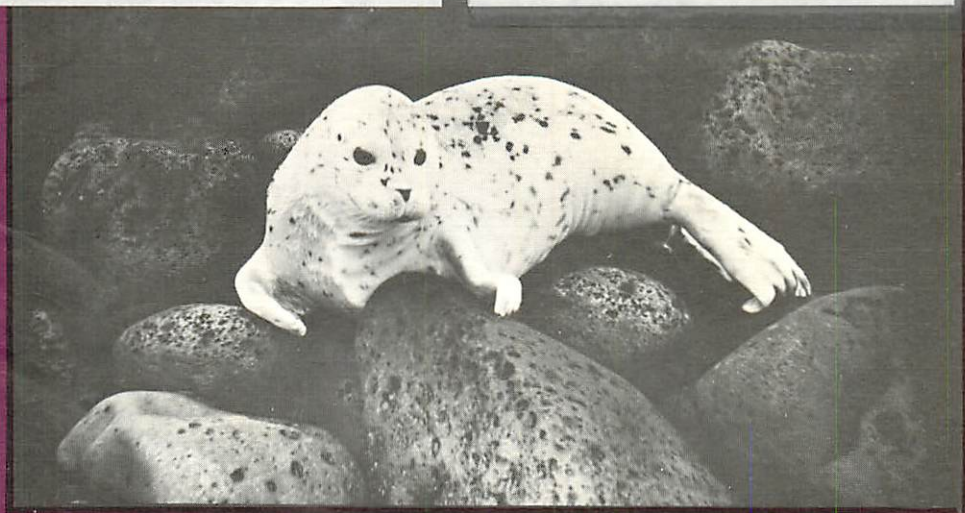


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Marine Mammal Management in Alaska: State vs. Federal

by

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University of Alaska

Marine Advisory Bulletin

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Sitka, Alaska

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Cover photo courtesy Dr. Francis Fay, University of Alaska, Fairbanks Institute of Marine Science.

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INTRODUCTION

Management of marine mammals in Alaska is complex and controversial, embracing a broad spectrum of social, political, ethical and biological issues.

The State of Alaska is considering applying for management of ten marine mammals that the federal government currently controls under the 1972 Marine Mammal Protection Act. These mammals include: polar bear; Pacific walrus; bearded, ribbon, ringed, spotted and harbor seals; belukha whale; sea otter; and Stellar sea lion. (See the Appendix for a discussion of basic biology and current stock status.)

Alaska managed its marine mammals until 1972, when the federal Marine Mammal Protection Act (MMPA) pre-empted marine mammal management by all states. Management authority then passed to the U. S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) as specified under the act.

Reasons cited for this switch included a high rate of incidental porpoise takes in the tuna fishery, overharvest of polar bear in north-west Alaska, the commercial harvest of seal pups in northeast Canada, and destruction of critical marine mammal habitat.

Thus, the primary purpose of the MMPA is to restore and maintain marine mammal populations: to protect marine mammals from the adverse effects of human activity, and to satisfy other aesthetic, recreational, economic and ecological needs.

The Marine Mammal Protection Act placed a moratorium on taking marine mammals. Exceptions to the moratorium include killing for

scientific purposes, for public display, during commercial fishing operations (if a permit is obtained), for subsistence purposes by Alaska Natives, and as provided by the Secretaries of Interior and Commerce.

The act prevents the NMFS or USFWS from restricting marine mammal takes for these purposes unless the populations have been reduced to drastically low levels. This rule effectively prohibits the regulation of most Alaska Native subsistence harvests.

Several major management changes could occur if the state successfully acquires authority over marine mammals. Some of these changes could cause conflicts. The three major potential changes include:

1. A change in priority harvest from Native Alaskan only to subsistence use by Natives and non-Natives
2. Establishment of harvest regulations, including seasons and bag limits
3. Development of recreational and/or commercial ventures

These three possibilities could change the entire structure of the marine mammal stocks and harvesting patterns. Harvests of most of the marine mammals would probably increase and competition might arise between user groups.

A management change could greatly effect the economic and social structures of those northwestern and western rural communities that depend on marine mammals for subsistence food, barter, and handicrafts.

FEDERAL REQUIREMENTS

If Alaska applies for management authority over any of the ten marine mammals, the MMPA has requirements both for any state and for Alaska in particular. Before the federal government will relinquish management authority, the state must demonstrate its ability and desire to :

1. Maintain the health and stability of its marine ecosystem
2. Maintain the marine mammal stocks at their optimum sustainable population (OSP)
3. Ensure that subsistence take is the priority use (Alaska only)
4. To the maximum practical extent, provide economic opportunities for the residents of the rural communities who engage in subsistence uses of the species (Alaska only)
5. Ensure that any taking is done humanely
6. Ensure that taking is without waste
7. Ensure that incidental takes are kept to a minimum
8. Cooperate with federal government in managing species found in federal waters
9. Incorporate obligations of international treaties and agreements into management plans

In addition, any state management program must adhere to the state's constitution and

the regulatory processes must comply with the state's administrative procedures act. The federal government would review the program annually to see that these requirements are met.

PLAN OF ACTION

The MMPA requires the state to follow a specific plan of action when applying for management authority.

Alaska began this process in early 1984. An application package was developed to submit to the federal government.

In the spring of 1984, a public hearing was held on the package. Many who testified were concerned because there had been no opportunity for public input while the package was developed. The state postponed submitting the application, and spent more than \$90,000 to hold approximately 40 hearings on the package in rural and urban centers. The hearings were conducted by the local Alaska Department of and Game (ADF&G) staff. The final hearings were held by a private consultant.

Prior to the public hearings, the Board of Game reviewed the concepts and definitions of "optimum sustainable populations (OSP)", "marine mammals", "species", and "taking of marine mammals" in order to establish a framework on which these regulations may be established.

In early 1985, ADF&G was to submit a summary report of these public hearings to the governor. The governor was to review this report as well as potential program costs, necessary

state legislation, and MMPA requirements before deciding whether to apply for management authority over any or all of the mammal species.

This process was placed on hold when the definition of "subsistence user" was challenged and overturned in Alaska's courts. This court decision changed resource use patterns by allowing all local residents to have subsistence use privileges unless the resource would be damaged by excessive harvests. At that point, a subsistence user would be identified by a point system that evaluates economic dependency and the availability of alternative resources for each applicant.

Because the state could not allow rural residents priority harvesting privileges under the new subsistence ruling, it could not comply with the federal government's Alaska Native Interests Lands Act (ANILCA) requirements.

Because of this, the federal government announced that it would take over resource management on federal lands by June, 1986 if the state did not comply with the federal subsistence requirements.

In May, 1986, Alaska's legislature approved a law that brought Alaska's hunting and fishing laws into compliance with federal requirements. The state may again resume its application process for management authority over any of the ten mammals covered in the MMPA.

It can start the process by submitting a packet for legislative consideration. This packet will include the summary of public interests, proposed program costs, and proposed

management regimes that conform to MMPA requirements.

Legislators then must develop and legislate definitions, criteria, and regulations for "wanton waste" as well as for "humane take".

For those marine mammals that could be subjected to recreational hunts, the Alaska Guide Board must develop guide regulations, while keeping in mind that "to the maximum extent possible" the economic benefits must go to those rural communities with past involvement in hunting for that species.

By federal regulation, the state must hold public hearings to determine optimum sustainable population (OSP) levels for each marine mammal over which it requests management authority. These hearings will be overseen by a federal administrative law judge and will be public, although testimony will not be accepted.

The Board of Game will then adopt management goals and hunting regulations that provide for conservation of the selected species within their OSP range, in addition to protecting the subsistence uses. Public input will be solicited during this process. Regulations will be open to amendment as are all other hunting and fishing regulations.

This process is expected to take a minimum of several years. If the governor decides to go ahead, the legislature will develop legal definitions of wanton waste and humane taking. Then, the Guide Board and Board of Game will develop regulations. That could take some time, because public comment will be allowed.

While the federal government has the right to approve or disapprove the state's request, it is doubtful that the request will be disapproved after the state has complied with all of the application requirements.

POTENTIAL CONTROVERSIES

User group conflicts, including Native vs. non-Native use and the interest in recreational hunts, led to the push for state management. Additional conflicts may arise with any change in management, stemming from establishment of regulations and/or the development of recreational or commercial ventures.

NATIVE VS. NON-NATIVE

Under federal management, only Alaskan Natives are allowed to take mammals for subsistence and to make traditional handicrafts for sale and barter. A major concern is that subsistence-oriented non-Natives in rural communities are not granted this same opportunity. Under state management, these non-Natives would receive equal subsistence rights.

While rural Native hunters have no objections, both Native and non-Native rural residents are concerned about the potential abuse by those non-locals who might hunt for recreational purposes while claiming subsistence use.

In addition, some environmental groups oppose hunting of any marine mammals.

HARVEST REGULATIONS

Under the MMPA, neither NMFS nor USFWS may establish any additional regulations on taking the ten marine mammal species unless the population has been reduced to drastically low levels. Because both USFWS and NMFS budgets have been fairly low, managers have not been able to put sufficient effort into understanding the resource and may not have a good handle on the population levels.

Stocks can reach very high or low populations, at which points the population is unhealthy. But the federal government, restricted by the MMPA, can do nothing about it.

For example, the Bering Sea Pacific walrus stock was at a low population level in the late 1960s and early 1970s. Since the implementation of the MMPA however, the stock has increased to high levels. Some scientists and local residents believe that there are too many animals, that the stock has reached or surpassed its optimum population density. When a population exceeds its long-term carrying capacity, its numbers may crash because feed is limited and/or because of decreases in successful births.

Increasing the take of walrus would help reduce the over-population. Under the MMPA, increased walrus takes are possible, but Natives are presently subjected to bad publicity for taking a large number of walrus only for ivory. Under a state program, the number of hunts could be increased, although they

would probably be for recreational hunters who would also only be interested in the ivory.

One solution would be to relinquish management authority to the state, which could then establish regulations to maintain the populations at optimum levels. Another solution would be to amend the MMPA to allow USFWS and NMFS to establish regulations for taking these marine mammals.

Another concern is that Alaska Natives might devastate a population through intense harvest while the managing authority would have to wait until the population reached critically low levels before restricting the harvest. All ten marine mammal stocks are in stable, healthy condition, however, and over-harvest by Natives has not yet occurred.

On the other hand, do Natives have the capability or the incentive to devastate an entire marine mammal stock? According to the ADF&G, Natives harvested an average of 105 polar bears from 1972 through 1979. Prior to the MMPA restrictions of 1972, the annual harvest was about 260 polar bears. Of the 260, only 13 percent were taken by Alaska Natives. The rest were taken for recreation.

Another major regulatory concern is for the incidental takes of marine mammals in commercial fishing operations. Under the MMPA, commercial fishermen are allowed to take marine mammals in "small numbers" during commercial operation. But the Act does not define "small numbers". In the offshore trawl fisheries, thousands of sea lion are taken. Coastal net fishermen take seal and otter that they find destroying their gear and fish.

How the state will handle the "small numbers" take remains uncertain. On one hand, Alaska would be mandated to maintain the population within its OSP range. On the other, fishing is a major part of Alaska's economy and the state is sympathetic toward fishermen who have lost thousands of dollars to marine mammals in destroyed gear and eaten profits.

RECREATION VS. SUBSISTENCE USES

If it assumes management authority, the state could establish recreational hunts. Trophy hunters are greatly interested in walrus and polar bear.

Several major controversies could stem from recreational hunts for either of these species. Because subsistence needs will remain the priority use, "subsistence need" will have to be defined before a subsistence harvest level can be established. For some, subsistence need may be considered a take for personal consumption. For Alaska Natives, subsistence take includes non-consumption purposes.

Presently, Natives use the ivory tusks of walrus and polar bear skins to make handicrafts, many of which are sold. In several communities, including Point Hope, Savoonga, Gambell, and Shishmareff, income from these handicrafts is the primary source of cash. Not all of the meat from the animals is used by Natives. Although Natives are interested in using excess meat for dog food, the MMPA prohibits use of meat for anything but human consumption.

There is concern that the subsistence harvest level will be based on an estimate of protein consumption rather than an average of the past harvest. Because a portion of present Native harvest is used to make artwork for sale, a subsistence harvest level based on protein consumption will undoubtedly be lower than current Native harvest levels.

Rural Native guides are also concerned about recreational hunting. The MMPA requires that, to the maximum extent possible, economic returns generated by use of the resource go to those rural communities with past involvement in the resource. Rural community hunters who are interested in guiding are concerned that the Alaska Guide Board will not take this mandate seriously and will fashion the regulations to allow non-Native guides easy access to guiding positions.

There may also be competition between subsistence and recreational hunters both for access to the resource and for hunting space. If recreational hunters and subsistence hunters are in the same area at the same time, one group of hunters may get the lion's share of available animals. Separate seasons may have to be established.

Commercial operations have been discussed as a way to use the whole animal. There is an interest in using the meat for animal feed and tanning the skins for sale. As stated in the MMPA, the major economic benefit of such operations would have to be realized by those in the communities having past involvement with the resource.

Several coastal communities are interested in developing commercial ventures to use the walrus meat and walrus and seal hides. Resi-

dents want to develop these ventures to promote economic stability and jobs for their communities. Commercial development is not possible under the MMPA, although it is uncertain whether the Act could be changed to accommodate such an interest.

HOW AND WHEN TO PROVIDE YOUR COMMENTS ON THE ISSUES

How will Alaska decide which marine mammals we wish to manage? Will the power of various interest groups affect the decision? Will the decision be based on managing the resource, subsistence priorities, economic returns, programs costs, preservation, or a combination of interests and needs?

Alaska's recent financial dilemma may sway the state away from applying for authority over any marine mammals. If Alaska pursues acquiring management authority, the interests of all Alaska residents should be heard and taken into account. As an Alaskan resident, there are several avenues for providing your input.

- * Attend the federal OSP hearings that will be open to the public, although no public testimony will be taken.
- * Attend your local ADF&G Advisory Council meetings when they discuss this issue. Provide public testimony or comment on the harvest levels, regulations, and other issues under consideration.
- * Testify in person or by letter at the Board of Game meetings that address the marine mammal issue.

- * Testify in person or by letter at the Guide Board meetings that address the marine mammal issue.
- * Submit comment on the State of Alaska's application for marine mammal management when the application is complete and open for public testimony.
- * Talk with or write to your legislators at any time.

CONCLUSION

Now that the subsistence issue is resolved, the State of Alaska must decide whether to apply for management authority of the ten marine mammals currently managed by the federal government under the Marine Mammal Protection Act of 1972. The decision will be based on a number of factors including public input, the MMPA requirements, the program costs, and the state's interest.

This decision is a major one. Alaska will be the first state to apply for management authority over any marine mammals covered in the MMPA. Other states are interested in the outcome.

California recently decided not to apply for management authority. Their decision was based on their financial condition as well as uncertainties in the federal financial contributions.

Several groups are interested in the outcome for various reasons: Alaska Natives, game guides, commercial fishermen, and environmentalists have all been part of the debate.

Game guides are mostly interested in taking polar bear and walrus. Sport hunting is profitable and well-established in Alaska, which is one of the last places in the U.S. where trophy hunting is actively pursued. Polar bear guiding was important as a small cash economy in northwest Alaska during the late 1960s and guides are anxious for the state to take over management in hopes that the industry will be reinstated.

Fishermen want to reduce their gear losses to seal and otter by relocating the animals or being allowed to eliminate the intruders.

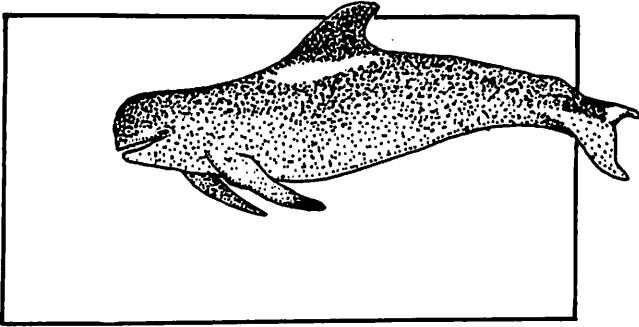
Environmentalists want to preserve the resource, prohibiting Natives, game hunters or commercial fishermen from taking any marine mammals.

The Alaska Natives want to continue their accustomed lifestyles, relying on marine mammals for food and the hides and other body parts used to make handicrafts. It is a way of life, the way it has always been; and, in their mind, the way it should always be.

APPENDIX

Biology and Status of Stocks

This section was condensed from Marine Mammal Species Accounts, Alaska Department of Fish and Game Wildlife Technical Bulletin #7, December 1984, edited by John J. Burns, Sr. Contributing authors include Lloyd F. Lowry, Jack W. Lentfer, Donald G. Calkins, Karl B. Schneider, Robert R. Nelson, Kathryn J. Frost, Kenneth W. Pitcher, and John J. Burns.



BELUKHA WHALE (Delphinapterus leucas)

The belukha, or white, whale is one of two species of toothed whales found in arctic waters. The adult males range between 10.5 and 14.4 ft long and weigh 1,146 to 2,645 lbs. Female adults are smaller, ranging between 10 and 11.8 ft long and weighing between 1,058 and 1,543 lbs.

There are two major belukha populations in Alaska, one in Cook Inlet and the other found north of the Aleutians, called the western arctic population. The western arctic herd may be divided into discrete stocks in the Bering, Chukchi, Beaufort and Siberian Seas.

Belukha are a northern species and exhibit a strong affinity for arctic and subarctic waters. Their northerly distribution may also result from heavy predation in more southerly waters and/or an increase in competition for feed.

Females first give birth at age 5 or 6 and breed about every three years. Annual calf production is estimated at around 9 percent, but may be as high as 12 to 13 percent. Maximum age has been estimated at 30 to 34 years. Aging techniques have not been perfected however, and the belukha may live much longer.

Belukha have broad feeding habits, eating shrimp, octopus, sculpin, and cods, and anadromous fish when they are available.

Limited surveys estimate the Cook Inlet population to be around 400 and the western arctic population at 13,500 to 18,000. The total northern population, including that in eastern Siberian waters, is estimated at 25,000.

Predation on belukhas is primarily by humans, killer whale and polar bear. Additional mortality occurs from entrapment in ice and in fishing gear.

The sustainable yield is believed to be between 5 and 10 percent, which is much higher than the present harvest. Major subsistence harvests occur in Kotzebue Sound, near Point Lay and in the MacKenzie Delta. Additional harvests are conducted around Wales, Kivalina, Point Hope, Wainwright and Barrow. Present harvests have ranged between 138 and 247 animals, depending on a variety of environmental conditions.

Today, Bristol Bay area commercial salmon fishermen often come into conflict with belukha feeding on the salmon.

A change in management authority from federal to state jurisdiction would probably not change current harvest levels, and because that level is less than the sustainable yield, there may be no need for regulation.



Photo courtesy Lloyd Lowry

PACIFIC WALRUS (Odobenus rosmarus divergens)

The Pacific walrus is one of the most unique marine mammals in Alaskan waters. This mammoth brown creature is characterized by large ivory tusks, a bristly face and its ability to move on land as well as in the water.

The Pacific walrus is one of the largest pinnipeds and is the only surviving species of the family Odobenidae. The adult male can weigh up to 2,645 lbs, while the female is smaller.

As with the other pinnipeds, the walrus travels by water, but turns to land to rest, give birth and care for the young.

Major factor influencing the distribution of walrus include water depth and the availability of pack ice. Walrus are benthic feeders and are found in shallow waters along the

edge of pack ice. Their migration correlates with the north-south movement of the pack ice.

Walrus prey primarily on benthic invertebrates: large clams, snails, crab, shrimp, worms, and sea cucumber. Clams often account for 85 to 95 percent of their diet. An average walrus can consume 132 lbs of feed per day.

Their major predators include polar bear, killer whale and man. Additional mortality occurs from rock slides and/or crushing during haul-out, and from intraspecific competition between males during mating.

The northwest population, including those in U.S. and Soviet waters is estimated at 270,000 to 290,000, significantly higher than former levels.

Females reach sexual maturity around the age of 6 and on average give birth every 2.5 years. The gross rate of reproduction is estimated at 16 to 18 percent, with a net recruitment rate of 8 to 9 percent. The maximum life span is around 40 years.

Harvesting accounts for the greatest mortality of walrus with a combined annual average harvest by Soviets and Alaskans of 5,500 animals. The U.S.S.R. has an annual average harvest of 4,000.

Management personnel and local residents are concerned that the walrus may have exceeded their long-term carrying capacity. The Bering Sea clam resource, their major food source, is on the decline. Additional factors point to an unhealthy population, and

that may indicate declining population numbers for walrus.

If the state were to take over management authority, several major changes could be expected. Subsistence harvests would probably be opened for both Natives and non-Natives, and a recreational hunt would no doubt be established.

Walrus have great recreational value. Sport hunters are interested in the ivory tusks as well as the excitement of hunting for such a large marine mammal. A recreational hunt was established during the 1970s, when the state managed walrus.

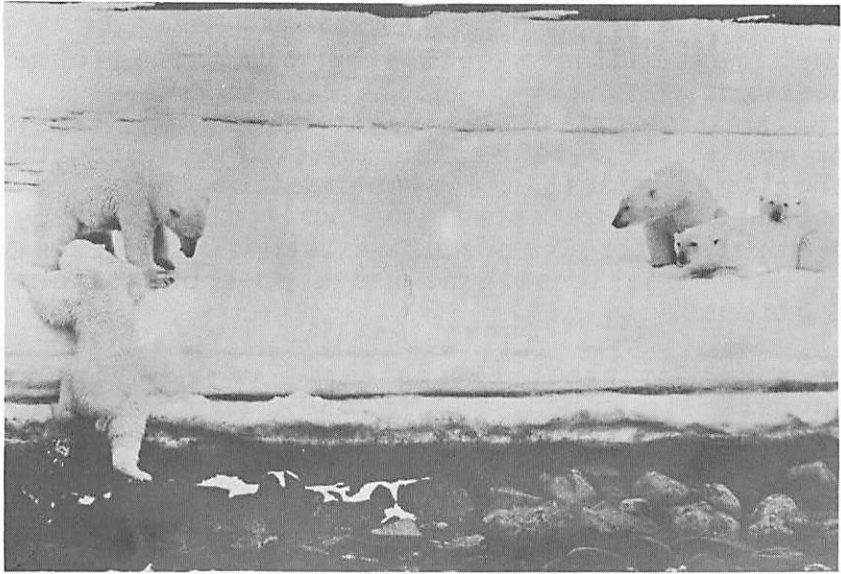


Photo courtesy ADF&G

POLAR BEAR (Ursus maritimus)

The polar bear is a northern species generally associated with sea ice. Polar bears have a white coat with water repellent guard hairs to resist arctic cold.

Relative to the brown bear, they are similar in size. Adult males weigh between 771 and 1,432 lbs, and females between 330 and 661 lbs.

The migration and distribution of polar bears are associated with the north and south movement of pack ice. They are found in areas of drifting ice, where seals are concentrated.

The total world population is estimated at around 20,000 with 5,700 to 9,500 found in Alaska. Females begin breeding around the age of 5, with an average litter size of 1.57 to 1.87.

Man is the major predator on polar bear. The U.S.S.R. and Norway have disallowed hunting for this species. Other annual takes include approximately 125 to 150 animals by Greenlanders, 700 by Canadians and 85 by Alaskan Natives. Prior to the 1972 Marine Mammal Protection Act, 260 bears were taken by recreational hunters and Alaska Natives, with the Native hunt accounting for 13 percent (34 animals) of the harvest.

Ringed seal constitute the primary feed for polar bear, with bearded seal of secondary importance. Polar bear will, however, prey on a variety of other marine and land mammals.

The MMPA does not allow management of polar bear or regulation of the only user group allowed to hunt the bear. Consequently, the U.S. does not fully comply with the 1974 Oslo Agreement on Conservation of the Polar Bear, although it is a party to this international agreement. Among other things, the Oslo Agreement regulates the taking of pregnant females, females with cubs, and cubs; as well as preventing hunters from taking bears in and around denning areas.

The state would be able to establish regulations to comply with international agreements. In addition, the state is interested in establishing a ground-based recreational hunt similar to that which existed before the MMPA.



Photo by Ed Klinkhart

SEA OTTER (Enhydra lutris)

The sea otter is the only true marine representative of the Mustelid family in North America. It is a unique marine mammal because it does not have a thick layer of blubber. Instead, it is insulated with a dense layer of fur.

Sea otter range from Baja California to the Pribilofs, along the western Pacific coast. During the 1800s and early 1900s, these populations were harvested to near extinction. The present Alaskan population exceeds 100,000.

Preferable habitat includes nearshore rocky coast with large kelp beds, although they are found in a variety of different habitats.

Females begin to bear around the age of 4, and have a two-year breeding interval al-

though they may breed annually in areas of low sea otter density. The life expectancy for females is around 15 years and for males, less.

Their predators include eagles, killer whale, man and possibly shark. Eagles target on juvenile sea otter.

Otter are opportunistic feeders with a preference for invertebrates, including clams, mussels, abalone, snails, octopus, rock oyster, sea star, and chiton. They are known to feed on fish, including the globe fish and Irish lord.

Often they will target one particular species until it nears depletion. Because of this controversial feeding habit, they can alter nearshore marine life systems.

In California, otter have eaten enough abalone and crab to destroy commercial fisheries for those species in some areas. This is also becoming a problem in Cordova, which supports one of the few commercial clamming areas in Alaska. Increasing numbers of sea otter are feeding on clams in this area. Southeast Alaska commercial abalone divers are also observing declines in abalone populations in areas where sea otter are increasing. Sea otter may also be in conflict with other resource users around Kodiak Island, Resurrection Bay and Kachemak Bay.

The state's interests would include the continued repopulation of former sea otter habitat areas and possible intensive harvests in areas where there are fisheries/sea otter conflicts. Such harvest would have to meet strict criteria before being allowed.

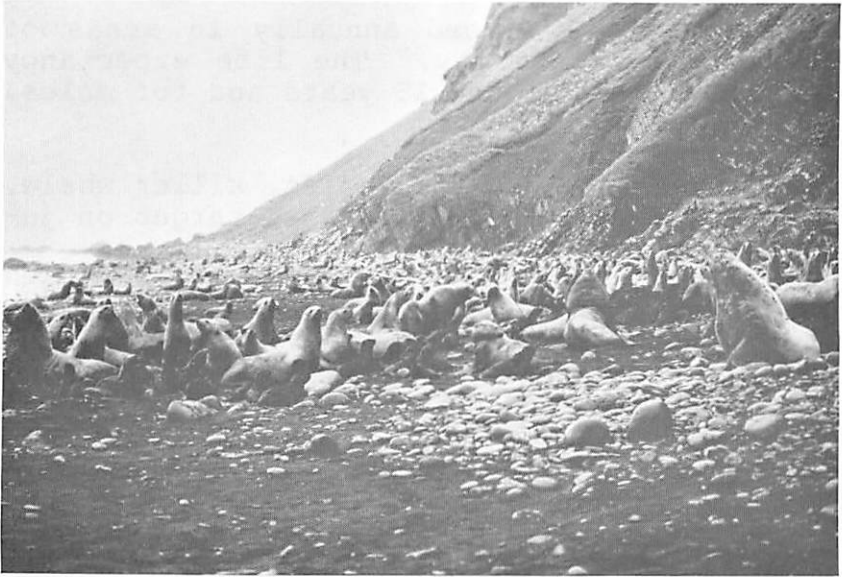


Photo courtesy Lloyd Lowry

STELLER SEA LION (Eumetopias jubatus)

The steller sea lion is a large, eared seal that is most abundant in the northwestern Gulf of Alaska, but ranges from southern California to the Pribilofs. Male adults weigh up to 1,248 lbs and adult females weigh up to 580 lbs.

Sea lion use both land and sea, exhibiting a strong north-south migration. Land is used for haul-outs in order to rest, and rookeries are used for breeding and pupping. North-south migrations of up to 1,500 km have been noted. Sea lion often breed in the same rookery in which they were born.

There are approximately 242,000 sea lion in Alaska's waters, representing 85 percent of the world population. An estimated 135,000 are found in the Gulf of Alaska; 96,000 around the Aleutians and 8,500 in Southeast

Alaska. The eastern Aleutian population has exhibited a decline in the last five to ten years.

Females start breeding at the age of 3 or 4 and give birth to one pup annually. The gross annual production is estimated at 30 percent. The maximum age for females is around 30, while the maximum age for males is about 18.

Sea lion are opportunistic feeders, eating pollock, skate, starry flounder, halibut, octopus, salmon, crab, bivalves, squid and capelin. They compete with other marine mammals for food, for example with walrus for clams. They also compete with several of the commercial fisheries for fish.

In the Gulf of Alaska, over 100,000 sea lion may consume over 500,000 mt (1.1 billion lbs) or food per year. In 1981, the groundfish fishery harvested 260,000 mt (.5 billion lbs), a little more than half of the sea lions' annual consumption. The total annual consumption of species by sea lion in Alaskan waters may exceed one million mt.

Sea lion have few predators. These include killer whale, shark and man, with a few taken opportunistically by other species. Humans may take a few for food or bait in the crab and shrimp fisheries.

The major mortality of sea lion occurs in the commercial fisheries. Each year approximately 1,000 are killed in the nearshore salmon gillnet, troll or seine fisheries. Between 800 and 1,600 are killed in the high seas fisheries including trawl, gillnet and longline. The sea lion/commercial fishery

conflicts have increased as the offshore commercial fisheries have expanded.

Sea lion are often entangled or caught in fishing gear, or are shot by fishermen who find them eating fish from their gear. Substantial losses are incurred by fishermen who lose both product and gear through damage and loss to sea lion.

The state's interest in managing this species would include potential well-regulated harvest of juveniles for pelts and of adults for commercial fishing bait. The state might also consider removing sea lion in areas where there are serious conflicts between their feeding and commercial fisheries.

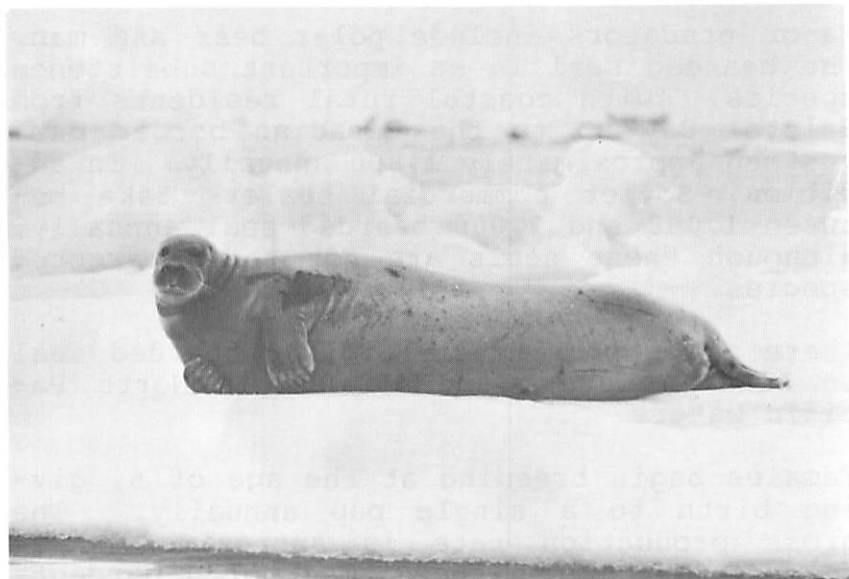


Photo by L.M. Shults

BEARDED SEAL (Erignathus barbatus)

The bearded seal are the largest of the phocids. Females weigh up to 793 lbs and male up to 514 lbs. Bearded seal are covered with relatively short hair and are light to dark grey, or brown.

Their distribution and migration are directly related to the advance and retreat of sea ice and they are widely distributed in the drifting seasonal ice. In Alaska, bearded seal do not use land haul-outs as they do in other areas. This is possibly because of the extensive availability of sea ice.

Bearded seal are found in shallow areas where they feed on crab, shrimp, clams, flatfish, sculpin, and arctic or saffron cod, and may compete with walrus for Bering Sea clams.

Major predators include polar bear and man. The bearded seal is an important subsistence species, with coastal rural residents from Bristol Bay up to the Canadian border harvesting approximately 1,800 annually. In addition, Soviet commercial sealers take between 1,000 and 2,000 bearded seal annually, although these seals are not their targeted species.

There are approximately 300,000 bearded seal in Alaskan waters and 450,000 in North Pacific waters.

Females begin breeding at the age of 6, giving birth to a single pup annually. The gross production rate is approximately 24 percent with a net recruitment of 5 percent. The maximum life expectancy is 30 years.

There would probably be little change in the harvest of bearded seal under a state management program. The state would support local harvests for domestic consumption.

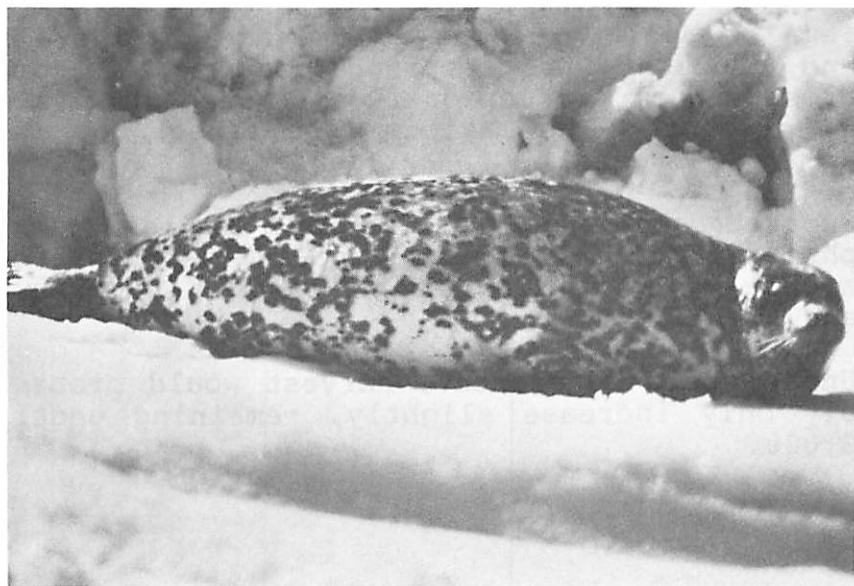


Photo courtesy IMS

SPOTTED SEAL (Phoca largha)

The spotted seal looks similar to the harbor seal and is similar in size, averaging 220 lbs as an adult.

Spotted seal are found in the Bering and Chukchi Seas. In the spring, they gather along with southern edge of the pack ice where they pup, breed and molt on the ice floes. During the summer, they are found in shallow waters where they feed on schooling fish and haul-out on land.

Predators include shark, killer whale, walrus, sea lion, and man. Hunting constitutes the major mortality for spotted seal. Approximately 2,400 are taken annually by Alaska Native subsistence hunters and 3,850 are taken by Soviet commercial sealers. The Bering Sea population is estimated at between 200,000 and 250,000.

Females begin breeding at the age of 3 or 4 and produce one offspring per year. The gross annual production is estimated at 22 to 25 percent. The maximum life expectancy is around 35 years.

Spotted seal feed on shrimp, musids, amphipods, octopus, squid, capelin, saffron and arctic cod, herring, sand lance, sculpins, and smelt.

Under state management, harvest would probably only increase slightly, remaining under 3,000.

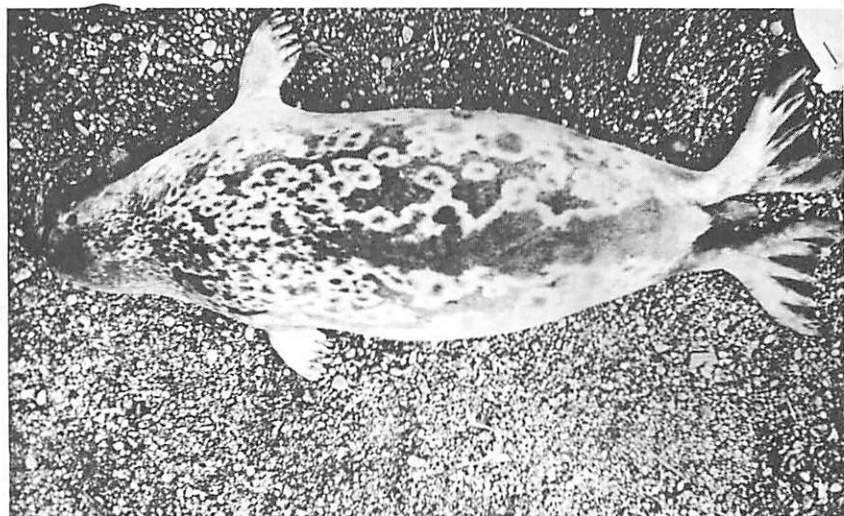
Females begin breeding between the age of 4 to 7. They generally bear a single pup annually. Their gross productivity is estimated at 16 to 18 percent. Their maximum life expectancy is around 40 years.

Ringed seal are well-adapted to sea ice and are the only seals found around fast ice. They have breathing holes in fast ice and maintain subnivalian lairs (like caves) in the ice for resting, giving birth and nursing their young.

Ringed seal are the most widespread and abundant marine mammal in the ice-covered regions of the northern hemisphere. A circumpolar species, they are found in the Bering, Chukchi and Beaufort Seas. They are the smallest of the northern true seal, weighing up to 110 lbs as adults.

RINGED SEAL (*Phoca hispida*)

Photo by F.H. Fay



The are not limited to shallow waters. They feed on small fishes, including arctic and saffron cod, and the crustaceans found in deeper waters.

Predators are the polar bear, arctic fox and man. Polar bear are the major predator and may take up to 530,000 ringed seal annually. Alaska Natives harvest 2,000 to 3,000 annually and the Soviets 7,000 to 8,000.

There is no accurate population estimation for ringed seal. A conservative estimation is around 1.5 million, while a more realistic estimate may be 3.6 to 6.6 million.

Under state management, there may be a slight increase in the subsistence harvest.

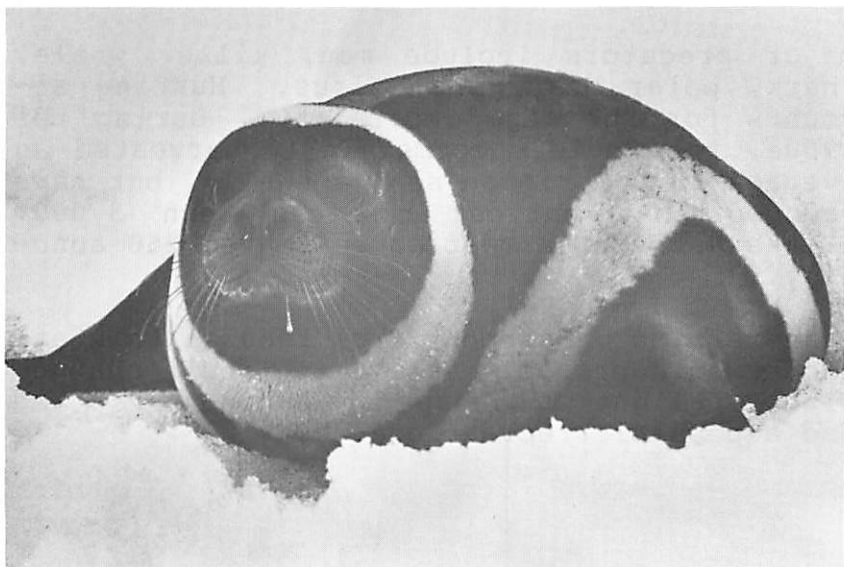


Photo courtesy IMS

RIBBON SEAL (Phoca fasciata)

Ribbon seal are found in the Bering, Okhotsk and Chukchi Seas. Generally, they are found far from shore distributed throughout the ice front. Unlike other seals, ribbons do not haul-out on land, but are well-adapted to a pelagic life. They spend their summers feeding in the ice-free waters of the Bering Sea.

Ribbon seal feed on pollock, eelpout, arctic cod, Greenland halibut, octopus, squid, shrimp, and mysids.

There are an estimated 100,000 to 110,000 ribbon seal in the Bering Sea. Females begin breeding between the ages of 4 or 5 and give birth to a single pup annually. The gross annual production is estimated at 24 percent, with a net productivity of 6 percent. The maximum life expectancy is estimated at 30 years.

Major predators include man, killer whale, shark, polar bear, and walrus. Hunting accounts for the major mortality. During the 1960s, the Soviets commercially harvested an average 10,000 ribbon seal annually, but have reduced that harvest to less than 3,000. Alaska Natives harvest an estimated 250 annually.

Transferring management from federal to state hands would probably result in little change, with a slight increase in subsistence take and a possible recreational hunt.



Photo courtesy F.H. Fay

HARBOR SEAL (Phoca vitulina richardsi)

The harbor, or common, seal are found throughout temperate and subarctic regions of the northern hemisphere. They are the most widely distributed pinniped.

Along the northeast Pacific, they are found as far south as British Columbia, north to the Kuskokwim region, and west along the Aleutians. Harbor seal are closely associated with coastal waters and generally do not embark on long migrations, although they exhibit some seasonal movement. Haul-outs, used for resting, for giving birth and nursing are found widely scattered throughout the seals' range.

Males weigh up to 187 lbs as adults and females weigh up to 168 lbs. Females generally begin breeding between the ages of 4 and 9, and give birth to one pup annually. The max-

imum life expectancy for females is 32 years, while it is only 26 years for the male.

Predators include the killer whale, steller sea lion, shark, and man. Man is the major predator.

During the 1970s, an average of 10,000 to 50,000 fur seals were taken annually to supply the European fur market. Several populations suffered from this intense harvest and the total population dropped to an estimated 270,000.

Since the 1972 Marine Mammal Protection Act, the populations are healthy and increasing. Present subsistence harvests are estimated at 1,000 to 2,500.

Fish account for approximately 74 percent of the harbor seal diet, including walleye pollock, Pacific cod, capelin, eulachon, herring, and salmon. They also feed on octopus and squid.

Harbor seal feeding habits have resulted in several major conflicts with commercial fishermen. These seals take salmon from gillnets in the Copper River delta, the Stikine River, the Taku River, and several of the tributaries in Bristol Bay.

While state management would continue to emphasize subsistence harvests, there would be potential for recreational and/or commercial harvests. In addition, directed harvests could be allowed in areas with serious seal/commercial fishing conflicts.

Table 1. 1984 Marine mammal population estimations

Species	Alaskan waters	North Pacific	Total World
Belukha whale	14,000- 14,400	25,000	--
Pacific walrus	--	270,000 290,000	--
Polar bear	5,700- 9,500	--	20,000
Sea otter	>100,000	--	110,000- 150,000
Steller sea lion	242,000	--	285,000
Bearded seal	300,000	450,000	--
Spotted seal	--	200,000- 250,000	--
Ringed seal	--	1,500,000- 6,600,000	--
Ribbon seal	--	100,000- 110,000	--
Harbor	>270,000	--	--