

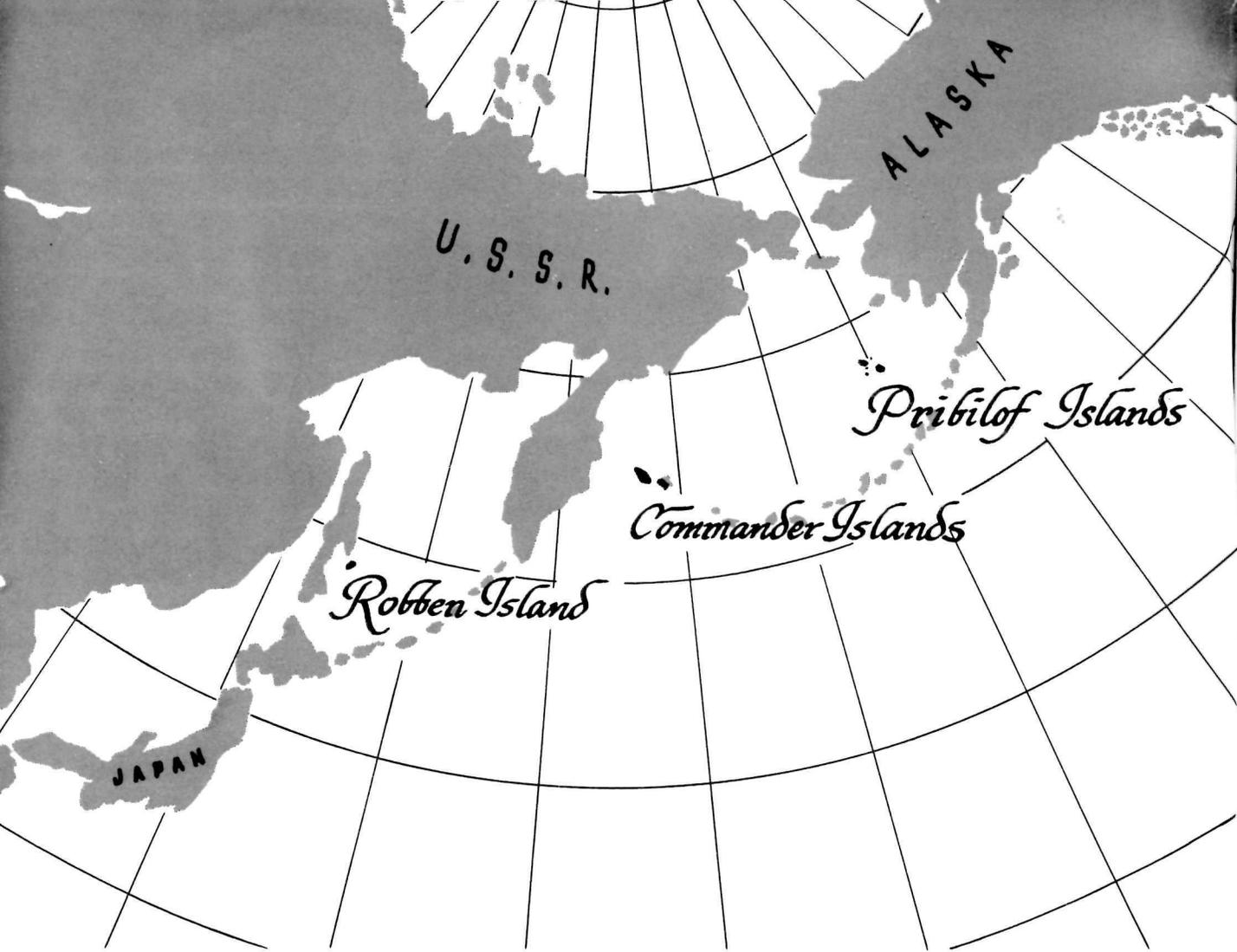
CONSERVATION IN ACTION



FUR SEALS of the PRIBILOF ISLANDS

Number TWELVE
Fish and Wildlife Service,

United States Department of the Interior Washington, D. C.



Breeding grounds of the northern fur seals: Robben Island (Kaihyō-tō or Tyuleny Island) off Sakhalin; the Commander Islands (Bering Island and Medny or Copper Island) at the Soviet end of the Aleutian chain, and the Pribilof Islands—St. Paul Island, St. George Island, Otter Island, Walrus Island, and Sea Lion Rock.

Cover by Bob Hines: Fur seal family.

UNITED STATES DEPARTMENT OF THE INTERIOR, FRED A. SEATON, *Secretary*
FISH AND WILDLIFE SERVICE, Arnie J. Suomela, *Commissioner*

FUR SEALS

of the

PRIBILOF ISLANDS

By RALPH C. BAKER

Assistant Chief, Branch of Alaska Fisheries

BUREAU OF COMMERCIAL FISHERIES

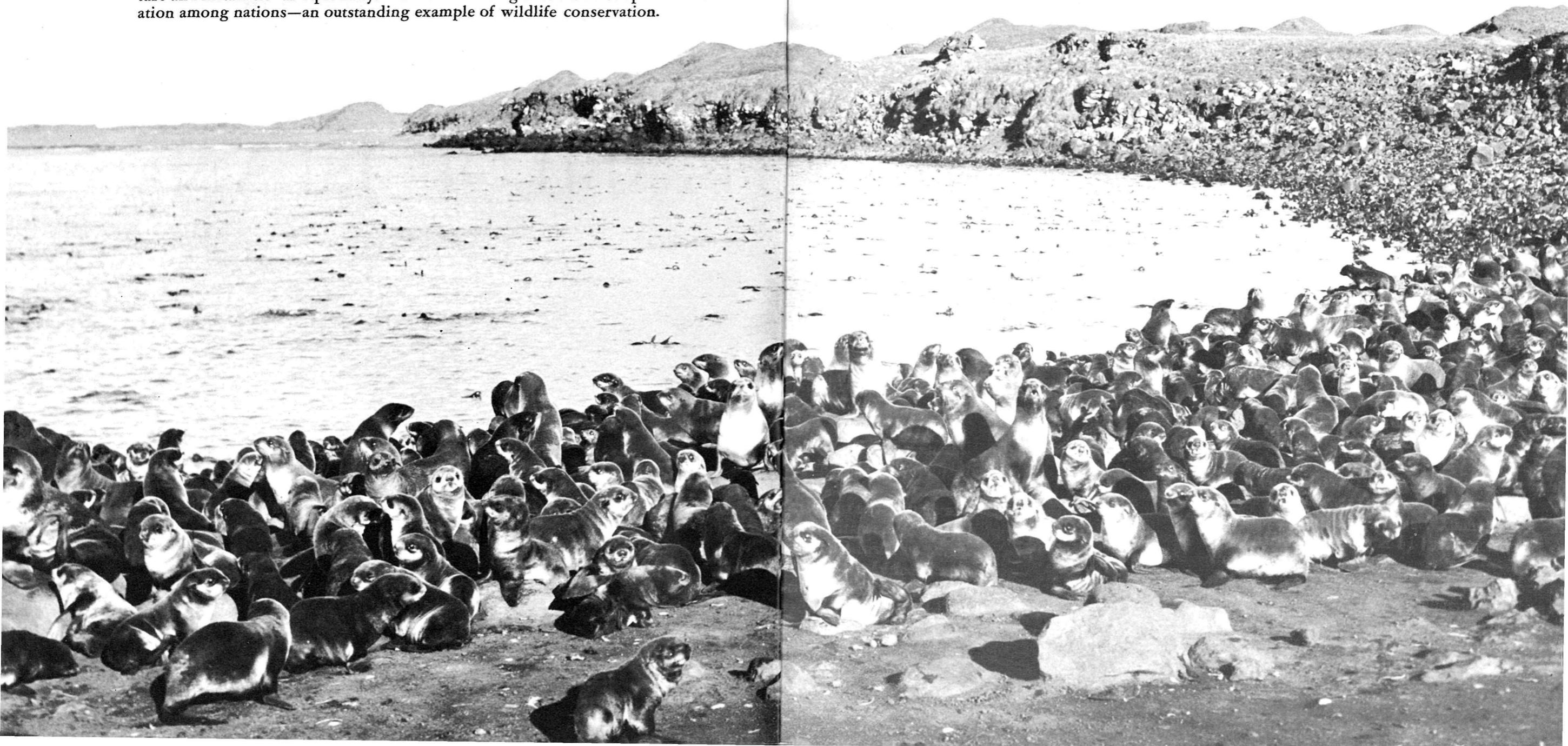


Conservation in Action

NUMBER TWELVE

UNITED STATES GOVERNMENT PRINTING OFFICE • WASHINGTON • 1957
FOR SALE BY THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C. • PRICE 20 CENTS

The Pribilof Islands in Bering Sea are the homeland of the largest fur-seal herd in the world. Here the fur seals come ashore to bear their young on the rocks and sands above tidewater. The story behind the restoration and development of the Alaska fur-seal herd is one of adventure and international diplomacy. It is a heartening account of cooperation among nations—an outstanding example of wildlife conservation.



Early History of Fur-Sealing

NEARLY 175 YEARS AGO Gerassim Pribilof, navigator in the service of Imperial Russia, joined the search for the breeding grounds of the North Pacific fur seals. Each spring the seals were seen to swim northward through the passes of the Aleutian Islands and disappear into the fog and mist of Bering Sea. In 1786, 3 years after his search began, Pribilof came upon the islands that now bear his name and found fur seals along the beaches in seemingly uncountable numbers. Almost immediately the teeming rookeries began to yield sealskins for the fur markets of the world, at about the time the thirteen colonies on the Atlantic coast of North America were forming a new nation.

Two years before the discovery of the Pribilof Islands, adventurous skippers from New England and Europe had discovered commercial possibilities in the great herds of fur seals in the South Sea Islands. The first experimental cargo of 13,000 pelts from the Southern Hemisphere appears to have been taken at the Falkland Islands in 1784 by the crew of the American vessel *States* from Boston.

In the 50 years that followed, the fur-seal rookeries on Mas-a-Fuero, Juan Fernandez, the South Shetlands, Prince Edward, the Antipodes, and countless other islands were destroyed as fast as they were discovered. Literally millions of pelts were taken to the Canton market to trade for tea, silks, and other products of China. The huge populations of fur seals south of the equator were rapidly annihilated,

with the exception of small herds that still exist off the coasts of the Union of South Africa, Uruguay, and New Zealand.

The exploitation of the Alaska herd at first followed the same destructive pattern as that pursued by sealers in the southern seas. Twice during the Russian administration the herd on the Pribilof Islands was threatened with annihilation: first, through failure to restrict the numbers of seals killed, and later by failure to protect the females. The killing of females finally was forbidden by Russia after 1834, and the herd began to increase. The Russians are said to have taken more than 2½ million pelts between the time of the discovery of the islands and the sale of Alaska to the United States in 1867.

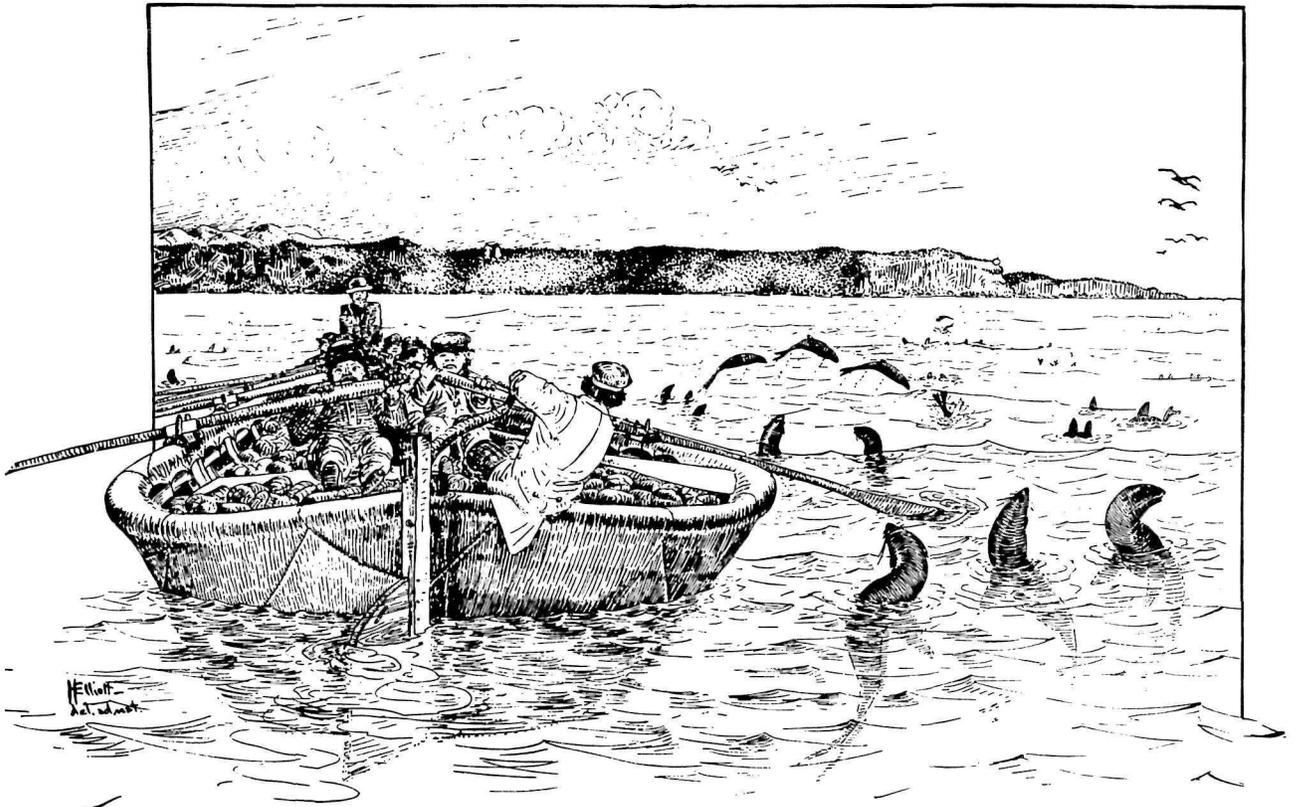
Immediately after the purchase of Alaska by the United States, a number of independent companies began sealing operations on the Pribilof Islands, taking about 300,000 skins the first season. An act of Congress on July 27, 1868, prohibited the killing of fur seals, and on March 3, 1869, the islands were set aside by the United States Government as a special reservation for the protection of the animals. A year later the United States Treasury Department was authorized to lease exclusive rights to take seals on the islands, with the stipulation that no females were to be taken. Further legislation in 1874 authorized the Secretary of the Treasury to establish catch quotas and open seasons for the lessee.

Under the first 20-year lease, beginning in 1870, the Alaska Commercial Company took 1,977,377 sealskins. A second 20-year lease, to the North American Commercial Company, produced only 342,651 sealskins for the period ending in 1909. The leasing system was discontinued in 1910, and since then the Alaska fur-seal herd has been under the management of the Federal Government, first by the Secretary of Commerce through the former Bureau of Fisheries, and now by the Secretary of the Interior through the Bureau of Commercial Fisheries of the United States Fish and Wildlife Service.

Fur seals are vulnerable to capture while at sea as well as on land. Pelagic sealing, or taking of fur seals at sea, began to develop on a commercial scale about 1879. As practiced extensively by American, Canadian, and Japanese fishermen in the North Pacific, pelagic sealing resulted in the indiscriminate killing of the seals, without regard to age or sex. The pelagic take of sealskins reached a peak of 61,838 in 1894.

Almost a million skins were taken on the high seas from 1879 to 1909, and many of the seals shot or speared in the open sea were not recovered. Since

“Fur seals sporting around the baidar—Natives of St. Paul lightering off the bundled sealskins to the ship from the Village Cove.” A sketch by Henry W. Elliott, who visited the Pribilofs for the Treasury Department and the Smithsonian Institution in 1872, shortly after purchase of the islands from Russia. The baidar, or bidarra, was made of sea-lion skins; canvas-covered bidarrahs are still used in ship-to-shore ferrying.



females comprised 60 to 80 percent of the pelagic catch the effect on the Alaska herd was disastrous. By 1909 the Pribilof herd was reduced to 134,000 animals, and the two smaller herds off the Asiatic coast were also faced with extinction.

After extended diplomatic negotiations and a long series of ineffectual bilateral agreements, the United States, Great Britain, Japan, and Russia concluded a convention on July 7, 1911, for the protection of the fur seals of the North Pacific. Pelagic sealing was prohibited except by aborigines using primitive weapons. Each country owning fur-seal rookeries agreed to share 30 percent of its annual take of sealskins—Canada and Japan each to

receive 15 percent of the sealskins from the Pribilof Islands and 15 percent of those from the Commander Islands, and Canada, Russia, and the United States each to receive 10 percent of the pelts from Robben Island.

The convention of 1911 provided for the first time a sound basis for the management of the North Pacific fur seals. It remained in force for 30 years, until terminated by Japan on October 23, 1941. From 1942 to 1957 the Pribilof herd was protected by a provisional agreement between Canada and the United States, which reserved to Canada 20 percent of the skins taken each summer on the Pribilof Islands.

Under management, the Pribilof seal herd has recovered from 134,000 to 1½ million animals. This summer scene on Polovina Rookery shows the great beachmasters, or harem bulls, the medium-sized cows, and the newborn pups. Across the inlet are a few young males, or bachelors.



On February 9, 1957, a new interim North Pacific Fur-Seal Convention was concluded by Canada, Japan, the Union of Soviet Socialist Republics, and the United States, similar in form to the 1911 convention. Subject to ratification by all the governments concerned, the new convention provides that Canada and Japan each shall receive 15 percent of the sealskins taken commercially by the United States and by the U. S. S. R.

Under international protection and a rational management program, the Alaska fur-seal herd has increased from the low point of 134,000 animals in 1909 to its present level of about 1½ million animals. Since 1940 the herd has sustained an average annual yield of 65,000 sealskins.

Life of the Fur Seals

EACH SUMMER, the northern fur seals (*Callorhinus ursinus*) return to their island rookeries. The American herd, which comprises 80 percent of the world's fur seals, congregates on the Pribilof Islands. These islands, in Bering Sea, are about 350 miles west of the Alaska mainland and about 250 miles north of the Aleutian chain. The Pribilofs include the two larger islands of St. Paul and St. George, each about 35 square miles in area; a much smaller island, Otter Island; and two rocky islets, Sea Lion Rock and Walrus Island. Only St. Paul, St. George, and Sea Lion Rock are frequented by fur seals.

A beachmaster arrives.





Courtship.

Fur-seal pup.



Two smaller herds of the northern fur seals make their summer homes on Robben Island and on the Commander Islands, off the Asiatic coast. Each of these herds numbers between 50 and 55 thousand animals. Both have been administered since World War II by the Union of Soviet Socialist Republics.

The fur seal differs so markedly in structure from the common hair seal or harbor seal that it seems probable they have different origins. In contrast to the hair seal, the fur seal moves about readily on land, has external ears, a rather pointed snout, four well-developed flippers, and a soft dense undercoat of fur protected by coarse guard hair.

Early in May, before the last snowdrifts have melted, the first mature male fur seals come ashore on the Pribilof beaches. These beachmasters, as the bulls are called, take up stations on well-defined beach areas smoothed by erosion and by centuries of use by other generations of seals. The bull seal is at least 7 years old before he is able to acquire a harem. He attains his prime between 12 and 15 years of age, and may live 20 years or longer. The harem bull weighs from 450 to 600 pounds, and has a pelt that may be dark brown, reddish brown, dark gray, or black. He develops a short bushy mane over his shoulders in his late years.

A month or so after the bulls arrive, the mature females appear. These weigh only 60 to 100 pounds. A few females bear young when 5 years old, but most of them are 6 or 7 years old when their first pup is born. The period of gestation is between 11 and 12 months. Adult females and the younger animals of both sexes vary in color from silvery gray to dark brown, with lighter tones of tan and reddish brown on the lower parts of the body. The females, or cows, are highly gregarious. As many as 30 to 40 assemble in one harem before a neighboring bull, a few feet away, can acquire one cow.

A small harem.





Summer on a typical fur-seal rookery—Kitovi Rookery on St. Paul Island. Characteristically, the fur seals return each summer to the rookeries where they were born. In May and June come the harem bulls or beachmasters, later the cows.

JUNE 13.—By mid-June most of the harem bulls have established stations and await the arrival of the cows.

JUNE 28.—By late June the first cows arrive, and harems begin to form.



The pups are born soon after the cows come ashore. As the pups grow stronger, they wander over the rookery and eventually gather in groups or pods, while their mothers spend much time at sea searching for food.



AUGUST 3.—In late July or early August the harems begin to break up.

JULY 8.—In early July the harem groups remain closely knit.





Harem on Northeast Point Rookery.

Young seals from 2 to 6 years old begin to arrive on the islands in June. The young males, or bachelors, gather in large groups on the hauling grounds apart from the harem areas but usually adjacent to them.

The yearlings do not return to the islands until September or October. It appears that most of this group and many 2-year-old animals do not come ashore at all. It is characteristic of the species that the seals in the older age groups generally reach the islands first each season, and the younger seals arrive progressively later.

The number of females in one family may vary from 1 to 100 or more, but the average harem contains 45 females. The harem bull is extremely belligerent during

the breeding season, defending his position fiercely against all competition or interference. He frequently maintains his station on shore from 6 to 8 weeks without water or nourishment.

Most of the young are born between the middle of June and the end of July, within a few days after the females come ashore. Multiple births, if they occur at all, are very rare. The cows spend two or three months alternately nursing their young on land and searching for food at sea within a radius of 150 miles of the rookery. If a mother seal is killed, or fails to return to the rookery for any reason, her newborn pup dies of starvation, for each cow will nurse only her own.

Pups weigh between 10 and 12 pounds at birth. They are born with short fuzzy fur and an outer covering of longer glossy black hair. In cold, rainy weather they present a forlorn appearance, shivering despite their protective pelts, and bleating much like young lambs. The pups congregate at an early age in large groups, or pods, playing together like their canine counterparts. In August they can be observed venturing timidly into the water and learning to swim. Apparently, they do not learn to obtain food from the sea until they are abandoned unceremoniously by their mothers as the southward migration begins. By that time, in October and November, the pups weigh between 30 and 35 pounds; their original coats of black hair have been replaced by somewhat longer silvery gray hair; and they are as much at home in water as on land.

Fur seals have few natural enemies at sea, but life is nevertheless extremely difficult for the young. Approximately 60 percent of the pups fail to survive their

first year, and only 1 out of 4 attains the age of 3 years, when their pelts are most desirable for commercial use. The hookworm parasite (*Uncinaria lucasi*) and other causes destroy up to 20 percent of the half a million pups before the young leave the islands. Abrupt weaning also contributes to the high death rate in the first year.

Near the end of July and in the early part of August, the harems begin to break up. The exhausted bulls desert their stations after their long fast, and the idle bulls (those that have not held harems) mate with the late-arriving 4- and 5-year-old cows. At this time, increasing numbers of cows appear on the nearby hauling grounds, and the pups wander extensively over the rookeries and along the beaches.

The herd leaves the islands as gradually as it arrived. The exodus begins in earnest in October and reaches a peak in November. By the end of the year the snow-covered beaches are usually deserted. Singly and in small groups the fur seals

Into the surf.



make their way through the passes of the Aleutian Islands, dispersing over a wide area of the North Pacific, as far west as the Asiatic coast and as far south as the latitudes of southern California and central Japan. The older females and the young animals travel farthest while the bulls remain in and near Bering Sea, much closer to the Islands.

By February and March most of the herd is widely distributed along the Continental Shelf, off the west coast of the United States. A smaller number of animals from the Asiatic herds and some from the Alaska herd are found at the same time in deep waters off Japan.

Though the fur seal is not selective in its diet, it displays a marked preference for squid and the smaller schooling fish like herring, saury, and lanternfish. Usually the animals remain from 20 to 50 miles off shore, feeding mainly at night. Occasionally strays are reported in the bays and rivers of Alaska.

In early spring the fur seals begin to move northward in a loose migratory pattern, roughly paralleling the coastline. By May, most of them are in the Gulf of Alaska, moving singly and in small groups toward the Aleutian passes and their annual rendezvous on the mist-shrouded Pribilofs.



Off Polovina Point.

Management of the Alaska Herd

THE NATURE AND PATTERN of the fur seals' habits are such that a program of wise utilization is readily devised. The Alaska fur seals come ashore only on the Pribilof Islands, always about the same date each spring. They are highly polygamous animals, and the sexes are born in equal numbers, so it is possible to take the surplus males without reducing the rate of growth of the herd. The bachelors (young males), whose pelts are most valuable, habitually haul out on the islands apart from the harems (breeding animals) so that little difficulty is encountered in obtaining them.

Harvesting of the seals is limited for the most part to the 3- and 4-year-old bachelors. In 1918, age-length standards were established by the United States Government from measurements taken of seals of known age, branded as pups in 1912. For the past 35 years this age-length relation has served as the basis for selecting the animals to be utilized commercially. Recently it has been learned that the age of a seal can be determined accurately by counting the annular ridges on its teeth. This method of age determination is now used for sample specimens to verify the age composition of the annual take of seals.

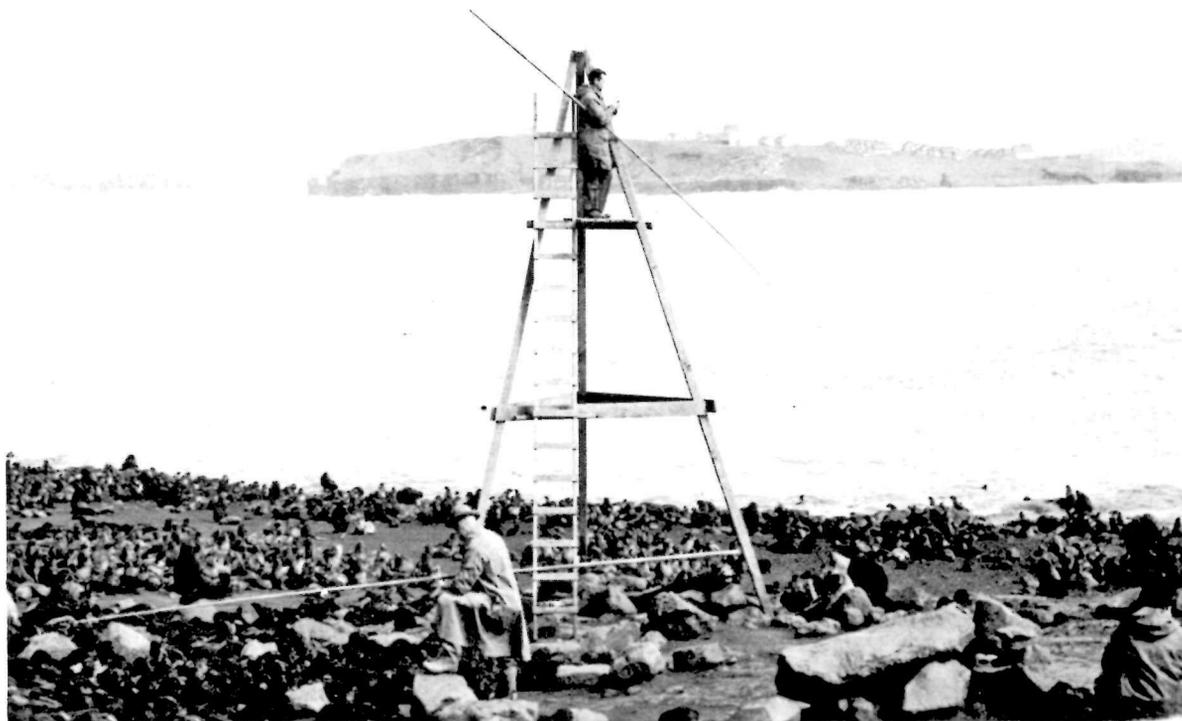
In the management of the Alaska fur-seal herd, the Federal Government has adhered to a policy of taking each year a conservative number of pelts from male seals surplus to breeding requirements. From 1923 to 1932, a minimum yearly

breeding reserve of several thousand bachelors was provided by marking those animals with a brand or by shearing a patch of fur, then permitting them to return to the sea.

Since 1932, a sufficient breeding stock has been assured by limiting the killing season each year to a selected period from about the middle of June to the end of July. Only those bachelor seals 41 to 45 inches long are taken as they appear in the daily drives on the islands during the sealing season. About two-thirds of the animals in this group are 3 years old and one-third are 4 years old.

In recent years the sealing season has extended from about June 20 until July 27, but has been varied a few days to correspond to variations in the time of arrival of the seals on the islands. Sealing begins as soon as the young males are observed on the hauling grounds in appreciable numbers. By late July, the harem bulls and idle bulls have been counted, the harem formations are disbanding, and the females and late-arriving, 2-year-old animals are appearing in increasing numbers on the hauling grounds and intermingling with the bachelors.

The decision whether to terminate sealing operations or to continue sealing for a brief time after July 27 is based on several considerations—the number of females appearing at that time in the daily drives, the trend in the size of the daily take of skins, observations on the abundance of 3- and 4-year-old males on the hauling



Annual fur-seal census in July. Village of St. Paul in background across Zoltoi Bay.

grounds, the number of breeding bulls, and other criteria that reflect the condition of the herd and the size of the breeding reserve.

Biologists of the Fish and Wildlife Service have tagged more than 150,000 fur-seal pups on the Pribilof Islands since 1940, to obtain information on migrations, mortality rates, and the age composition of the herd. Studies are continuing on the reproductive pattern of the herd, food

habits in the various stages of the annual migrations, pelage changes, and control measures for the hookworm infestation in the young pups. Additional information is needed on the life habits and population dynamics to improve management procedures. In recent years the immediate objective of the research program has been to develop a proper inventory of the herd as a basis for sound management and maximum sustained yield.

Until 1948, the size of the herd was estimated annually on the basis of calculated geometric rates of increase established just after the turn of the century, when the herd numbered less than 150,000 animals. At that time, mortality rates were determined from numerical counts and branding operations. Before 1940, the annual yield of sealskins had begun to level off at a relatively constant figure. It appeared certain that the rate of growth of the herd was following a similar pattern, typical of animal populations, although there was no basis in fact for modifying the rate of increase used for so many years in the census computations. By 1947 this method was discontinued.

After more than a decade of fur-seal population studies, Service biologists concluded in 1952 that the herd had reached, or was near, its peak of development, numbering approximately 1,500,000 ani-

mals. The size of the herd fluctuates annually between a minimum of 1,300,000 animals just before the birth of the young, and an upper limit of 1,700,000 immediately after the birth of the pups.

There appear to be at least two major factors that preclude further growth of the herd. The first is the limited summer food supply within swimming range of the nursing mothers. The second is the crowded condition of the rookeries, which reduces the birth rate and increases the mortality among the young. On the basis of experience with other animal populations, it is believed that the maximum sustainable yield can be achieved from a fur-seal herd considerably smaller than the existing herd—by changing the age composition and sex composition of the herd. Management policies and the research program for the years ahead are being designed to test this premise.

Murres and blue foxes are among the other wildlife on the Pribilofs.



The Sealing Industry on the Pribilof Islands

THE HAREM OR ROOKERY AREAS and adjacent hauling grounds of the bachelors and idle bulls are situated at widely separated points along the southern and eastern beaches of St. Paul Island and along the northern and western shores of St. George Island. Owing, in part at least, to the high bluffs characteristic of St. George Island, only about 20 percent of the herd frequents the limited beach areas of that island.

The greater part of the herd congregates on the low-lying beaches of St. Paul Island, 40 miles to the north. A few hundred fur seals haul out on Sea Lion Rock, off the southern tip of St. Paul Island. For convenience in administration, the hauling grounds are divided into five groups on St. Paul Island and four on St. George Island. On each island during the sealing season the hauling grounds are worked in rotation, one group each day.

The labor required in the taking of sealskins and the year-round maintenance of two Government stations on the islands is supplied by the native Aleut inhabitants under the supervision of staff employees of the Fish and Wildlife Service. During the summer season the local labor supply is supplemented by Aleut workmen from the Aleutian Islands and by Eskimos from the mainland.

About 3 a. m. on a typical day in the sealing season, the island manager and a crew of 20 to 50 Aleut sealers proceed in trucks from the village to the hauling ground. Leaving their trucks, the sealers

cautiously work their way upwind along the beach between the bachelor seals and the water. With the line of escape to the sea cut off, it is an easy matter to surround several thousand seals, and drive them slowly inland a short distance to the grass-covered killing field. Two or three of the Aleut boys provide the only guard necessary to prevent a stampede of the animals back to the beach and the open sea.

The sealing crew is well-trained and adept at selecting animals of commercial size. Their work is efficiently organized and carefully supervised. One small group of seals after another is separated from the main group, and animals of the desired size are quickly and humanely dispatched with a single blow on the head from a hardwood pole. Seals judged to be less than 41 inches or more than 45 inches in length are permitted to return to the beach.

Each sealskin is removed by a stripping process that is completed by the Aleut sealers in a matter of seconds. The day's collection of skins is transported by trucks to the village processing plant. Here they are thoroughly soaked in cold sea water, blubbered, and brine-cured. Boric-acid powder is applied to the skin side of each cured pelt to prevent bacterial action, and a small quantity of salt is sprinkled over the skins as they are packed in barrels for shipment to the United States.

On St. Paul Island the carcasses and the blubber removed from the skins are converted to meal and oil in a byproducts

plant operated by the Government. About 350 tons of meal and 40,000 gallons of oil are produced each season and sold to the highest bidder at Seattle, Wash. On St. George Island the number of car-

cases is not sufficient to justify a reduction operation, but much of the blubber from that island is salted and later used as a major source of oil for the tanning of the skins.

Processing and Sale of Fur-Seal Skins

THE FOUKE FUR COMPANY of St. Louis, Mo., serves as agent for the Government in the processing and sale of all Government-owned skins. This concern is one of only two in the world engaged in the sealskin-processing business; the second operates on a small scale in London, England. More than 100 different operations by highly skilled workmen are involved in converting Pribilof Islands sealskins into the beautiful, soft, supple furs that are sold to the fur trade at semi-annual auctions in St. Louis.

The first major step in the processing of sealskins is the removal of the coarse guard hair that overlays the dense soft underfur. The pelts are thoroughly washed and subjected to dry heat to loosen the guard hair so it can be extracted by scraping. After the unhairing process, the pelts are given a fine chamois tanning with a blend of special oils. A grounding solution and numerous applications of vegetable dye are then brushed into the fur to remove permanently the natural curl and to provide rich color and luster.

The village of St. Paul on the southern cape of St. Paul Island.



United States Government sealskins are dyed one of four shades or colors: Black; "Safari," a rich dark brown; "Matara," a neutral brown with overtones of bluish gray; and "Kitovi," introduced in the spring of 1957, a midnight gray with highlights of silver and a subtle blue cast. Each pelt is identified by an indelible arrowhead figure stamped in three places on the leather side and bearing the names of the Government and the company.



Nearly 2 million sealskins from surplus males have been taken by the Government since restoration of the herd was begun 45 years ago. The net profit to the Federal Treasury from the United States' share of these skins has exceeded \$20,000,000. In

recent years 60 percent of the annual seal-skin-sale receipts have been made available by the Congress to the Fish and Wildlife Service to defray expenses of administering the Pribilof Islands and the fur-seal industry.

The future of the Alaska fur-seal herd seems assured as long as the nations of the world continue to work together in the solution of problems peculiar to such migratory wildlife populations. An epilogue for the Alaska fur-seal story is found in the words of Dr. G. C. L. Bertram, English biologist, following his visit to the Pribilof Islands recently: "One can give no higher praise than sincerely to hope that planning and agreement for the future may be as beneficent and rational as have been the administration and conservation of the herd during the last forty years."

Workers' homes in St. Paul.





Aleut boy and fur-seal pup.

Photographic credits: R. C. Baker (FWS), p. 18; H. W. May (Fouke), p. 13 (upper); E. P. Haddon (FWS), pp. 4-5, 15, 22; K. W. Kenyon (FWS), pp. 9, 16, 19, 23; V. B. Scheffer (FWS), pp. 8, 10, 11, 12, 13 (lower), 14, 21, back cover.

Back cover: A section of a fur-seal rookery.

