climate of this region.

The border of the area under consideration runs from the Tumannaya River mouth to the south-eastern corner of a 3-mile protected zone of the Far-Eastern Maritime Nature Reserve, and further along its eastern border to the north in the direction of Lukina Cape, where from this point it travels along the coastal line to the starting point, including lagoons and coastal saline lakes.

Ornithological Importance

An important site for breeding and concentration of colonial seabirds and waterfowl during the migration and wintering periods.

Japanese Cormorant. The largest colony of this species within its range is situated on Furugel'ma Island. In 2000, about 2,400 specimens nested here (Litvinenko, Shibaev, 2001).

In the 20th century the Japanese Cormorant status in the Petra Velikogo Gulf was subject to sharp fluctuations as exemplified by the colony on Furugel'ma Island. In 1929-1930 this species' nesting sites were completely exterminated by Arctic Foxes brought to this island by



Black-tailed Gull colony in Severnaya Bay on Furugel'ma Island (photo by S.M. Dolganov)

humans. In several years, after the animals became extinct, the cormorants returned to the island and their numbers began to increase. However, for unknown reasons in 1967 this number sharply declined in all colonies of the Petra Velikogo Gulf. On Furugel'ma Island in 1969 only 43 breeding pairs were registered. After 1970 the number of breeding birds again began to increase, and by 1985 the colony had increased by approximately 17 times (in comparison with 1969) – after this the number stabilized. At least two circumstances favoured population growth: a decline of anthropogenic pressure after the establishment in 1978 of the Far-Eastern Maritime Nature Reserve, and the considerable improvement of the food supply in connection with powerful influx of Japanese Sardine numbers (Litvinenko, 2011).



Shore of the plot "Southern" of the Far-Eastern Maritime Nature Reserve, Golubinyy Utes and Sopka Syudari hills are far away (photo by S.M. Dolganov)

Black-tailed Gull. Furugel'ma Island is one of the largest breeding sites of this species. According to censuses from 1993, the bird number in colony compiles 73,440 specimens (Litvinenko, Shibaev, 1996). In comparison with data from 1969 it sufficiently increased, which is to a considerable extent a result of the protection of the colony and favourable food supply (Shibaev, 1987). However, by the present time the number of gulls in the colony declined markedly (Yu.V. Shibaev, unpublished data).

Spectacled Guillemot. The species breeds in high numbers. The population on the island during 1993 is estimated at 2,500 specimens (Litvinenko, Shibaev, 1996). That is slightly less than during previous observations: in the period from 1979 to 1982 the guillemot colony sizes on the island varied within the limits of 2,832-4,362 specimens (Shibaev, 1987).

Besides the indicator species of seabirds on Furugel'ma Island, the following species also breed here: the Great Cormorant (404 specimens), Pelagic Cormorant (over 200), Slaty-backed Gull (40-44), Ancient Murrelet (single birds) and Rhinoceros Auklet (about 4,000) (Litvinenko, Shibaev, 1996, 2001). For the majority of colonial seabirds breeding on island, the lake-marsh complex in lower parts of Tumannaya River serve as a key foraging site together with the river delta and coastal lakes, and also shallow lagoons on the mainland shore.

The basin of the lower part of Tumannaya River is a key stopover site for migratory waterfowl. In the 1970-1980's on the wetlands up to 100,000 ducks simultaneously congregated. The most numerous are Northern Pintails, Common Teals, Falcated Ducks, Mallards, Tufted Ducks and Greater Scaups. The White-naped Crane and Red-crowned Crane (by 200 specimens of each species) stop annually during migrations in the coastal lowland between Tumannaya River and Ekspeditsii Bay.

In the coastal waters of the sea in areas free of ice tens of thousands of waterfowl annually spend winter (in Kalevala Bay, Sivuch'ya Bay and in the Pos'yeta Gulf), including Long-Tailed Ducks (several thousand specimens), White-winged Scoters (thousands), Harlequin Ducks (hundreds) and other colonial seabirds.

Use, Management

On Furugel'ma Island during the 20th century the landscape transformed. This was a result of the use of the territory for military needs, the breeding farms of the Arctic Fox, catching of marine bioresources, spontaneously arising fires, and logging. Its territory has not suffered from a direct anthropogenic impact since being established as part of the Far-Eastern Maritime Nature Reserve in 1978 (Belyanin, 2015). Excursions on certain specialised paths occur within the frames of ecology-educational activity of the Nature Reserve on Furugel'ma Island.

In the coastal belt, according to special regulations, the presence of people and transport are kept at a minimum. The coastal belt of the bays of Ekspeditsii, Novgorodskaya and Reyd Pallada are used recreationally; Pos'yeta Harbour is located here. The habitat is a site of recreational hunting of waterfowl, and the waters are a site of recreational fishing. The waters of the region are the most favourable for marine culture developments in the Russian Far East.

Existing Threats

Plans for exploiting the titan-magnetite sands in the beach zone of the territory over a 300 m area of beach and shallow seawater (from the Tumannaya River mouth to the border of the Far-Eastern Maritime Nature Reserve) present a threat to the hydrological system of the territory (Litvinenko, Shibaev, 1996). The real threat factor – contamination of border river Tumannaya by industrial and household waste: according to data of Chinese researchers (Zhu Yanming et al., 1998), dumping of waste into the river in 1993 comprised about 100,400,000 t and continues to grow. As ever, there is a threat of wildfires of grassland, which leads to the burning up of 60-80 % of the wetland territory each year.

Conservation Status

Within the limits of the water area under consideration there are 2 plots of inner sea waters, belonging to the territory of Far-Eastern Maritime Biosphere State Nature Reserve: "Western" (3,000 ha) and "Southern" (15,000 ha). Along the borders of these plots the protected zone with width at 3 miles in the sea and 500 m on land is established. An area of the coastal lagoons and lakes is located within the limits of the regional Nature Park "Khasanskiy". The territory also includes a series of regional Nature Monuments of the hydrological profile: "Pos'yeta Gulf bays (Novgorodskaya, Ekspeditsii, Reid Pallada)" (300 ha), "Part of Ogorodnaya Lagoon and Bol'shoie Krugloe Lake" (750 ha). The lower part of Tumannaya River is included in the catalogue of wetlands of the Russian Southern Far East (Bocharnikov, 2005).

Necessary Conservation Measures

Raising the protected status of the wetland to a federal level: setting up a National Park with different zones of the territory (Litvinenko, Shibaev, 1986). Ban of spring hunting on waterfowl. It is expedient to include the lower part of Tumannaya River in the list of Ramsar wetlands.

Author-compiler: Shibaev Yu.V.

Species	Status	Survey year	Number	Estimation precision	Criteria
Japanese Cormorant	B	2000	2,396	A	A4.1
Black-tailed Gull	B	1993	73,440	A	A4.1
Spectacled Guillemot	B	1993	2,500	A	A4.2

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Information about authors

Andreev Alexander. Institute of Biological Problems of the North, Far Eastern Branch, Russian Academy of Sciences. Russia, 685000, Magadan, Portovaya Street, 18. E-mail: alexandrea@mail.ru

Artukhin Yuri. Kamchatka Branch of Pacific Geographical Institute, Far Eastern Branch, Russian Academy of Sciences. Russia, 683028, Petropavlovsk-Kamchatskiy, Rybakov Avenue, 19a. E-mail: artukhin@mail.kamchatka.ru

Gerasimov Yuri. Kamchatka Branch of Pacific Geographical Institute, Far Eastern Branch, Russian Academy of Sciences. Russia, 683028, Petropavlovsk-Kamchatskiy, Rybakov Avenue, 19a. E-mail: bird@mail.kamchatka.ru

Kazanskiy Fedor. Kronotskiy State Nature Biosphere Reserve, Russia, 684010, Yelizovo, Ryabikova Street, 48. E-mail: f.kazansky@gmail.com

Kirichenko Vadim. Kamchatka Branch of Pacific Geographical Institute, Far Eastern Branch, Russian Academy of Sciences. Russia, 683000, Petropavlovsk-Kamchatskiy, Partizanskaya Street, 6. E-mail: vadim_kir@inbox.ru

Kondratyev Alexander. Institute of Biological Problems of the North, Far Eastern Branch, Russian Academy of Sciences. Russia, 685000, Magadan, Portovaya Street, 18. E-mail: akondratyev@mail.ru

Konyukhov Nikolay. A.N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences. Russia, 119071, Moscow, Leninskiy Avenue, 33. E-mail: konyukhov@gmail.com

Lobkov Eugeni. Kamchatka State Technical University. Russia, 683003, Petropavlovsk-Kamchatskiy, Klyuchevskaya Street, 35. E-mail: lobkov48@mail.ru

Pronkevich Vladimir. Institute of Water and Ecological Problems, Far Eastern Branch, Russian Academy of Sciences. Russia, 680000, Khabarovsk, Dikopol'tseva Street, 56. E-mail: vp_tringa@mail.ru

Revyakina Zoya. Information and Research Center "Fauna". Russia, 693023, Yuzhno-Sakhalinsk, Komsomol'skaya Street, 241a – 14. E-mail: guttifer@yandex.ru

Shibaev Yuri. Biology and Soil Institute, Far Eastern Branch, Russian Academy of Sciences. Russia, 690022, Vladivostok, Stoletiya Vladivostoka Avenue, 159. E-mail: birds@ibss.dvo.ru

Syroechkovskiy Eugeni. All-Russian Research Institute of Nature Protection. Russia, 117628, Moscow, Znamenskiye Sadki Homestead. E-mail: ees_jr@yahoo.co.uk

Tiunov Ivan. Biology and Soil Institute, Far Eastern Branch, Russian Academy of Sciences. Russia, 690022, Vladivostok, Stoletiya Vladivostoka Avenue, 159. E-mail: ovsianka11@yandex.ru

Trukhin Alexey. V.I. Il'ichov Pacific Institute of Oceanology, Far Eastern Branch, Russian Academy of Sciences. Russia, 690041, Vladivostok, Baltiyskaya Street, 43. E-mail: marian1312@mail.ru

Vyatkin Peter. Kamchatka Branch of Pacific Geographical Institute, Far Eastern Branch, Russian Academy of Sciences. Russia, 683028, Petropavlovsk-Kamchatskiy, Rybakov Avenue, 19a.

Yakushev Nikolay. Zoological Museum, N.G. Chernyshevskiy Saratov State University. Russia, 410026, Saratov, Astrakhanskaya Street, 83 – 64. E-mail: athene-noctua@yandex.ru

Zykov Vladimir. Information and Research Center "Fauna". Russia, 693023, Yuzhno-Sakhalinsk, Komsomol'skaya Street, 241a – 14. E-mail: guttifer@yandex.ru



Participants of the "Marine Important Bird Areas of the Far East of the Russian Federation" meeting (Petropavlovsk-Kamchatskiy, 20-22 February 2012) (photo by N.N. Gerasimov)



The Russian Society for Conservation and Studies of Birds, named after M.A. Menzbier (BirdsRussia) – a voluntary non-commercial public association concerned with the protection and study of the birds of Russia. The Society was formed in 2009 and is named in honour of the academician, M.A. Menzbier, the renowned Russian and Soviet zoologist and zoogeographer, who is one of the founders of native ornithology.

BirdsRussia:

- develops and carries out measures on bird conservation,
- promotes the development of ornithological science,
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- encourages birdwatching as a hobby,
- attracts interested people to engage in active participation in nature conservation.

For the first six years of work the members of the society conducted a series of successful international projects in cooperation with other nature conservation organisations.

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The Kamchatka Branch of the Pacific Geographical Institute of the Far-Eastern Branch of the Russian Academy of Sciences (KB PGI FEB RAS) – a scientific research organisation, whose main aims are to:

- research the biological diversity and ecology of the separate groups of flora and fauna of the Kamchatka region in the conditions of changing environmental and anthropogenic pressure,
- to develop methods for increasing the ecological and economic efficiency of the nature management in Kamchatka and surrounding shelf.

The Branch employs more than 60 scientists, who work at 5 laboratories (hydrobiology, ecology of plants, ornithology, ecology of higher vertebrates and ecology and economic studies).

Internet: <http://terrakamchatka.ru>



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BirdLife's long-term aims are to:

- prevent the extinction of any bird species,
- maintain and where possible improve the conservation status of all bird species,
- conserve and where appropriate improve and enlarge sites and habitats important for birds,
- help, through its work with birds, to conserve biodiversity and to improve the quality of people's lives,
- integrate bird conservation into sustaining people's livelihoods.

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Yuri B. Artukhin
Alexander V. Andreev
Yuri N. Gerasimov et al.

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