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Aerial photography of Pribilofs: MMBL and University of Washington

Dr. John C. Sherman (Chairman) and Dr. Willis R. Heath (Associate Professor), Department of Geography, University of Washington, met with MMBL staff members on 24 October 1967. Two proposals were discussed: (1) preparation of a map of the rookeries and hauling grounds based on photographs taken by BLM on 8 and 9 July 1967, and (2) an overflight by a National Air and Space Administration (NASA) crew in which infrared radiation detection devices would be used in an attempt to map the distribution of individual seals or groups of seals.

The Map

Heath would assign a graduate student with skill in cartography, under his supervision, to map the rookeries and hauling grounds and the distribution of seals thereon as of 8 July 1967. The maps would be based on:

- a. 222 color positive transparencies (Eastman Ektachrome Aero Film Type 8442; 9.5 X 9.5 inches) of the rookeries, taken with a 6-inch lens at 1,200 ft. with 60 percent overlap.

b. 76 black-and-white negatives (emulsion? 9.5 X 9.5 inches) of St. Paul Island taken with a 6-inch lens at 6,000 ft.; and 7 taken at 1,200 ft.

c. 20 black-and-white negatives (emulsion? 9.5 X 9.5 inches) of St. George Island taken with a 6-inch lens at 6,000 ft.; and 10 taken at 2,100 ft.

d. 15 charts, U.S. Coast and Geodetic Survey, 1898; the "Duffield" charts. (A list is attached.)

With memo of 31 October 1967, MMBL sent to Heath source materials for mapping Reef Peninsula (Reef, Ardiguen, and Gorbach Rookeries and adjacent isthmus toward the village). The labor and cost of making a map of Reef Peninsula will determine the cost estimate for mapping all rookeries.

On 2 November 1967, two blue-line copies of Coast and Geodetic Survey chart no. 3215 (Reef, Ardiguen, and Gorbach) were sent to Heath.

Heath said that two levels of mapping accuracy are possible. He will aim to provide a workable field map rather than a legally acceptable map. "Uncontrolled mosaics," he said, will be tied in to the Coast and Geodetic Survey charts. Contour lines can be shown in gray or black on a transparent overlay, or "continuous shading relief"

can be done. A preliminary suggestion is that the final map will be twice the size of the proposed reproduction for publication.

NASA Overflight

Sherman is interested in a more theoretical use of the seals on land as subjects for an experiment in remote sensing. The proposal would require that a NASA plane carry photographic and infrared sensing instruments over the Pribilofs for the purpose of detecting the seals, preferably as individuals or measurable units. Clear weather would not be necessary for all the instruments, though it would be for conventional photography. Suggested dates for the flights are 10 June and 10 July. The ceiling of the craft is about 16,000 feet. (How about "ground truth counts" about 23 June and 14 July to coincide with bull counts?)

A preliminary step is to measure the radiation from captive seals with a radiometer to find out whether this approach has promise.

For the purpose of a NASA experiment the Pribilof Islands have important advantages: the MMBL biologists could furnish information on the numbers and distribution of seals during the flights.

There are no populations of other mammals (large enough to be important) that would confuse the results. The fact that Pribilof studies are under an international arrangement might also be of some help in obtaining national research funds.

THE "DUFFIELD" ROOKERY CHARTS

U. S. Coast and Geodetic Survey charts nos. 3214 to 3228 were published May to July 1898, on the basis of surveys by Will Ward Duffield in 1897. No. 3214 represents St. Paul Island and no. 3224 St. George Island, both at scale 1:20,000. The other 13 charts are of individual rookeries or groups of rookeries on these islands, scale 1:2,000. The Marine Mammal Biological Laboratory has photo negatives (8 X 10 inches), obtained from the National Archives, of all 15 charts, and 12 of the actual charts. Lacking are no. 3214 (St. Paul Island), no. 3222 (Vostochni Rookery), and no. 3225 (Zapadni Rookery, St. George). As of 2 October 1967, an effort is being made to locate the missing charts through inquiry of the office manager on St. Paul Island.

- 3214 St. Paul Island
- 3215 Reef, Gorbatch and Ardiguen Rookeries (with red ink outline of areas occupied by seals. Pencil note says "On account of lack of transportation I did not reach the Pribilofs in 1898 until July 19--too late to find the rookeries at their regular breeding size. The 'spreading back' had already commenced and is necessarily shown

in all charts for this year. C. H. Townsend (per H.). "

On the back of this chart is another pencil note "Copies of 1898 charts, with rookeries outlined, by C. H. Townsend & James Judge. "

- 3216 Lukanin and Kitovi Rookeries (with red ink outline of areas occupied by seals. Pencil note says "July 20, 1898, C.H. T. ")
- 3217 Tolstoi Rookery
- 3218 Zapadni Rookery, St. Paul
- 3219 Little Zapadni and Zapadni Reef Rookeries
- 3220 Polovina, Polovina Cliffs, and Little Polovina Rookery
- 3221 Morjovi Rookery
- 3222 Vostochni Rookery
- 3223 Lagoon Rookery (last occupied as a rookery in 1940)
- 3224 St. George Island
- 3225 Zapadni Rookery
- 3226 North Rookery
- 3227 Staraya Artil and Little East Rookeries
- 3228 East Rookery