

RESEARCH ON FUR SEALS AND OTHER MARINE MAMMALS IN 1947

A PROGRESS REPORT ON PROJECT 80

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Seattle, Washington
31 December 1947

INTRODUCTION

Personnel. - Victor B. Scheffer, Project Leader; William H. Sholes, Jr., Aquatic Biologist, entered on duty 9 May and resigned 2 December; Karl W. Kenyon, Biologist, entered on duty 12 June; Robert Z. Brown, Collaborator, in the field from 14 May to 12 August; John W. Slipp, Collaborator, in the field from 17 to 19 April.

Itinerary: Shakedown Cruise. - 17 April. The Black Douglas left Seattle with Scheffer, Slipp, and Maurice L. Hinshaw (Manager, Willapa National Wildlife Refuge). We spent two days at sea off Cape Flattery, Washington, and at Neah Bay. We saw a few fur seals and we interviewed several native sealers at Neah Bay. We returned to Seattle on the 19th.

Itinerary: Cruise I. - 14 May. The Black Douglas left Seattle with Scheffer, Sholes, and Brown. We followed the Inside Passage to Alaska, crossed the Gulf, and encircled Kodiak Island, looking for seals. We were at Simeonof Island, Shumagin Islands, on 1 and 2 June looking at sea otters. We were at Samalga Island, Aleutian Islands, on 6 June looking at fur seals hauled out on land. We anchored at St. Paul Island, Pribilof Islands, on 7 June.

11 June. The Black Douglas carried Scheffer, Sholes, and Brown to St. George Island, returning on the 12th.

3 July. The Black Douglas left St. Paul headed westward, with Scheffer, Sholes, and Kenyon. We counted seals at sea; ran into rough weather and turned south to the Aleutian Islands and Bogoslof Island.

5 July. We landed on Bogoslof Island to look at the sea-lion herd.

9 July. We returned to St. Paul Island to continue research during the sealing season.

1 August. The Black Douglas left St. Paul with Scheffer, Sholes, Brown, and about ten employees of the Fouke Fur Company. Kenyon stayed on St. Paul Island to continue studies of the fur seal and to assist Raul Vaz-Ferreira, Uruguayan agent. The Black Douglas followed the usual course from Kodiak to Cape Spencer and arrived in Seattle on the 12th.

Itinerary: Cruise II. - 6 September. The Black Douglas left Seattle, went outside of Vancouver Island to

look for seals, and returned to the Inside Passage. She carried FWS cargo to Cordova, Seward, and Anchorage; arrived at St. Paul Island on the 21st. She then returned to Kodiak Island Army Base for repairs to her stern bearing. She lay there for about three weeks.

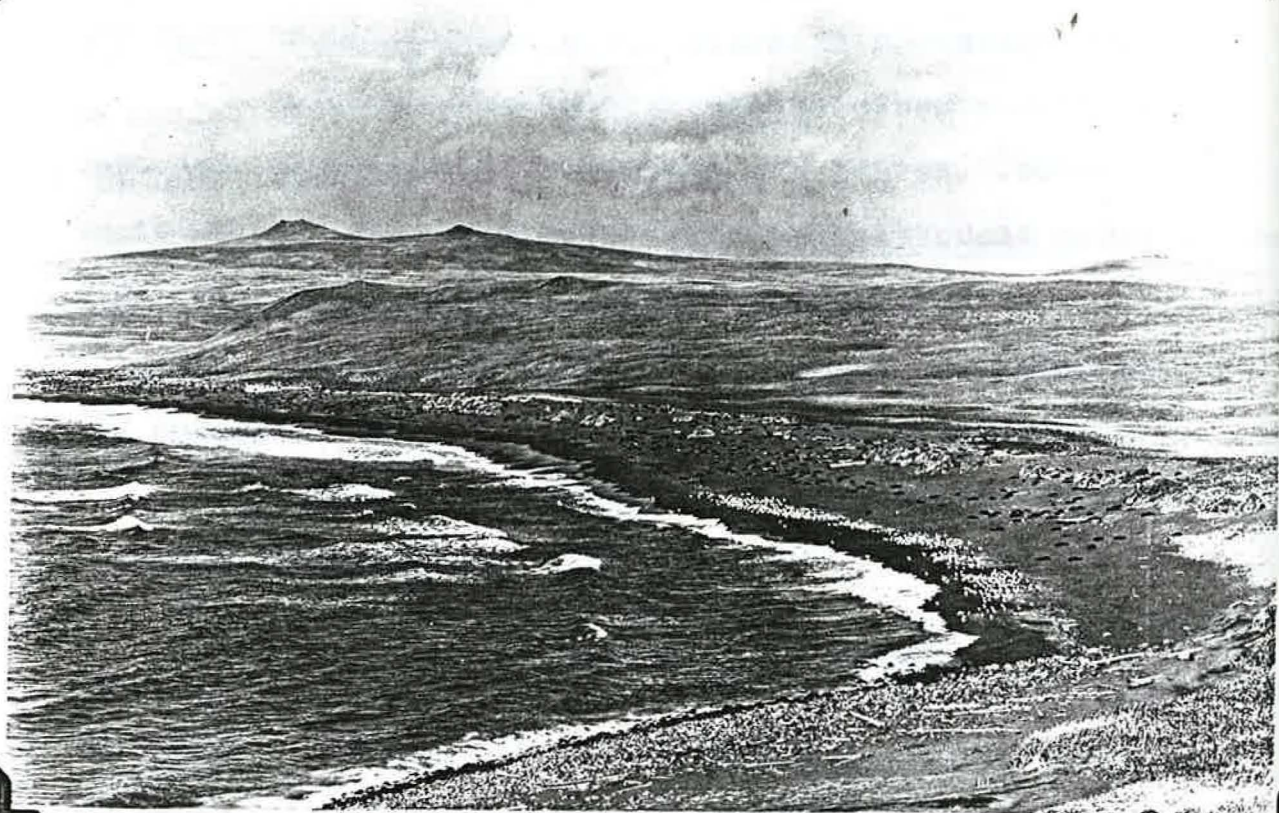
The biologists on St. Paul Island started in at once to tag fur seal pups.

22 October. The Black Douglas left St. Paul Island with Scheffer, Sholes, Kenyon, and Vaz-Ferreira to count seals along the Aleutian chain. Delayed by engine trouble and stormy weather, the ship arrived at Attu Island on 7 November. We did not venture beyond Attu for fear of further engine trouble.

11 November. We left Attu, eastbound. On the 12th we stopped at Amchitka Island to look at sea otters. We followed the northern route from Cape Hinchinbrook to Cape Spencer and arrived in Seattle on 2 December.

Recapitulation of nautical miles cruised

Shakedown Cruise	410
Cruise I	7,432
Cruise II	<u>9,419</u>
Total	17,256



Upper: Crew and biologists (except Scheffer) aboard the Black Douglas, Unalaska, Alaska, 7 July 1947. Photo 2204.

Lower: A seal beach in the fall; Tolstoi Sands, St. Paul Island, Alaska, 5 October 1947. Photo 2308.

RESEARCH ON FUR SEALS

VBS sent
Woolsey
27 Sep 85

Anatomy, Miscellaneous. - Dr. Clinton M. Woolsey, Johns Hopkins University, wishes to study the brain of the fur seal in relation to the physiology of the living animal. As a preliminary, we collected for him the following material:

23 September, 1 head with brain perfused
11 October, 1 head with brain not perfused
13 October, 1 head with brain perfused
(1946), 1 skull of a bachelor, cleaned and dried

We hope that Dr. Woolsey will have an opportunity to study fur seals in captivity or in the wild.

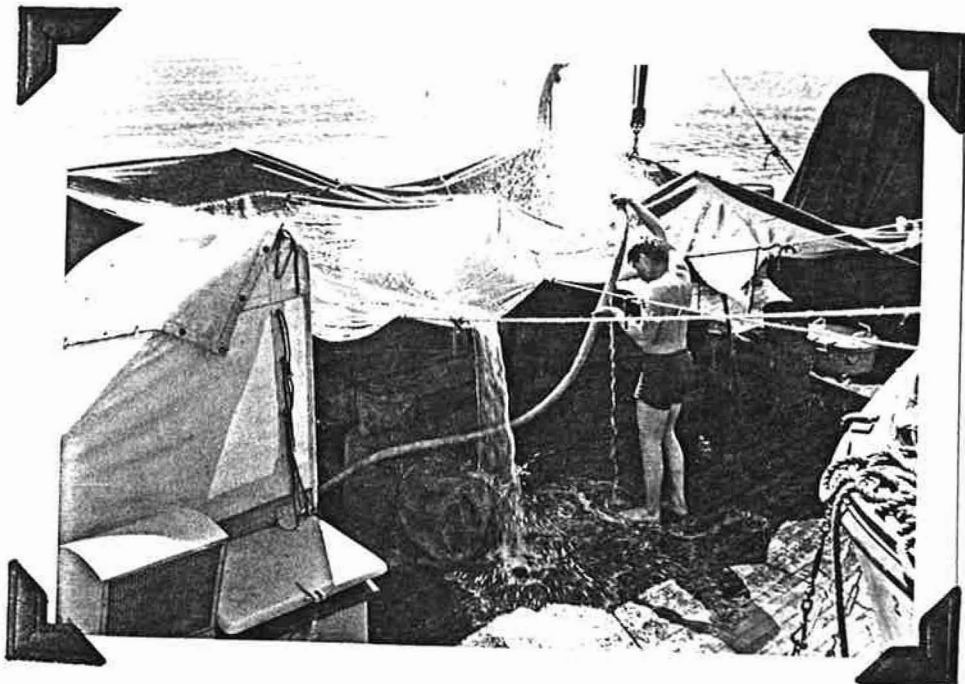
On 12 July we took the temperatures of four seals killed at the start of a sealing drive. The mean ^{rectal} temperature was not significantly different from that of the human: seal 100.0°F. (99.2-100.8); human 99.6°F.

Behavior, Miscellaneous. - As a special assignment, Kenyon took Leica photographs during the summer to capture on film the various behavior traits of the seal: swimming, scratching, fighting, nursing, mating, sleeping, and so on. A press type camera should be purchased for this kind of work, as 35 mm negatives are difficult to handle and to catalog.

We shipped four live fur seals from St. Paul to the Balboa Park Zoo, San Diego, California. Members of the Zoological Society of San Diego will keep records of food consumption and, when the seals die, of the circumstances of death. Three males and two females, all of them a year or more old, were captured on 30 July and 1 August and carried via Black Douglas to Seattle. From here they travelled under ice in a baggage car and arrived in San Diego on 14 August. One male died on the outskirts of San Diego. One female ate fish enroute but the others refused to accept food. Sholes travelled with the seals from Seattle to San Diego. At last report, the seals were doing nicely (Zoonoz, October and December issues; Science News Letter, 30 August; Parks and Recreation, November).

Byproducts. - In 1946 we brought down from the Pri-bilofs eight fur seal livers. Bruce Sanford, of the Division of Commercial Fisheries, Montlake Laboratory, Seattle, determined the vitamin A content and asked for a larger sample in 1947. In June and July 1947 we carefully collected and froze 215 livers, weighing about two pounds each. We collected the samples by weeks and by sizes of seals. The livers are now in a cold storage room in downtown Seattle. Sanford is busy with other work, especially with analyses of fur seal oil, but hopes to get at the livers eventually.

Carcasses, stripped of their skins on the killing field, are converted into meal and oil. We wanted to find



Upper: Capturing live fur seals for the Balboa Park Zoo; Northeast Point, St. Paul Island, 31 July 1947. Photo 2256.

Lower: Five live fur seals enroute to Seattle on the after deck of the Black Douglas, 8 August 1947. Photo 2263.



Upper: Liver of a bachelor fur seal 3-5 years old, St. Paul Island, 30 June 1947; weight 3.04 pounds. Photo 2191.

Lower: Biologists weighing fur seal carcasses on Reef killing field, St. Paul Island, 25 July 1947. Photo 2247 by Harry May.

out the relative value of "three year" and "four year" carcasses. (For practical purposes, a male seal below 46 inches in length is a three year old and a male seal above 45 inches in length is a four year old). On July 25 we weighed 50 carcasses from each group. The mean weight of the three year old carcass was 44.3 pounds and of the four year old, 54.6 pounds.

In a similar fashion we compared the weights of blubber from the three year skin and the four year skin. We sampled 100 skins from each group from the kill of 25 July. The mean weight of the three year blubber was 11.7 pounds and of the four year, 15.2 pounds.

We helped Vaz-Ferreira get photographs and specifications of the byproducts plant on St. Paul Island.

Mrs. Clarence L. Olson prepared a "taste test" of seal meat for us. She roasted the shoulders from a bachelor about three years old. The flesh was dark colored; as tender as good beef; with a gamy flavor like duck but not especially strong. We concluded that, dressed with a sour or spicy sauce, seal shoulders would be relished once or twice a month.

Ecology: Oceanography and Weather. - The U. S. Weather Bureau has loaned us certain water temperature recording equipment which we hope to install at St. Paul Island in 1948. The setup will introduce a long-time study of seawater temperatures with relation to the hauling-out rhythm

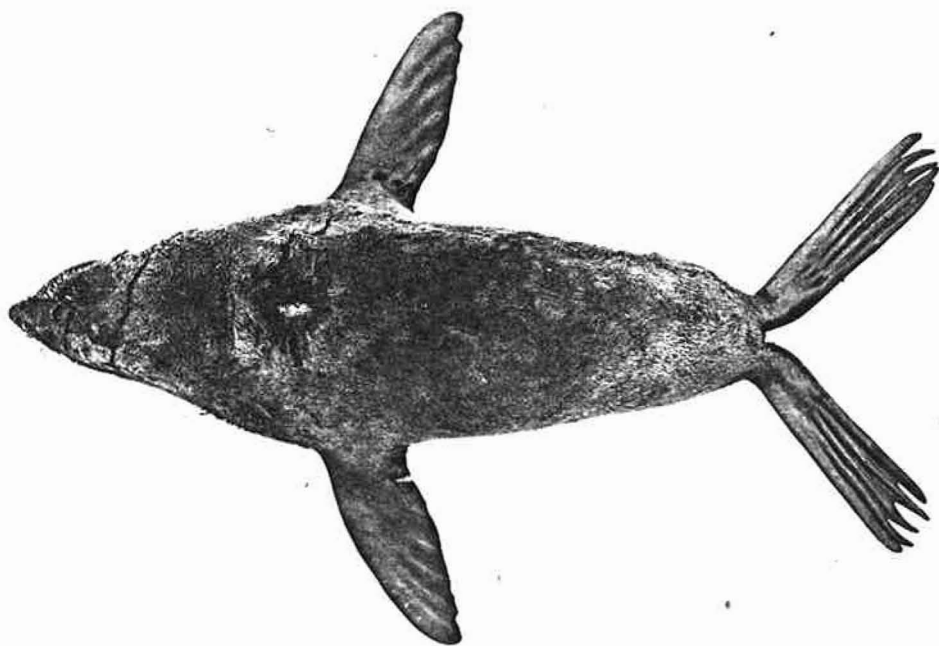
of the seals. The equipment is now at St. Paul. We shall have to build a shed to house the recording drum; string power lines from the village; and install the thermohm (sensitive tip) in the bay.

Food Habits. - An important phase of the research program in 1947 was to have been a study of the food habits of seals at sea. We found, unfortunately, that we could not collect seals at sea. When we saw seals they were forewarned by the noise of the ship and were out of range of gunfire. We found, too, that we could not launch a small boat from the Black Douglas because the North Pacific and the Bering Sea were too rough on the occasions when we saw any considerable number of seals in a group. (See Behavior, Captive Seals)

Growth and Measurements. - On 4 October we weighed 173 live seal pups of both sexes: Males, mean weight in pounds 30.6 (19 1/2 - 41 1/2); females 26.4 (15 1/2 - 36 1/2). It is interesting to note that disparity of size in sexes appears as early as age three months.

We continued the practice of measuring branded seals of known age. The study group this year included 21 six year males and 4 six year females.

Each summer it is possible to obtain weights and measurements of a few newborn (or ready-to-be-born) pups. Data are still insufficient to permit conclusions as to the size of the newborn pup. In 1947 we handled one male newborn



Sample of a photograph taken for growth and measurement studies: tagged six year female fur seal, St. Paul Island, 16 July 1947. Photo 2214.

and one female unborn pup.

Japanese Herd. - (We maintain this file heading, although the Japanese herd on Sakhalin Island has been taken over by the USSR). We received in 1947 two documents uncovered by the U. S. Army in Tokyo:

1. "Migration of Pribilof Fur Seals into the Waters off the Coast of Japan," Bureau of Fisheries, 1933 (In English).

2. "Statistics Relating to the Fur Seal Protection Treaty," Bureau of Fisheries, no date (In Japanese with marginal translations in English).

Marking Seals (Branding, Tagging, etc.). - On St. Paul Island, between 24 September and 10 October we attempted to tag 20,000 seal pups. Because a number of the tags were faulty, we succeeded in fastening only 19,183. A tag was placed on the left fore flipper and a one-quarter inch hole was punched in the left hind flipper of each seal. Details of the marking operation will be described in a separate report to be issued in 1948.

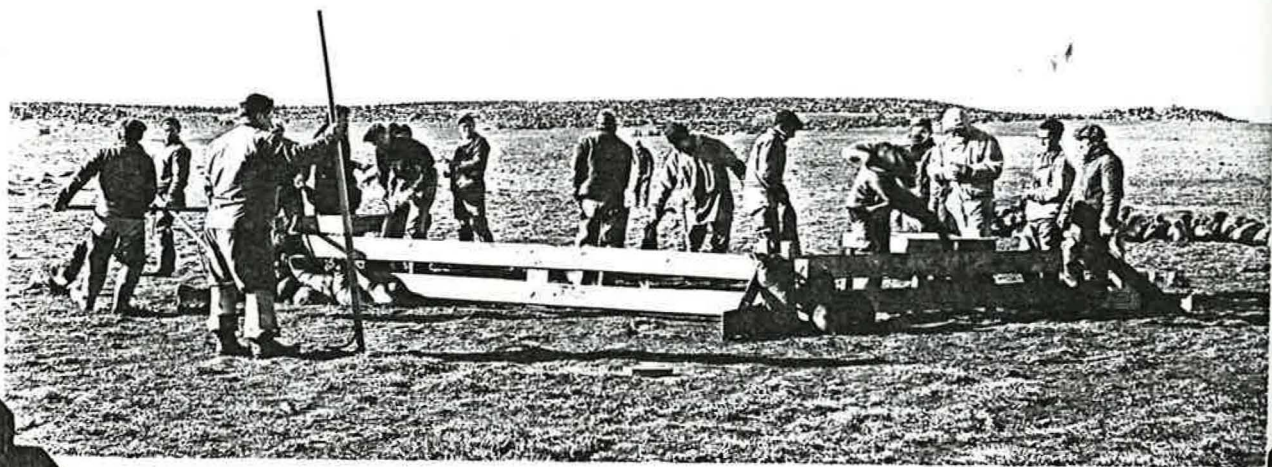
Four seals wearing rubber collars appeared on the killing fields in 1947: one on 7 July and three on 27 July. Since 1944, we have recovered no less than nine of these peculiar rubber collars. We plan to write letters of inquiry in an attempt to trace their source.

The metal tags applied to seals in 1941 are holding



Upper: Crew of 15 natives and 4 biologists (one taking the photo) during seal tagging operations, St. Paul Island, 8 October 1947. Photo 2319.

Lower: Driving seal pups (and a few cows) to the tagging tables, Northeast Point, 29 September 1947. Photo 2299.



Tagging seal pups on Reef Rookery, 9 October 1947. A pup is being lifted to the table on the left and another is being thrown from the table on the right. Photo 2328.

on fairly well at the present time. In 1947 we recovered 21 tagged six-year males and 4 tagged six-year females.

Migration: Arrival and Departure. - At the close of each sealing season we usually prepare a chart portraying the pattern of return of the bachelors. We will not have time to do it this year.

During the sealing season the natives kill selected bachelors as soon as they appear on land and dismiss others as "rejects." We do not understand very clearly where the rejects go, nor how long they stay, after they have fled into the surf. In 1947 we had a chance to observe the recurrence in drives of a rejected seal. An albino about four years old was dismissed on

23 June from Zapadni killing field
24 June from Tolstoi (2-3 miles from Zapadni)
28 June from Zapadni
3 July from Zapadni

Dan Benson, agent of St. Paul Island, sent a radio-gram on 8 November stating that about 25 per cent of the seals were still on land. It was local opinion that the seals, mostly mothers and pups, were remaining on the breeding grounds later than usual.

Migration: At Sea. - The appropriation for fur seal research in 1947 was intended primarily to finance cruises I and II of the Black Douglas. On the first cruise we made a round trip from Seattle to the Pribilof Islands.

Seals seen on trip westward along Aleutian Chain

Farthest west seal - one seen Nov. 11, off Buldir

Island app. Pos. $175^{\circ} 40'$ E. Long. $52^{\circ} 10'$ N. Lat.

Nov. 6. one seal seen while crossing ^{Oglitza}~~Oglitza~~ pass.

Nov. 15 & Oct. 29 - total of 4 seals seen in the vicinity of Atka & Amli Islands.

(Two on each date)

Chronological list including above - of seals seen after leaving Dutch Harbor on Oct. 27, 1947. (Trip to Attu and return Seattle 2 Dec)

October 27

4 seals off central part of Unalaska Island. These seen three to 12 miles at sea on Bering side.

October 28

1 seal 4 miles S.E. Chuganada~~k~~ Island

October 29

2 seals off N.E. end of Atka Island

November 6

1 seal seen near Amchitka Island

November 11

1 seal off Buldir Island (doublet seal)

November 15

1 seal 5 miles N. of N. Cape, Atka Island
1 " 25 North of Amli~~a~~ Island

November 16

1 seal 5 mi. N.E. Carlisle Island

November 17

2 seals Akutan Pass.

On the second cruise we made a round trip from Seattle to Attu Island, westernmost of the Aleutian chain. Ninety per cent of the research activity aboard ship was directed toward watching for, and counting, seals at sea. Aside from groups in the vicinity of the Pribilof Islands and in Unimak Pass, we saw virtually no seals. Kenyon is writing a separate report on migration. He will include a résumé of old information plus the findings of the Black Douglas expedition.

On the west end of Samalga Island (adjacent to Umnak) on 6 June we saw about 100 fur seals hauled out on low, spray-wet rocks. They appeared to be bachelors and half-bulls. They fled as we approached on foot. Thus, it is evident that one can not say with strict accuracy that the Alaska fur seals land only on the Pribilof Islands. Henry Swanson, a resident of Unalaska, says that fur seals are seen here in both summer and winter. He trapped foxes on Samalga for several winters.

During the war, the Coast Guard maintained a number of Ocean Weather Station Ships in the Pacific. Ship Able was on the great circle from San Francisco to Unimak Pass, about 800 miles west of Cape Flattery, Washington. On 10 December we talked to Lt. Lynn L. Baker who spent two years at this station. He said that he saw no seals at sea, although he saw a few near shore. His statement is evidence that seals do not go directly from the Aleutian passes to California in their southward migration.

Kenyon interviewed Capt. Dan Drotning on 10 December and he intends to interview Capt. H. P. Knudsen. Both are FWS employees on the Seattle-Alaska run. Their observations of seals at various seasons of the year will shed light on the migration routes.

Kenyon, a former pilot himself, is investigating the possibility of accompanying one of the military aircraft that leave daily from Seattle for the Aleutian Islands. He might be able to see seals at sea. The pilot would be asked to fly several hundred feet above the water.

Mortality on Pribilof Islands. - We saw relatively few pups dead of uncinariasis this summer.

A bachelor killed on 3 July had a peculiar blubber layer. About 90 per cent of the layer was replaced by tough, dense, whitish connective tissue. The pelage was normal. The man who tried to remove the blubber was obliged to reject the skin.

Each year we make a practice of collecting parasites from seals and sending them to specialists for study. Our efforts are being rewarded, thus:

1. Porrocaecum decipiens (Krabbe) 1878 reaffirmed as the common stomach worm of the fur seal by Dr. H. A. Baylis, British Museum, in letter of 25 November 1946.
2. Uncinaria lucasi Stiles 1901, the hookworm of the fur seal, redescribed by Dr. H. A. Baylis, British Museum, in Parasitology 38:160; 1947.

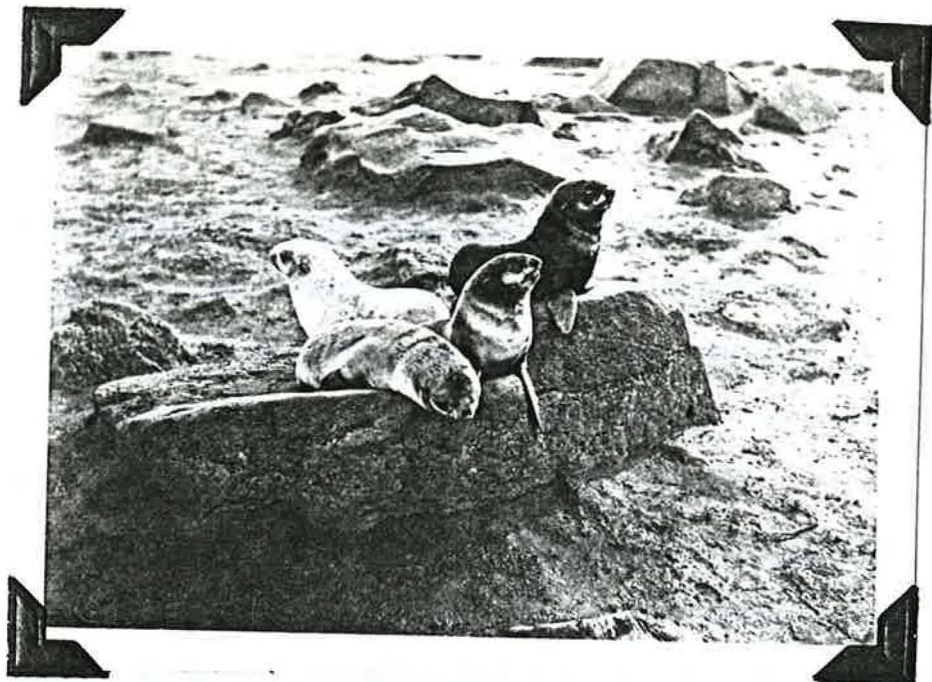
3. Cordicephalus arctocephalinus (Johnston) 1937, the tapeworm of the fur seal, redescribed and placed in a new genus by Dr. Robert A. Wardle, University of Manitoba, in Journal of Parasitology 33:319-330; 1947.

4 and 5. Orthohalarachne attenuata (Banks) 1910, and Orthohalarachne diminuata (Doetschman) 1944, nasal mites of the fur seal redescribed and placed in a new genus by Dr. Irving M. Newell, Woods Hole Oceanographic Institute, in Bulletin of the Bingham Oceanographic Collection 10:233-266; 1947.

Pelage. - In 1947 an unusually large number of four year olds were killed as an experiment. Thus 4,309 were killed in 1946 and 10,102 in 1947. The purpose of the experiment was to reveal the good and bad effects, - upon killing, curing, processing, and selling - of harvesting four year olds. We are writing a separate report on this subject.

We saw several albino seal pups during the summer. In October we rounded up and photographed a group of pups including a black (first pelage), a silver (second pelage), a rusty (partial albino?) and a white (true albino with pink eyes).

Population: Methods of Estimating. - We experimented with a camera for taking photographs, from the air, of seals directly below on the beach. The camera was a home-made plywood box with a f:4.5 lens and a shutter with speeds



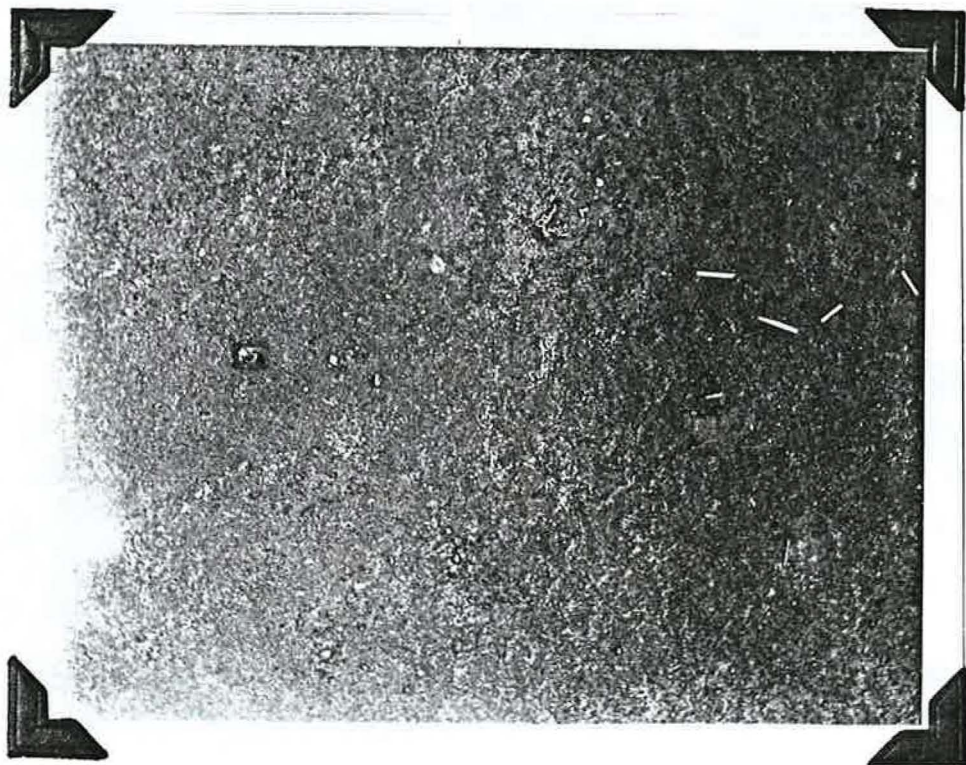
Upper: Color phases in seal pups. Left to right: albino, rusty, silver, and black. Reef Rookery, 9 October 1947. Photo 2326.

Lower: Terenty Philemonoff identifying a four year pelt by tying a line through the armhole, 30 June 1947. Photo 2186.

up to 1/200 second. The shutter was tripped by a solenoid powered by a B battery on the ground. The camera was held aloft by one to three latex balloons filled with hydrogen or helium. On 24 June we got the camera up but strong winds pushed the balloons down close to the ground and broke the supporting swivel. The camera fell about 25 feet but was undamaged. On 30 June we sent the camera up again, protected by a parachute, and we obtained one photograph before winds again forced the balloons down. During Cruise II in the fall of the year we intended to try the camera again but were too busy with pup tagging and were hindered by persistent windy weather. On St. Paul Island at the present time we have stored six balloons, six cylinders of hydrogen, batteries, and an improved kind of mooring line, ready for the 1948 season.

We took several photographs from land stations to see whether we could count seal pups from enlarged prints. We tried infra-red film for the first time and found that it gave clear definition of seals on the rookeries. In all photographs taken from land stations, however, the angle of view was so low that some of the pups remained hidden behind rocks or behind adult seals.

Early in 1947 we started negotiations with the Army Air Forces, asking them to send an aircraft and a strip camera to photograph selected seal beaches on St. Paul Island. They agreed to do so, but their instructions to their field



Upper: Trial of a camera suspended from meteorological balloons, Polovina Rookery, 30 June 1947. Photo 2187.

Lower: A photo taken with this setup, 11:21 a.m., bright clouds, camera elevation 100-125 feet (too low for sharp focus). Photo 2190



Photographs from a land station as a means of counting seal pups; a portion of Tolstoi Rookery, 29 July 1947. Upper: Fast panchromatic film, speed group 200. Photo 2251. Lower: Infra-red film with A filter. Photo 2252.

office in Anchorage apparently failed to get through and after an exchange of radiograms in July with the Anchorage CO, we abandoned the project. Kenyon is writing up a plan for the use of a FWS aircraft at some future date.

While we were at Adak Naval Base on 4 November we visited the photo laboratory and asked for several dozen prints, vertical and oblique, that were taken of St. Paul Island during the war and that were later declassified. We have not yet received a reply from the officer in charge of the prints.

Publicity. - Lowell J. Mills, principal of a high school in Colorado Springs and an amateur photographer and wildlife lecturer, took photographs on St. Paul Island in June and July. He left via Black Douglas on 1 August.

William L. Worden, instructor in creative writing at the University of Washington, and Pat Coffey, photographer for the Saturday Evening Post, boarded the Black Douglas in Anchorage on 16 September. They travelled to St. Paul Island and left by Reeve Airway on or about the 25th. They have written a story about fur seals for the Post.

Raul Vaz-Ferreira, biologist of the Servicio Oceanografico y de Pesca of the Uruguayan Republic, arrived at St. Paul Island via Penguin on 23 June. He spent the summer and fall studying fur seal biology, management, and research. He left via Black Douglas on 22 October and stayed with the ship through the Aleutian Island cruise, returning to Seattle

on 2 December.

Sealing, Aboriginal. - At Neah Bay, Washington, on 18 April we talked to William Penn, Quillieute native. He and John Markishtum, a Makah, are virtually the only sealers left at the village. It is our recollection that only one seal was taken on the Washington Coast in 1946 and 1947. Penn told of a fur seal caught in fresh water, the only such record that we know of. Lovey Jackson, of Lapush, took it by net on 15 January 1947 about 300 yards above the mouth of the Quillayute River.

At Sitka, Alaska, on 20 May we talked to David P. Howard, Sr. He and his brother George and Charles B. Daniels are the only natives sealing this year. To date, they had taken 19 seals, all but one of them females, in three or four trips off Biorka Island. They were holding out for \$12 a skin. Sealing is a vanishing activity here. The young men are not interested. We noticed that Howard was using a modern dory which, strictly speaking, is not a "primitive method" as specified by the treaty. Howard appears to be an intelligent, straightforward man. We saw no evidence of illegal taking of skins, that is, by gunfire.

At Atka on 29 October we talked with William Dirks and his son William, both Aleuts. They do no sealing but say that seals are seen between the islands of Atka and Amlia during stormy weather in November.

Specimens. - We handled 52 specimens of fur seals during 1947. The pelts of some (marked *) were returned to the commercial catch; the pelts of others (marked #) were rotten when found or were rejected later as worthless.

Pups, male, nos.209, 241, 242	3
Pups, female, nos.200, 225#	2
Two year olds, male, nos.203*, 204*, 205*, 214*, 217*, 227*	6
Two year olds, female, nos.235, 238, 239	3
Six year olds, male, nos.134, 135, 136*, 137*, 138*, 139*, 140*, 141*, 142*, 144*, 145*, 146*, 147*, 148*, 149*, 150*, 195*, 196*, 197*, 198*, 199*	21
Six year olds, female, nos.133, 210, 211*, 226*	4
Age unknown, male, nos.201#, 202#, 206#, 207#, 208#, 215#, 216#, 223#, 224#, 233#, 237#, 240, 243#	13

RESEARCH ON MARINE MAMMALS OTHER THAN FUR SEALS

Enhydra lutris (Sea Otter). - We lay at Simeonof Island, Shumagin Islands, from 1 to 3 June for the purpose of observing the sea otter herd. We especially wanted to evaluate Douglas Gray's suggestion that Simeonof would be a good place to establish a study station and to harvest sea otter skins on an experimental basis. We collected two specimens, an adult 76-pound male and a subadult 32-pound female. Gray's estimate of 500 sea otters here appears to be reasonable. To crop the herd selectively would be difficult. We spent half a day and completely encircled the island in a motor whaleboat before we succeeded in shooting two otters.

On 12 November we spent two afternoons at Amchitka Island, Aleutian Islands. We recovered the skulls or carcasses of six sea otters. In no case was the pelt worth saving. One skin showed bullet holes; one skull and possibly a second showed bullet holes. We saw empty cartridges on the beach and we questioned two Army officers whom we caught in the act of shooting rifles into the surf near sea otters. We reported the situation to FWS agent Jack O'Connor,



Sea otter collected on Simeonof Island, Alaska, 2 June 1947; details of head and chest; adult male, weight 76 pounds. Photo 2152.

Juneau. The six skulls we saved will help to straighten out a taxonomic problem: the relation of the Alaska sea otter to the California sea otter.

Eumetopias jubata (Steller Sea-Lion). - We tried out ear tags on sea-lion pups on St. Paul Island last year. In 1947 we continued the trial on a small scale. On 9 June we applied 26 tags and on 2 July, 50. We saw no tagged yearlings from the earlier trial.

At Bogoslof Island on 5 July we experienced a rare treat, - full sunshine in the Bering Sea. We saw thousands of sea-lions on their breeding grounds and we took photographs of these animals as well as nesting murres and sea gulls.

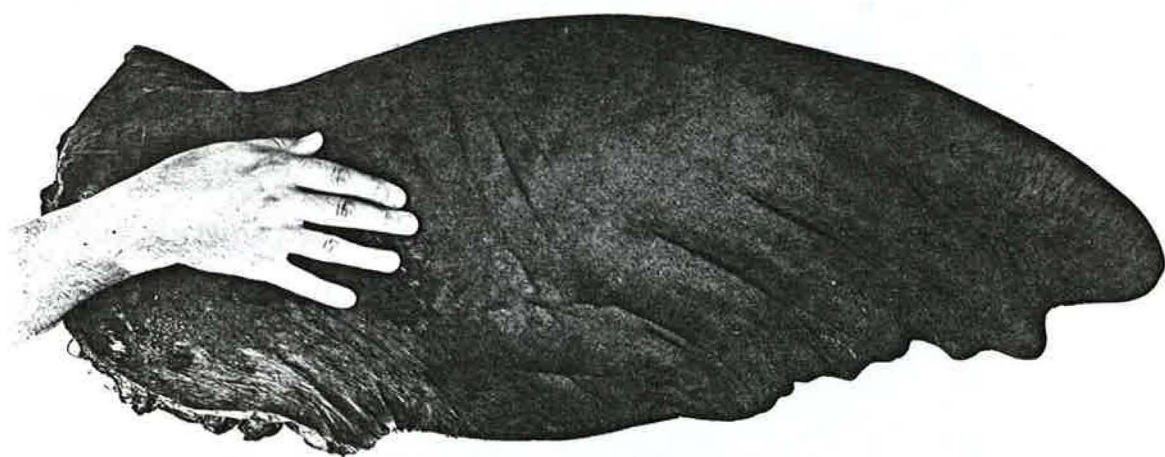
On St. Paul Island we collected three specimens of the sea-lion for future use. Some day, with a large enough collection, we shall be able to distinguish the yearling and the two year old and to arrive at an estimate of the rate of growth during the early years of life.

Yearling?male, no.143, skin and skull

Yearling?female, no.221, skin and skull

Two or three year?female, no.222, skull only

We are writing a separate report on sea-lions: a proposal to reduce the numbers at Northeast Point, St. Paul Island, as a benefit to the fur seal herd.



Upper: Sholes and Brown tagging a sea-lion pup, Northeast Point, St. Paul Island, 9 June 1947. Photo 2161.

Lower: Right fore flipper of a large, but not full grown, bull sea-lion, St. Paul Island, Alaska, 27 July 1947. Photo 2244.

Phoca vitulina pribilofensis (Harbor Seal). - We collected five specimens: three from Otter Island and two from St. Paul Island:

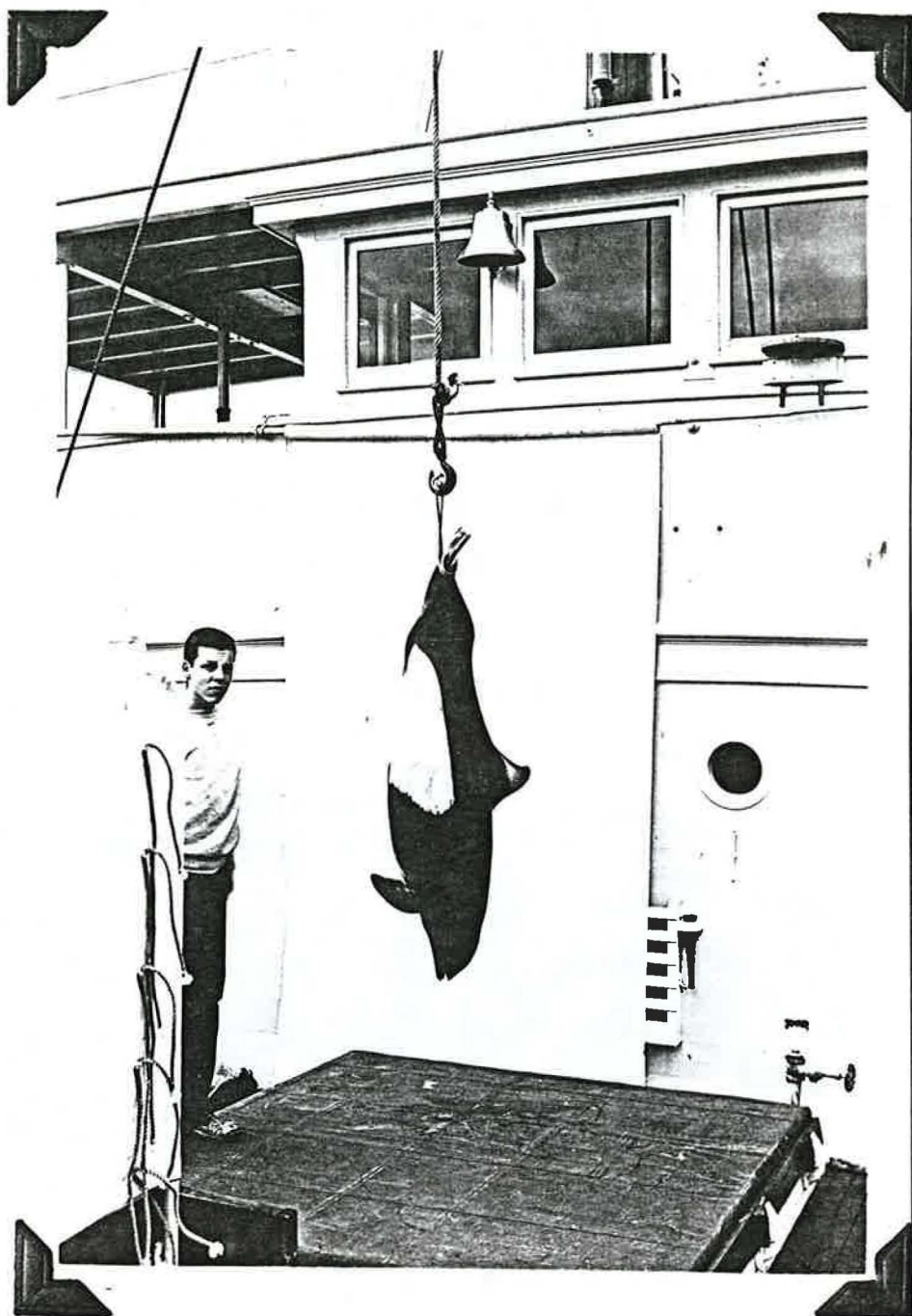
Pups, male, nos. 131 and 132, skin and skull
 Yearling? male, un-numbered, measurements only
 Yearling? female, no. 236, skull only
 Subadult female, no. 130, skin and skull

Capt. Clyde I. Dell told of seeing bald eagles attack and kill newborn harbor seal pups at Cape Sutland, Alaska, a number of years ago. This is interesting in view of the fact that the seals are ordinarily thought to have no land enemies.

Phocoenoides dalli (Dall Porpoise). - We modified the Coast Guard line-throwing device as a harpoon and collected four porpoises in British Columbia and Alaska waters. Photographs, measurements, and skulls were preserved for each:

~~Subadult male, 163 pounds, no. 127~~
 Subadult male, no. 127 (168 pounds) and
 no. 228 (159 pounds)
 Subadult female, no. 229 (222 pounds)
 Adult male, no. 126 (224 pounds)

Ziphiidae (Beaked Whales). - On 6 June on Samalga Island we found the rotten carcass of a beaked whale about 19 feet long. We recovered fragments of the jaws and one



Dall porpoise harpooned in Queen Charlotte Strait, Alaska, 11 August 1947. Subadult male, weight 159 pounds. Photo 2260.

tooth and sent them to the Biological Surveys collection.*

On 8 November on Attu Island we found the otic
 bulla of an unidentified cetacean** and sent it to the Bio-
 logical Surveys collection.

** Phoca vitulina acc. to

letter 30 December 1947, from
 Remington Kellogg. Rt. bulla
 of young seal

* Ziphius cavirostris, USNM

276022, acc. to letter of
 18 March 1948 from Remington Kellogg.