

Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 version



Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Val Urban

2. Date this sheet was completed/updated:

January 2011

3. Country:

United States of America

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Designation date

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Site Reference Number

4. Name of the Ramsar site:

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Izembek Lagoon National Wildlife Refuge

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only):

- a) Designation of a new Ramsar site ; or
 b) Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged:

or

If the site boundary has changed:

- i) the boundary has been delineated more accurately ; or
 ii) the boundary has been extended ; or
 iii) the boundary has been restricted**

and/or

If the site area has changed:

- i) the area has been measured more accurately ; or
- ii) the area has been extended ; or
- iii) the area has been reduced**

** **Important note:** If the boundary and/or area of the designated site are being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site: None

7. Map of site:

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) a **hard copy** (required for inclusion of site in the Ramsar List): ;
- ii) an **electronic format** (e.g. a JPEG or ArcView image) ;
- iii) a **GIS file providing geo-referenced site boundary vectors and attribute tables** .

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a water body, etc.

The boundary is the same as that of the Izembek NWR (National Wildlife Refuge).

8. Geographical coordinates (latitude/longitude, in degrees and minutes):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

55°30'N to 56°00'N; 162°07'W to 163°15'W

9. General location:

Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

The Izembek NWR and State Game Refuge are located near the extreme western terminus of the Alaska Peninsula, approximately 1,000 kilometers (620 miles) southwest of Anchorage, Alaska. They are situated between the Bering Sea (Bristol Bay) and the Northern Pacific Ocean.

10. Elevation: (in metres: average and/or maximum & minimum)

Sea level to +1500 meters

11. Area: (in hectares)

168,433 hectares

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Izembek NWR and State Game Refuge area consists of a series of lagoons surrounded by marshes on the North side of the Alaska Peninsula and facing northwest into Bristol Bay and the Bering Sea. The site is about 77 km (48 mi) long, varies in width from 8 km (5 mi) to 40 km (25 mi), and contains approximately 130,000 ha (321,230 acres) of uplands and 38,450 ha (95,000 acres) of tidelands and coastal lagoons. Izembek Lagoon, the largest lagoon of its type in Alaska, is nearly 48 km (30mi) long and ranges from 5 to 10 km (3-6 miles) in width.

13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9
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14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 1: A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.

Izembek Lagoon is the largest and most unique lagoon of its type in Alaska. The major attraction to waterfowl is one of the world's largest eelgrass beds. Eelgrass is an aquatic plant rich in nutrients and a primary food source of many geese and ducks. The lagoon is especially critical for the many species of waterfowl and shorebirds that undertake transoceanic flights to wintering habitats on the lower Pacific Coast or Pacific Islands. Staging habitats at Izembek Lagoon provide the last opportunity for migrating birds to build fat reserves before long, over-water flights to wintering areas. Izembek is used by birds that nest and/or winter along the Pacific Rim including Russia, Canada, Japan, Australia, Mexico and the U.S.

Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

An estimated 500 to 1,000 sea otters (*Enhydra lutris*) and 100 Steller's sea lions (*Eumetopias jubatus*) frequent the lagoon and nearby offshore areas for feeding and resting, both species have an endangered red status in the IUCN red list.

Criterion 4: A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.

Izembek Lagoon and its vast eelgrass beds are of international importance to migratory birds. Eelgrass is a primary food source for geese and ducks that use the area. The Lagoon is particularly critical to the many species of waterfowl and shorebirds that undertake transoceanic flights to wintering habitats on the lower Pacific Coast or Pacific Islands. Staging habitats at Izembek Lagoon provide the last opportunity for migrating birds to build lipid reserves prior to long over-water flights to wintering areas. The Lagoon area is used by birds that nest and/or winter along the Pacific Rim including the Soviet Union, Canada, Japan, Australia and Mexico as well as the United States.

Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.

The Izembek area supports nearly the entire North American population of black brant (*Branta bernicla nigricans*) during spring and fall migrations; in some years substantial numbers (up to 30,000) may overwinter on the lagoon. The primary food source for these birds is eelgrass. In addition to brant, tens of thousands of Taverner's Canada gees (*Branta canadensis taverneri*) and emperor geese (*Chen canagica*) migrate through the area. Emperor geese overwinter in moderate numbers. Tundra (whistling) swans (*Cygnus columbianus*) are a key nesting waterfowl species on the refuge. Migrant populations of up to 300,000 dabbling ducks use this area during spring and fall migration periods. The most abundant ducks are pintail (*Anas acuta*) and mallard (*A. platyrhynchos*). Others occurring in fairly large numbers include gadwall (*A. strepera*), green-winged teal (*A. crecca*), and American widgeon (*A. americana*). Wintering populations of Steller's eider (*Polysticta stelleri*) may approach 100,000 birds on the Izembek refuge and adjacent lagoons, a major portion of the world population of this species. Other sea ducks wintering in abundance include oldsquaw (*Clangula hyemalis*), bufflehead (*Bucephala albeola*), greater scaup (*Aythya marila*), common goldeneye (*Bucephala clangula*), common and king eider (*Somateria mollissima* and *S. spectabilis*), and black and white-winged scoter (*Melanitta nigra* and *M. fusca*). In all seasons, but particularly during the fall, the refuge area is host to enormous numbers of shorebirds, especially rock sandpiper (*Calidris ptilocnemis*), dunlin (*C. alpina*) and sanderling (*C. alba*).

Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

Wintering populations of Steller's eider (*Polysticta stelleri*) may approach 100,000 birds on Izembek and adjacent lagoons, a major portion of the world population of this species. The Izembek area supports nearly the entire North American populations of black brant and emperor geese during spring and fall migrations. Tens of thousands of Taverner's Canada geese migrate through the area and up to 300,000 dabbling ducks at a time use the area during spring and fall migrations.

Criterion 8: A wetland should be considered internationally important if it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.

Four species of Pacific salmon (*Oncorhynchus spp.*) – sockeye, Chinook, pink and chum – enter the freshwater streams of Izembek from the Bering Sea and the Pacific Ocean to spawn. Dolly Varden (*Salvelinus malma*) and rainbow trout (*Salmo gairdneri*) also inhabit many of the streams and lakes. A minimum of 39 species of fish use the area as migratory, spawning or nursery habitat.

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region: N/A

b) biogeographic regionalisation scheme (include reference citation): N/A

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Geologically, the Izembek area is the result of volcanic activity, glaciation, and marine deposition. Rugged volcanic pinnacles exceeding 1800 meters (6,000 ft) in elevation, and glaciers dominate the most mountainous parts of the refuge. The majority of the area, however, is below 300 m (1,000 ft). Glacial deposition has formed uplands that transition into valleys. These valleys are bisected by westward-flowing streams that traverse a rolling tundra landscape scattered with freshwater bodies that ultimately drains into the Bering Sea. The shallow and extremely acidic upland tundra soils are susceptible to erosion. Izembek Lagoon, which averages less than 3-4 meters (10-13 ft.) in depth, is separated from the

Bering Sea by offshore islands and spits of marine origin. Sediments in the Lagoon are comprised of mostly sand and clay derived from offshore shelf areas.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

19. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va • Vt • W • Xf • Xp
• Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area: A, B, D, G, H, J, E

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

About 87 percent of the terrestrial habitat of Izembek NWR is characterized as wetlands, including 81,000 hectares (200,000 acres) of moist tundra, 9,000 ha (22,400 acres) of wet sedge and grass marsh, and 24,300 ha (60,000 acres) of ponds, lakes and rivers. An estimated 53 percent (ca. 17,868 ha) of Izembek Lagoon is vegetated with eelgrass (*Zostera marina*), making it one of the largest eelgrass beds in the world.

Almost 150 species of birds and 23 species of mammals on Izembek are reported to be residents and/or migrants. Large populations of shorebirds and waterfowl, especially black brant, emperor and Canada geese, dabbling ducks and eiders, use Izembek Lagoon and adjoining refuge areas during certain times of the year. Other wildlife includes brown bear, caribou, ptarmigan and various furbearers.

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

The area is treeless, with typical subarctic alpine vegetation at the upper elevations. The lower slopes of mountains and edges of waterways are vegetated with alders (*Alnus crispa*) and sparse areas of willow (*Salix spp.*). The undulating glacial outwash/coastal plain are dominated by a mixture of low ericaceous shrubs and graminoid tundra. Typical vegetation includes crowberry (*Empetrum nigrum*), mountain cranberry (*Vaccinium vitis-idaea*), bluejoint grass (*Calamagrostis canadensis*), cottongrass (*Eriophorum scheuchzeri*), arctic willow and other willows (*Salix spp.*), reindeer mosses (*Cladonia spp.*) and several species

of *Sphagnum* moss. Wet meadows and marshes, dominated by Beach ryegrass (*Elymus arenaria*) and sedges, (*Carex spp.*) adjoin the lagoon.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

In addition to the species listed in Section 14 above, the Izembek also has bald eagles (*Haliaeetus leucocephalus*) and Peregrine falcons (*Falco peregrinus pealei*) as year-round residents. Important upland species using the refuge include the Alaskan brown bear (*Ursus arctos*), barren ground caribou (*Rangifer tarandus*), wolverine (*Gulo gulo*), mink (*Mustela vison*), willow ptarmigan (*Lagopus lagopus*), river otter (*Lutra Canadensis*), and gray wolf (*Canis lupus*). Sand spits and barrier island beaches surrounding Izembek Lagoon are haulout sites for harbour seals (*Phoca vitulina*), with as many as 5,000 present at one time. An estimated 500 to 1,000 sea otters (*Enhydra lutris*) and 100 Steller's sea lions (*Eumetopias jubatus*) frequent waters in the Lagoon and nearby offshore areas for feeding and resting.

23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If yes, tick the box and describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

a) within the Ramsar site:

Ownership is part Federal and part State government. The Izembek National Wildlife Refuge, owned by the United States government and managed by the U.S. Fish and Wildlife Service, totals 128,337 ha (320,893 acres), mostly terrestrial habitat. It was established as a Federal Refuge in 1960. There are two large Native corporation inholdings within the Refuge boundary. All of the tidelands, including Izembek Lagoon, are owned by the State of Alaska under the Tide and Submerged Lands Act. These tidelands encompass some 38,600 ha (95,300 acres). The State lands were established in 1972 as the Izembek State

Game Refuge. In 1980, 121,410 ha (300,000 acres) of lands within Izembek NWR were officially designated as wilderness under the Alaska National Interest Lands Conservation Act.

b) in the surrounding area: N/A

25. Current land (including water) use:

a) within the Ramsar site:

Aside from management activities of the Izembek NWR, the area is used primarily for consumptive activities such as hunting and fishing. Fish and wildlife are harvested for both subsistence and recreational purposes. The most sought after species include caribou, brown bear, ptarmigan, and a variety of migratory waterfowl such as black brant, Taverner's Canada goose, and pintail. The majority of fishing activity in and around the Ramsar site involves the harvest of salmon and halibut.

b) in the surroundings/catchment:

There are a number of communities in the vicinity of the Izembek NWR and State Game Refuge, including King Cove, Sand Point, Nelson Lagoon and False Pass. All of these communities are Native in origin, having a longstanding tradition of hunting and fishing for subsistence purposes.

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site:

The naturalness of the Cold Bay area was significantly degraded during the World War II era, due to improvements associated with the presence of the U.S. military. Many of the scars on the landscape are still in evidence today. The remainder of the area is designated wilderness or is relatively undisturbed except for some unimproved roads. Hunting and fishing are the most common uses of the refuge, particularly waterfowl hunting in and around the lagoon areas and uplands hunting of caribou and brown bear.

Direct threats to the Izembek Lagoon are generally not imminent and are of low intensity. In recent years, there has been a substantial increase in activities related to the petroleum industry. Potential threats include the possibility of a major oil spill entering the lagoon and construction of oil pipelines and associated support facilities. The State of Alaska has closed Izembek Lagoon to oil and gas leasing in order to protect its wildlife resources and ecological values. Aircraft overflights, particularly those associated with offshore petroleum activities, could pose a significant threat to staging and wintering waterfowl.

b) in the surrounding area:

27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

The upland habitats surrounding the Izembek Lagoon are part of a National Wildlife Refuge; the Lagoon itself is a State Game Refuge.

b) If appropriate, list the IUCN (1994) protected areas category(ies) which apply to the site (tick the box or boxes as appropriate):

Ia ; Ib ; II ; III ; IV ; V ; VI

c) Does an officially approved management plan exist; and is it being implemented? The Izembek NWR is currently in the process of developing its Comprehensive Conservation Plan (CCP), a planning document that will guide the refuge in implementing its management programs for the next fifteen years. The process is expected to take two to three years to complete.

d) Describe any other current management practices:

Management of the Izembek NWR focuses on the protection of natural habitats for native species of wildlife. Izembek State Game Refuge, including the Izembek Lagoon, is managed by the State of Alaska in cooperation with the U.S. Fish and Wildlife Service. Wilderness is managed so as to preserve the integrity of its biological and physical features and provide opportunities for research, subsistence and recreation. Hunting, fishing, and trapping are allowable uses which are strictly controlled under both Federal and State laws and regulations. Habitats are generally not manipulated through active management. No land management actions are planned other than minimally intrusive activities such as landscaping at the refuge headquarters, road maintenance, and invasive species control.

28. Conservation measures proposed but not yet implemented:

e.g., management plan in preparation; official proposal as a legally protected area, etc.

29. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

The majority of research at the Izembek NWR is carried out from refuge headquarters in Cold Bay. Ongoing research projects include individual studies of the seasonal movements, distribution and productivities of the brown bear, caribou, black brant, emperor goose, tundra swan, Steller's eider and other species. Researchers from the Institute of Marine Science at the University of Alaska have conducted studies since 1963 on the dynamics of eelgrass beds in Izembek Lagoon and other aspects of the ecological relationships of the flora and fauna of this estuary.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g., visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The Izembek NWR headquarters in Cold Bay has a small visitor contact area that is open year round. During the warmer months of the year (on a biweekly basis), the M/V ferry Tustumena visits Cold Bay as part of its roundtrip voyage between Homer and Dutch Harbor. While the ferry is docked in Cold Bay, the refuge hosts a bus tour that culminates at the Grant Point overlook (including one of the better views of Izembek Lagoon). This is generally considered one of the highlights of the Tustumena's weeklong voyage.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

See above.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Ownership is part Federal and part State government. The Izembek National Wildlife Refuge, owned by the United States government and managed by the U.S. Fish and Wildlife Service, totals 128,337 ha (320,893 acres), mostly terrestrial habitat. All of the tidelands, including Izembek Lagoon, are owned by the State of Alaska under the Tide and Submerged Lands Act. These tidelands encompass some 38,600 ha (95,300 acres). The State lands were established in 1972 as the Izembek State Game Refuge. In 1980,

121,410 ha (300,000 acres) of lands within Izembek NWR were officially designated as wilderness under the Alaska National Interest Lands Conservation Act.

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

U.S. Fish and Wildlife Service, Izembek National Wildlife Refuge, P.O. Box 127, Cold Bay, Alaska 99571 (Refuge Manager: Ms. Sandra Siekaniec, 907-532-2445)

Alaska Department of Fish and Game, Izembek State Game Refuge, managed through the ADF&G Regional Office in Anchorage (contact: Mr. Mark Fink, 907-267-2338)

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

- Alaska Department of Fish and Game. 1982. Alaska Dept. of Fish and Game Special Areas Program Document. Habitat Division, Alaska Dept. of Fish and Game. Anchorage, Alaska. 17 pp.
- Barsdate, R. J., M. Nebert and C. P. McRoy. 1974. Lagoon contributions to sediments and water and the Bering Sea. Proc. of the Int. Symp. on Oceanography of the Bering Sea. 34 pp.
- Frost, K. J., L. F. Lowry and J.J. Burns. 1982. Distribution of marine mammals in the coastal zone of the Bering Sea during summer and autumn. Final Report, Research Unit #613. Contract #NA 81 RAC 000 50. 188 pp.
- McKinney, F. 1958. Waterfowl at Cold Bay, Alaska, with notes on the display of the black scoter. Wildfowl Trust Annu. Rep. 10:133-140.
- _____. 1965. The spring behaviour of wild Steller's eiders. Condor 67:273-290.
- McRoy, C.P. 1966. The standing stock and ecology of eelgrass (*Zostera marina*) in Izembek Lagoon, Alaska. Unpubl. M. S. Thesis. Univ. of Washington. 138 pp.
- _____. 1970. Standing stocks and other features of eelgrass (*Zostera marina*) populations on the coast of Alaska. J. Fish Res. Bd. of Canada. 27:1811-1821.
- U.S. Department of the Interior. 1985. The Bristol Bay regional management plan and final environmental impact statement. Volume I. Bristol Bay Study Group and the Alaska Land Use Council. Anchorage, Alaska. 411 pp.

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