

ROUND ISLAND FIELD REPORT

1988

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INTRODUCTION

The 1988 season at Round Island officially began on 1 May when the herring helicopter landed the crew at the cabin. J. Sherburne and K. Taylor accompanied the new crew for the first few days to establish camp and to point out possible locations of different facilities buried under the snow (i.e., boat box, water tank). Logistics this year were relatively easy. Commercial Fisheries Division used a combined sea /air lift operation to establish their herring camps and Game Division was able to use this same logistical plan. We flew to Summit Island via Beaver, then on to Round Island by helicopter which then slung 2 large fish totes and a brailer containing food, boat, motor and fuel at our feet. The main consequence was that camp was in operation within hours. If we can use this same system next season, we certainly should.

We spent much of May exploring the island and monitoring the herring boats in passage and the yellowfin sole boats at work on the east side of the island. Both fisheries lasted longer than last year's and the bottom fishery grew as well with respect to the number of vessels involved. Despite our attempts to fend off possibly intruding boats, it was rumored that five walruses were taken from the west side of the island.

As predicted in last year's report, visitor numbers increased and we broke the standing record with a total of 271 visitors logged for the season. The number of campers was down by about 40% and the number of day visitors increased by nearly that amount. Good weather for most of the summer helped keep the trails in excellent condition.

Walrus numbers remained absolutely and relatively low. The high haulout count of 4,424 on 20 May was lower than last year's high count. The number and severity of observed disturbances was down and most of these were Zodiac or Puffin related. Kittiwakes and cormorants monitored on 4 plots showed better nesting success than last year. However, a late series of storms which coincided with fledging may have had deleterious effects of which we remained unaware. Fox activity was similar to that of other years, with foxes observed frequently near the cabin and campground. Most island dens were not monitored frequently and at least one (East Cape) did not appear used at all this season.

VISITOR USE

We observed roughly a 4% increase in visitor use over 1987. However, the actual value may be even higher when visitors associated with the wedding and USFWS research team are excluded from last year's totals. Certainly most of our day visitors this year were commercial fishermen, not only herring fishermen looking for a good place to stretch their legs but also processing personnel and salmon fishermen between fishing periods. We might have had even more day visitors had some of the herring boats picked up their permits in Dillingham prior to reaching the herring grounds. One of us flew to Summit Island on 21 May to issue permits to fishermen and this worked well.

Some of the visiting fishermen were regulars who had been to Round Island before and others were "first-timers." Although those to whom permits are issued are instructed to read their permits before signing them, apparently not everyone does. We had several boats who did not contact us at the specified time; rather, they chose to approach Round Island directly, attract our notice and ask if they could be skiffed ashore at that time. At least two of these boats didn't use the specified corridor. We did not allow these non-complying vessels to gain access to Round Island. Some of these vessels were reluctant to depart from the island, but did so when urged.

The season started early with campers arriving the second week of May. Approximately half the campers were from out-of-state, although some campers listed as "Alaska residents" were actually here only temporarily. About 9% of the campers were from other countries.

This is the first year that the 15 campers-per-week permit period was in effect and we feel that this may be part of the reason for the reduced numbers of campers. The highest number of campers using the campground at any time during the summer was 11. Although this number may be reduced compared to other years, several visitors remarked to us that the campground seemed crowded.

Society Expeditions was the only commercial tour group which organized a day tour. On 10 July we had 30 visitors with permits ashore on the island. Most of these passengers were ambulatory although one, with a wooden leg, opted to stay in Boat Cove. Only one of all these visitors was deemed hazardous and we felt that the tour organizer should have warned us about him--he was in his eighties, nearly blind and deaf and walked with poor balance. Had we been

forewarned, we would have given a separate guide to this man. All in all, we found the tour leaders enthusiastic, helpful and flexible.

Thirty-three percent of the campers were associated with tour groups--Victor Immanuel, Joseph Van Os, Wilderness Birding Adventures and Midnight Sun Tours. The first two groups were return visitors and we generally felt that the responsiveness of all of the tour leaders and their clients was quite good. Midnight Sun Tours is not an organized tour per se; rather, Midnight Sun functions as an expeditor and supplies its clients with equipment and food.

Of the tour groups involved, Midnight Sun seemed the most poorly organized. We felt that several of their clients were only marginally informed and prepared for Round Island. One group arrived with a tent with a broken pole, no matches, cups or forks. These two campers told us they had not been advised about other gear to bring - they only happened to have rubber boots and raingear along, for instance. Also, they were given down bags, one of which was wet on their departure from Anchorage as well as a new Coleman stove, which neither knew how to operate.

When we asked the tour leaders how they screen for physical disabilities, the answer was that they don't. Judging from previous reports, the physical condition of people in this year's camping cohort was acceptable. Most people knew their own capabilities and refrained from taking risks. The camper with severe arthritis and the 68-year old woman with the plastic knee did well and several other people declined to go out to Main Beach. One camper did not see a hole in the trail and twisted her foot which resulted in a possible hairline fracture. Luckily, she was with a tour group which had an orthopedic surgeon among its members and we had some plaster cast material on hand. She left the island in a cast.

For the first time, a visitor log was kept (in the outhouse!) and although few people made comments we felt this was a valuable practice. Copies of visitor comments are attached. Among the suggestions we received were those for widening the trail, flattening the observation platform at the Main Beach haulout and for limiting the number of campers to 10. People seemed generally to feel that the rules made sense and seemed reasonable.

WILDLIFE AND RESEARCH

In order to make comparisons in numbers and places between years for hauling walrus, we redesigned the daily log sheets which now sport a small map of the island. The beaches are listed separately to facilitate data checking. We also included a space to report presence (numbers) or absence of fishing boats as well as blanks for visitor names. In addition, the space for narrative was expanded to allow for an occasional bout of verbiage.

WALRUS

Walrus count data for Main Beach and First and Second Beach are shown in Appendix 6. As in 1987, the number of walrus using Round Island as a haulout was sharply down compared to previous years. Our high number (4,424) which occurred on 20 May, was nearly 1,000 less than the peak count recorded for last year. Like last year, use of the East Side beaches declined somewhat, but Main Beach, both West and East, was the most frequently used hauling place. The west side of the island south of Main Beach was used a fair amount in May but very little after that, according to our boat counts. A single walrus was seen hauled on Third Beach on 31 July. Apart from Flat Rock in Boat Cove, most of the Cove was rarely used although early in the season walrus entered waters of the Cove during high tides as though looking for potential hauling sites. The haulout cycle seemed to have more clearly defined peaks and valleys than did last year's. However, we are hesitant to compare this year's pattern with those of other years without more information, including environmental conditions and disturbances.

On 10 July, during the visit by the Society tour boat, we observed a single walrus having severe convulsions on First Beach. He was approximately 20 to 25 years old and was gnashing his teeth and snapping his jaw, frothing heavily. He convulsed for about 20 minutes, tremors ceased for 5 minutes, then he continued convulsing. We observed this for about 40 minutes in all, beginning at 15:20 h. We returned to the beach at 21:30 h and the walrus was dead. We did not collect samples nor did we salvage any ivory because the beach was being used by other walrus.

We maintained daily contact with USFWS personnel at Cape Peirce and traded information about animal numbers, marked animals located and disturbances. A general pattern of several days between peaks observed at Cape Peirce and lesser peaks seen at Round Island emerged. (See Appendix 6.) Whether this represents a staggered synchronous movement from feeding grounds to a haul area or whether some of the Cape Peirce animals subsequently haul out at Round

Island is hard to say. Similar to Round Island, numbers at Cape Peirce have also been lower than those recorded a few years previously.

Although there was no active walrus tagging at Round Island this year, Sue Hills of USFWS successfully deployed 5 radios at Cape Seniavin on the Alaska Peninsula. One of the walrus later was found dead on a Peninsula beach but the remaining 4 were all present at least once time on Round Island. We listened for these radios at least once a day from 14 June to the end of the season. During the few times when we were able to visually locate the animals we also collected information about group size, location and approximate age composition, and condition of the radio transmitter. The tracking information is summarized in Appendix 7. In addition to the newly marked animals, we also saw 3 marked walruses with epoxy remnants attached to tusks. Presumably these animals had been marked by Taggart and Zabel in the last 10 years. Descriptions of these animals are in Appendix 7 and a copy will be sent to J. Taggart for his interest. We gave the descriptions to the crew at Cape Peirce and they let us know when they saw these marked animals.

NORTHERN SEA LION

We counted these animals nearly daily throughout the summer, although complete counts from the shore are difficult to obtain. Our counts ranged from May 21's high of 829 to less than 50 on the rocks in late summer. We saw no pups this year although in the first half of the summer we observed several markedly smaller animals which we classified as yearlings. One was observed nursing or attempting to nurse. We saw one copulation at East Cape. We did not see any marked sea lions this year, although many exhibited round patches of varying sizes. We hypothesized that these were from a skin disease or a parasite.

HARBOR SEAL

On three different occasions we saw pups hauled out; two of these were in Boat Cove. The pups were white with dark spots and we assumed that they were harbor seals although we did not verify the species.

CETACEANS

Although ADf&G personnel at Summit Island reported seeing many active gray whales in front of the herring camp, we saw few passing Round Island. Most of our sightings occurred along the east and south margins of the island and these animals appeared to be migrating. We observed one whale breaching off the Main Beach spit in late June. On 29 July, 2 visitors saw a gray whale surface just off Boat Cove; it

dove and was not seen again. On 18 June, we saw a pod of 5 Orcas surfacing 100 feet off the south corner of Boat Cove. Due to heavy fog, visibility was poor, but there were at least 5 whales, including one male and one female, in the pod. Several weeks later the crew at Cape Peirce sighted a pod of 5 Orcas off the beach there.

KITTIWAKES

For the fourth consecutive year, the black-legged kittiwakes were observed for reproductive success. About half of the kittiwake population was present when we arrived on the island on 1 May. The first egg was seen on 31 May, eight days ahead of the previous year, as reported by Sherburne and Lipchak. A high percentage of birds (47%) produced two eggs, and one nest contained three eggs. (See Appendix 8.) These are minimum numbers, as any predation which may have occurred in the two to three day intervals between observations was not taken into consideration.

On 26 June the first chicks were observed and the majority of hatching was completed by 6 July (Appendix 8). The 64% hatching success included 19 nests with two chicks. Again, this is a minimum value due to predation and to the difficulty of distinguishing the number of chicks in a nest. None of the "second" chicks survived longer than 10 days.

The kittiwake chicks began to fledge on 5 August. Even though the adult kittiwakes left the nests regularly and for long intervals during the two weeks prior to fledging, fledge success was high. Exact dates of fledging were difficult to determine since many of the chicks continued to return to their nests for up to two weeks after fledging. Using only nests in which hatching and fledging times were closely observed and documented, an average rearing time of 43.5 days was documented. This compares closely to the 43.6 day average observed on the Pribilof Islands by V. Byrd from 1975 to 1978.

The kittiwake plot near the cabin was not as successful as the Observation Point plots. These nests were located on the same rock face as the cormorant nests, a location well protected from any fox predation. This nesting site was new for most of the kittiwakes, with 32 nest attempts this year compared to five the previous year. Even though the average clutch size of birds on this plot was comparable to those of the Observation Point plots, the reproductive success was much lower. Egg-laying at this site was a full 10 days later than the other plots, possibly contributing to the poor productivity. The location of this plot is another consideration. This site is quite isolated from the major rookeries on the island. With the limited food sources available in this area to the ravens and gulls, predation may have been more concentrated on this plot.

The productivity of the Observation Point plots was .62 fledglings per nest attempt. Averaged with the "cormorant-plot" kittiwakes, the overall productivity drops to .54. Either way, these statistics are strikingly improved over the 0 - .03 productivity estimates for the years 1985-1987.

CORMORANTS

Upon our arrival on the island, most of the cormorants had returned to the nesting sites on the two plots which had been studied the previous year. Within one week all the cormorants on the south-facing plot had left with the exception of eight nesting pairs, as compared to 38 nests the previous year. On the north-facing plot, 26 nests were visible for observation. The first eggs were seen 12 May with the first chicks observed 12 June. Three different nesting pairs left their nests unattended on several occasions, eventually losing all their eggs and contributing to the low hatch success. The chick survival, however, was good. We calculated a productivity rate of 2.08 chicks per nest attempt, slightly lower than 1987.

DISTURBANCES

Like last year, few major disturbances of walruses were observed. One of these disturbances was caused by a landslide. Several more moderate disturbances were caused by the Zodiac, probably because an unusual wind carried noise and scent from us to animals on the beach. With respect to visitor-related disturbances, it appeared that those visitors arriving in their own crafts had the most potential for causing disruption since the walruses using Boat Cove appeared to react more vigorously to diesel boat motors than to carefully moderated outboards. A fair number of Boat Cove disturbances were caused by us in the Zodiac. It appeared at times that animals hauled in Boat Cove would become sensitized by a boat's arrival and that Zodiac activity would finish the job. The most severe disturbance of the season was caused by the Puffin, however, when it came into Boat Cove while a large number of walruses was hauled there. Don Winkelman was asked to refrain from entering the cove when walruses were present in such numbers.

The fleet which fished in the waters off Round Island last summer returned this year greatly expanded in size. It was present from mid-May to mid-June. The problems associated with this fleet were compounded by the fact that it was difficult to obtain information concerning catch, exact areas fished and so forth. In late May the fleet reached its peak numbers and we counted up to 180 boats of all sizes in our range of vision from the cabin deck. This included

fishing boats, processors and local traffic. Because this was a joint venture fishery, we sometimes had difficulty conveying information to the boats. Some were well apprised of the Sanctuary regulations while others appeared ignorant of them.

The most noticeable consequences of this enormous fishery for us were the noise and the increased need for vigilance. As loud as the noise was to us, we were unable to estimate the effect of that noise on walruses. It is possible that the noise affects the walruses to some extent. It is also possible that the fishery is having other impacts on the walruses and other animals associated with the island. We have no direct information on the effect of this noise, nor is there information available on the restructuring of the ocean bottom by the drag nets. According to preliminary estimates from National Marine Fisheries Service, approximately 20 walruses were reported caught in nets by this fishery in the eastern Bering Sea this year. This number includes "recaptured" dead animals and may also represent underreporting.

The disturbances associated with visitors as compared with fishermen working in the area are of a different variety. Day visitors may represent more short-term disturbances just from the standpoint of increased boat traffic. The main trail, although in varying degrees of disrepair depending on weather, can probably better handle heavy traffic than can open tundra areas and off-trail sites in the campground and by the haulouts. These latter are the areas which tend to be most heavily used by campers. Also, the larger tour groups are generally hard on the campground. Group size sometimes precludes adhering to the precepts of "minimum-impact" camping.

IVORY

A list of ivory we collected is recorded in Appendix 4. Most of this ivory was collected as noseplates and most of the animals from which we salvaged the ivory had been dead for some time. We only classified one as a recent mortality. We cleaned most of the noseplates by tying them in Boat Cove and letting snails, amphipods and other invertebrates clean them. This worked well and these noseplates were much cleaner than those we cleaned by cooking.

We were fortunate this year in that we were able to send ivory back 2 times during the summer, and did not have to be concerned with storage on the Island. Greg Bos took some of this ivory on in to Anchorage following his visit to Round Island. The Anchorage ADF&G office now has a secure place to store small amounts of ivory until it can be sold via

the Eskimo Walrus Commission. However, as of this writing, the Round Island trust fund has not been established and the ivory continues to pile up.

MAINTENANCE

Most of this year's projects were, in fact, maintenance. We did not undertake many new projects.

1. Trail system: With weeks of sun and dry weather, the trails rarely were in disrepair. The main trail up from Boat Cove, thanks to the industry of Sherburne and Lipchak, needed very little work although we did install a hand line up the first steep hill. Traffic patterns differed somewhat from other years. We asked visitors bound for Main Beach to use a trail following the gully above Observation Point rather than the diagonal trail from camp which had been used occasionally in other years. We decided to follow a policy of keeping hikers off the front (east) hill. Not only do we want to avoid trails cutting up to the west from the campground and cabin, but for sanitary reasons it seems a good idea to minimize traffic above the water supply. Visitors who wished to hike to the Island's top were asked to ascend via the southern end. The habitat in this area is primarily talus and grasses mixed with shrubs and seems more resistant to disturbance than the lichens and mosses on the north and east slopes.

We had moderate to good success with some of the revegetation work we did. We transplanted sod as well as chickweed in problem areas on the trail. We transplanted "weeds" from the garden to the high East Cape ridge trail. This trail, which is no longer used, is extremely eroded and some of these transplanted plants took hold. We also moved sod to several places along the trail and to the flat, bald area in the campground which was completely denuded of vegetation last year. This year we closed it to traffic, planted some sod and by August it had greened up nicely. We laid some stone and built some steps using gravel and plywood near First Beach as well as shored up trail sections near Second Beach, East Cape and Observation Point.

2. Painting: The good weather lent itself to painting and there was a fair amount to do. We painted the icehouse, boat box, gas box lid (and added hinges), fuel oil barrel, new outhouse and both large water tanks. Using wood preservative, we painted both outhouses, the cabin, deck and the hot tub area and then painted the latter with paint. We sanded the inside of the cabin and painted it with floor hardener. We also tried painting the kitchen counter with floor hardener but this did not dry smoothly and will need to be redone next year. We painted the cabin floor as well, the front floor with floor paint and the back with floor hardener.

3. Burn barrel: The only improvement we made to Lipchak's ingenious forced air burn barrel system was to dig out the bottom of the pit and to place a small stand under the barrel to facilitate the circulation of air through the barrel.

4. Cable and boat: Using the bolts that the NOAA "Rainier" installed last year, we restrung the cable using new 5/16" cable. The placement of the bolts was less than ideal with regards to distributing the load and in June one of the bolts sheared. We removed the cable at the end of the year and found that one of the three remaining bolts was loose in its socket. We restrung the pulleys with new braided nylon cord. We found that a 6:1 ratio on the vertical and a 3:1 on the horizontal worked best. We used the pulley system to dismantle the cable at the season's end and felt that this would also be a good way to install the cable next year.

In late May the boat became extremely sticky on the upper tubes. We hypothesized that this was from a petroleum compound contacted in the water--it seemed to be photoreactive, as the lower tube did not get sticky. Acetone worked well for removing the "sticky stuff," but it also removed some of the colour from the boat and may have weakened the integrity of the boat. We should consider coating the boat with Armorall or a similarly protective substance.

We put a more weatherproof lid on the boat box and moved it near the cable. We caulked it also in an attempt to make it water resistant.

5. Garden: The weather this summer was nonpareil but our success with the garden was nonexistent. One camper suggested that we needed fertilizer, as some of the plants emerged and immediately went to seed. The foxes used the garden as a country club of sorts and it was no great surprise to find that our total yield was one potato and 4 leaves of lettuce. We did make the observation that the foxes preferred red lettuce over green. We moved the fence in on the garden to decrease the amount of tillable land.

6. The water tank for camp went dry mid-summer. We moved the rocks out of the cistern area, dug it deeper and replaced the plastic lining the cistern. We covered the cistern with plywood, as it was, and put visquene atop this in an effort to prevent fecal material from our wild neighbors reaching the water. We built up the wall of a pool in the campground stream and inserted a length of PVC pipe so that campers could obtain water more easily. In late summer we took water samples but the results were ambiguous, probably because we did not have sanitary containers for the water.

7. Trash: We took part in the ongoing "Degarbage Round Island" project. We were able to dispose of a fair amount of junk and debris from the generator shack. We sent fox and other tagging equipment back to Dillingham as well as the defunct wind generator. We disposed of part of the old cable and buried the main length of it in Boat Cove, and we got rid of several bags of solidified cement.

8. Construction: With volunteer professional help, we built and installed a lovely new outhouse near the cabin. The cabin skylight was partly covered and the rest of it was rebuilt with new plexiglass. The foxes gnaw on the skylight caulk regularly as well as prance around on the plexiglass itself--weathering of the plastic and such use may have contributed to the broken skylight we found on our arrival to the Island. An upstairs opening window was added to the front room which gives excellent ventilation. We dug a new hole for the old outhouse, which will need to be moved next spring. Unfortunately, this hole is near the old outhouse and thus may have the same potential for contaminating the campground water as does the present location. We built shutters for the clerestory, skylight and one window whose shutter was not found. We closed off approximately one third of the icehouse to be used for rope and boat storage.

RECOMMENDATIONS

Visitors and access: Most visitors come to Round Island via Winkelman's boat charter. There were a few times this summer when we felt that waiting for Don to show up impeded our schedules. On several occasions, Don entered Boat Cove before we had the boat out to meet him and in so doing, spooked walruses from Flat Rock. He seemed responsive to our requests, and it must be remembered that a single charter operator is preferable to each visitor showing up in his or her own vessel.

The new limit of 15 campers per week works well. However, as mentioned in last year's final report, should the Island ever receive 30 visitors a day on a regular basis, remedial action must be taken--and ought to be taken long before the situation gets to this point. The Island staff as well as most visitors also felt that a steady level of 15 campers per night would mar the experiences of the people and more importantly, would be too high a level of use to allow complete regeneration of habitat. Most campers and both staff members felt that the limit should be reduced to 10 campers per week.

If the literature which prospective visitors to the island receive is updated in the near future, we have several suggestions. We should consider including a waiver with the permit. Although an oath of this nature would likely not hold up in court, it would serve the purpose of stressing the need for care and safety while on the island to visitors. We also might want to include an equipment list, although we felt that this season's campers were reasonably prepared. During Don Winkleman's last trip to the island, he kindly gave us Loran readings for 2 miles offshore and just outside Boat Cove. These should be printed on the maps, and we should add them to maps we already have in store. Other improvements related to visitors include having several life vests available for use by visitors who arrive by plane or boat and whom we skiff in from a distance offshore.

The water supply for the campground should be improved by building a deeper catchment pool. Also, the path leading to the water pipe we put in this year should be shored up with large stones or perhaps stabilized by building a short catwalk. We would like to hang a small but weatherproof bulletin board in or near the outhouse. This would give us a place to put informational articles (e.g., on photo ethics or commercial fishing) for visitors. We plan to place orange-topped stakes up the south side of the island to mark the route to the top of the island. We will test the water supply again, as we should still have a \$30 credit with Public Health in Dillingham.

At this time, the Round Island and McNeil River trust funds are still being considered. We should work on this WITH EXPEDIENCY. We are losing possible revenue by not charging visitors and by having the salvaged ivory languish in storage. Visitors are more than willing to support the program at Round Island, but they want to know where the money goes. Few people are willing to pay public use fees without knowing where that money goes and how it is spent.

Disturbances: Although the total number of observed disturbances was less this year than in some other years, we are concerned about long-term affects of the bottom fishery on the island and its many inhabitants. Certainly the noise was remarked on by visitors. We might consider collecting some sort of noise information by dropping a sonabuoy out from the island. It would be interesting to compare noise levels from Round Island with those levels at other well-used haulouts such as Cape Peirce or Cape Seniavin.

We should take an active role with the North Pacific Fishery Management Council, which is charged with providing local and regional input into the management of fisheries. We must pay more attention to ther management of all fisheries salmon, groundfish etc.) in Bristol Bay in order to better

anticipate potential conflicts or problems concerning Round Island. The Council is expected to consider management changes concerning Round Island at a meeting in June and hopefully we can present the Council with some useful information that will be beneficial to the Walrus Islands State Game Sanctuary.

According to informal reports from locals in Dillingham, use of other islands in the Sanctuary has sharply increased. We should consider a way of assessing the use that these islands receive. We talked to visitors who had been to the Twins and to Black Rock and had anchored close to shore. This likely disturbed the birds there and at present we have no methods of estimating extent and severity of disturbances.

NOAA personnel stated that they expected to return to the area in 1989. We need to stress the rules to these visitors--as well as the reasons for those rules. The NOAA skiff did, on several occasions, disturb the walruses. We look forward to working with these people again, as they were helpful and enjoyable.

Wildlife: In addition to monitoring walrus numbers, we expect to continue to listen for radioed walruses. Using information which Sue Hills hopes to provide, we will also attempt to classify some of the walruses by age. We will continue monitoring several kittiwake and cormorant plots for productivity as we did this year. We would like to attempt some photo counts of the kittiwake and murre colonies as well as some puffin transects from land. We would like to establish a means of monitoring bird numbers over time, as has been done with the walruses using the island.

Judging from the behavior of some of the foxes, it is possible that they have been fed. This is a situation that cannot be allowed to develop, and we stressed to island visitors that long-term effects of feeding wild animals could be very detrimental.

We hope to make a concerted attempt over the course of winter to consolidate information regarding Round Island. This includes completing the file of reports so that there will be a complete reading file on the island. We need to contact the University of Alaska/Fairbanks herbarium to get a list of the plants which they were to key out from specimens which they received in the past. We would like to draw a more detailed map of the beaches which would include "old" and "new" names. Also, if photos allow, we would like to set up a panoramic photoview of the island so that staff in the future can be certain of place names. We also are currently consolidating the bird sightings over time into one list which will be available for visitors.

Ivory: Because cleaning the ivory in the sea worked so well, we will continue to do this. However, we should build a sturdy metal cage which we can anchor and which will withstand beating on the rocks. We will continue to send ivory into Dillingham at intervals to avoid dealing with an enormous quantity at the end of the season.

Management plan: In view of the expansion of the groundfishing fleet, we would do well to have a management plan in place which is sanctioned by the Commissioner. Certainly by the end of the 1989 season, we will have more exact information in terms of visitor numbers and boat numbers. If we plan to make changes in the future on rules for the Island or for the rest of the Sanctuary, it would be helpful to have a document to which to refer.

Staff: An issue which arose during the 1988 season was one of compensation for the time put in by staff which is well above and beyond a typical 37.5 hour work week. One of the staff (Hessing) asked for and received two weeks of comp time as mitigation for roughly 400 "extra" hours worked over the course of the summer performing regular administrative duties. Apparently there was a misunderstanding and the allowance for the comp time was taken from next year's budget.

It is undesirable AND unrealistic for us to stop working each week any time that we put in more than 37.5 hours. There are several possibilities for dealing with compensation for overtime work performed. At a minimum, the Division could pay straight time for all hours worked or it could choose to pay overtime. Another option would be to let island staff buy their own food and collect a per diem, as is done at McNeil River State Game Sanctuary. The minimum should be that staff are paid while preparing for the season and closing down the camp, and while writing the final report. Finally, seasonal staff should be guaranteed health insurance for at least the first month after their return to the mainland, since for all practical purposes they are unable to enjoy these benefits while on the island..

It must be stressed that the work is mostly enjoyable, interesting and informative. We recognize that the budget of the Sanctuary is very small and represents mostly staff salaries and support. However, this is certainly all the more reason for pushing forward on the trust funds for the state game sanctuaries.

Appendix 1

VISITOR USE OF ROUND ISLAND, 1988

Date	# per party	# days stay	Visitor days	Cum. days	Via	From
May						
9	4	4	16	16	Puffin	NY, D'ham
9	2	1	2	18	Nomada	WN
9	3	1	3	21	skiff	FWP
13	5	1	5	26	Good Times	AK CAL
15	2	1	2	28	Lyra	WN
18	3	1	3	31	ADF&G	herr.
19	2	1	2	33	chopper	camp
19	3	1	3	36	SayWhen	WN
19	6	1	6	42	Curragh	WN
19	3	1	3	45	Fishing boats	WN
19	4	1	4	49	MissJulie	WN
19	2	1	2	51	Karen	Kodiak
19	4	1	4	55	Marie Cutting	Homer
19	4	1	4	59	Edge	WN
19	4	1	4	62	Rachel	WN
20	3	1	3	65	Louise	Nak.
20	3	1	3	68	GoldenGirl	Anch.
20	3	1	3	70	ClareAnn	D'ham
20	2	1	2	73	FV Boat	Nak.
21	3	1	3	76	JeanM.	D'ham
21	3	1	3	79	Capelin	D'ham
21	3	1	3	87	EvyMarie	ORE
22	4	2	8	91	N.Spy	D'ham
22	4	1	4	95	Ina B.	Kenai
22	4	1	4	97	Tadpole	Clark
22	2	1	2	101	EarleneG	's Pt
22	4	1	4	103	SallyO 3	D'ham
22	2	1	2	108	Hobo	WN
23	5	1	5	110	Gr.Ruby	Anch.
23	2	1	2	113	plane	Jnu.
23	3	1	3	115	KatiBlu	ORE
24	2	1	2	116	Corliss2	D'ham
26	1	1	1		Mighty	CAL
					Louetta	
					Vulcan	Anch
					PS-1	FWP

Date	# per party	# days stay	Visitor days	Cum. days	Via	From
June						
4	2	5	10	126	Puffin	Anch.
8	4	4	16	142	Puffin	D'ham
11	2	4	10	152	Puffin	Anch.
12	7	1	7	159	Puffin	Tog'k
19	6	6	36	195	Puffin	Vict. Imman
21	2	4	8	203	Puffin	CAL
24	1	9	9	212	Puffin	Homer
28	3	2	6	218	Ute Beaver	D'ham
July						
2	2	4	8	226	Puffin	Anch.
3	2	5	10	236	Puffin	Bethel
3	2	3	6	242	Puffin	D'ham
10	30	1	30	272	Soc. Explorer	
11	7	4	28	300	Puffin	VanOs
11	1	5	5	305	Puffin	West Germany
11	2	4	8	313	Puffin	Anch.
15	1	7	7	320	Puffin	Anch.
15	3	7	21	341	Puffin	WYO
15	1	5	5	346	Puffin	Anch.
20	3	1	3	349	Fairwx	NOAA
21	3	3	9	358	Puffin	D'ham
22	3	7	21	379	Puffin	Fbx.
24	2	2	4	383	Puffin	Anch.
29	2	1	2	385	Katmai	Anch.
29	4	1	4	389	Chulyen	Anch.
29	5	1	5	394	Fairwx	NOAA
29	2	4	8	402	Puffin	GA
29	1	4	4	406	Puffin	Belgium
29	1	4	4	410	Puffin	Anch.
29	1	4	4	414	Puffin	Anch.
29	1	7	7	421	Puffin	Jnu.
29	1*	1	1	422	Fairwx	NOAA
30	1	1	1	423	Fairwx	NOAA
30	2	1	2	425	Fairwx	NOAA
31	8	1	8	433	Puffin	Tog'k
August						
3	2	1	2	435	Utnapish- num	WN
3	1	1	1	436	Fairwx	NOAA
3	2*	1	2	438	"	"
5	2	1	2	440	Equinox	WN
6	2	7	14	454	Puffin	NY
6	4	2	8	462	Puffin	D'ham
6	2	3	6	468	Puffin	D'ham
6	2	7	14	482	Puffin	D'ham

Date	# per party	# days stay	Visitor days	Cum. days	Via	From
7	8	1	8	490	Puffin	Tog'k
7	1*	1	1	491	Puffin	Tog'k
7	2	1	2	493	Fairwx	NOAA
7	4*	1	4	497	Fairwx	NOAA
8	1	1	1	498	Fairwx	NOAA
8	2*	1	2	500	Fairwx	NOAA
9	3*	1	3	503	Fairwx	NOAA
9	5	1	5	508	Tuluk	D'ham
12	1	7	7	515	Puffin	VT
12	2	3	6	521	Puffin	West Germany
13	4	3	12	533	Puffin	D'ham
14	2	5	10	543	Puffin	Denmk
14	2	5	10	553	Puffin	ID
19	3	1	3	556	Fairwx	NOAA
19	3*	1	3	559	"	"
23	2	2	4	563	Puffin	USFWS
24	2	3	6	569	Puffin	Bird
24	5	4	20	589	Puffin	tour
26	2	5	10	599	Puffin	D'ham
Total 273				599		

Total day visitors = 180 (66%)

Total campers = 93 (34%)

* = Return visitor, not included in visitor totals

Tour groups included 1 German, 1 Scotsman

Appendix 2

BIRD LIST 1988

5-1-88	pelagic cormorant
	bald eagle
	black-legged kittiwake
	horned puffin
	snow bunting
5-2-88	gray-crowned rosy finch
	common raven
	common murre
	glaucous-winged gull
	pigeon guillemot
5-3-88	harlequin duck
5-4-88	wandering tattler
5-5-88	oldsquaw
	green-winged teal
5-6-88	arctic loon
5-7-88	water pipit
5-8-88	king eider
	tufted puffin
	white-crowned sparrow
5-9-88	common redpoll
5-10-88	Lapland longspur
	golden-crowned sparrow
5-12-88	tree sparrow
	savannah sparrow
	black scoter
	ruby-crowned kinglet
5-14-88	dark-eyed junco
5-15-88	sandhill crane
	bufflehead
	pintail
	parakeet auklet
5-17-88	hermit thrush
6-2-88	orange-crowned warbler
6-30-88	whimbrel
	Wilson's warbler
7-6-88	rock sandpiper
7-7-88	dipper
7-19-88	peregrine falcon
8-?-88	common snipe
8-26-88	varied thrush*
	rusty blackbird*
9-1-88	emperor goose
9-2-88	yellow wagtail

*sightings by Bob Dittrick/Wilderness Birding Adventures

Appendix 3

1988 BOAT CONTACT MADE**

5/27	Anna Marie
5/29	Alaskan Star
5/31	Barbara Lee
	Golden Dawn+
	NOAA Fairweather
	The Defender
	Ms. Amy+
	Pacific Alliance+
	Ocean Front II
	Ute Air
	Alaska (NMFS research vessel)
	Anna K
	Cecilia
	Skye W.
	Sea Quail (Alaska Seafood)
	Thor
	Mud Hen

~~** list is not complete and does not include boats~~
contacted before 5/27

+ denotes boat slow to comply with our request and/or
exhibiting suspicious behavior

Appendix 4

IVORY INVENTORY, 1988

NOSEPLATES

<u>Number</u>	<u>Date</u>	<u>Loc.</u>	<u>Length(R,L)</u>	<u>Girth(R,L)</u>
N-1-88	5/03/88	Boat C.	17.25, 16.50	8.5, 8.75
N-2-88	5/26/88	Main B.	25.75, 22.25	9.75, 9.75
N-3-88*	7/12/88	Boat C.	19.00, 17.00	8.00, 8.25
N-4-88*	7/07/88	Boat C.	15.50, 16.00	8.50, 8.00
N-5-88*	7/08/88	W.Main	26.00, 26.25	7.50, 7.50
N-6-88*	7/08/88	W.Main	16.00, 16.50	7.75, 8.00
N-7-88	7/08/88	W.Main	21.00, 20.25	9.00, 8.75
N-8-88*	7/19/88	S.W.Main	15.50, 18.75	8.25, 8.25
N-9-88*	7/19/88	S.Chute	23.25, 21.50	9.50, 8.75

TUSKS AND PIECES >10 INCHES IN LENGTH

<u>Tusk #</u>	<u>Weight(lbs)</u>	<u>Length(in)</u>	<u>Width(in)</u>
1	5.00	16.50	9.75
2	5.00	18.00	9.50
3*	7.25	22.00	7.25
4*	7.25	20.75	9.75
5	5.25	29.00	7.50
6	5.75	22.00	9.00
7	10.75	25.50	10.75
8	1.75	14.00	7.25
9	1.75	14.50	7.00
10	2.00	11.50	6.50
11	1.50	12.00	6.00
12	1.00	12.25	5.75
13	1.00	12.75	5.25

* = molar collected for USFWS

Appendix 5

1988 ROUND ISLAND INVENTORY

Generator shack

2 large 2-burner Coleman stoves
1 small 2-burner Coleman stove
1 Coleman lantern (no globe; may not work)
1 Goldenrod fuel filter set up in pipe for gas pump
1 smaller (oil stove?) filter, on line
Copper tubing, assorted lengths and diameters
3+ meters 1/4" all purpose hosing (for scuba set up?)
1 roll (nearly complete) 36" tarpaper
1 roll 18" aluminum flashing
3 styrofoam bird bodies for taxidermy
1 1/2 bags charcoal for barbeque
50# concrete (may not be good, but is not yet set up)
2 small, 1 larger caulk guns
2 4 ft. dip nets
2 extension cords (125 ft & 50 ft)
wine bottle full of fertilizer pellets
1 Zodiac stringer
4 4 ft aluminum pickets
4 long tent stakes
stovepipe- 2 6" lengths, 1 3" length, 1 3" jointed elbow
survival gear: 1 case c-rations
 1 bag dried food (1 week's worth)
 matches in plastic
 1 qt. enamel pot
 1 old chicken feathers army bag
1 quick-disconnect fuel line for <10 hp mercury kicker
2 hydrometers
1 piece old mosquito netting
Tools: 1 pike pole
 1 shovel & 1 plastic shovel
 2 mattocks
 2 scythes
 1 rake (in outhouse)
Walrus tools: 1 axe
 2 knives
 1 whetstone
 rubber gloves (2 worn pairs), rain chaps

Gas box

1 5 gal. bucket for outhouse t.p.
4 empty 5 gal. stove oil tins
9 gal. Blazo
1/2 gal. reg. gas
3 qts. 30-wt. oil
2 1/2 gal. Chevron floor hardener (1 1/2 gal. pre 1985)
 1+ gal. asphalt/roofpatch
2 12", 1 8", 1 6" + 2 Coleman spout funnels
4 4" paintbrushes 1 2" paintbrush
1/2 gal. paint thinner

Fuel inventory

Propane: 1 full - gas box
1 empty - gas box
2 (1/2 full) - 1 on cabin, 1 in tub pit

Gasoline: 1/2 gal. regular - gas box
4 5-gal. tins premix - icehouse
9 gal. Blazo - gas box

Stove oil: approx. 40 gal. in drum by cabin

2-cycle : 10 pints in bucket in ice house
3 tubes gear lube - NOT high viscosity

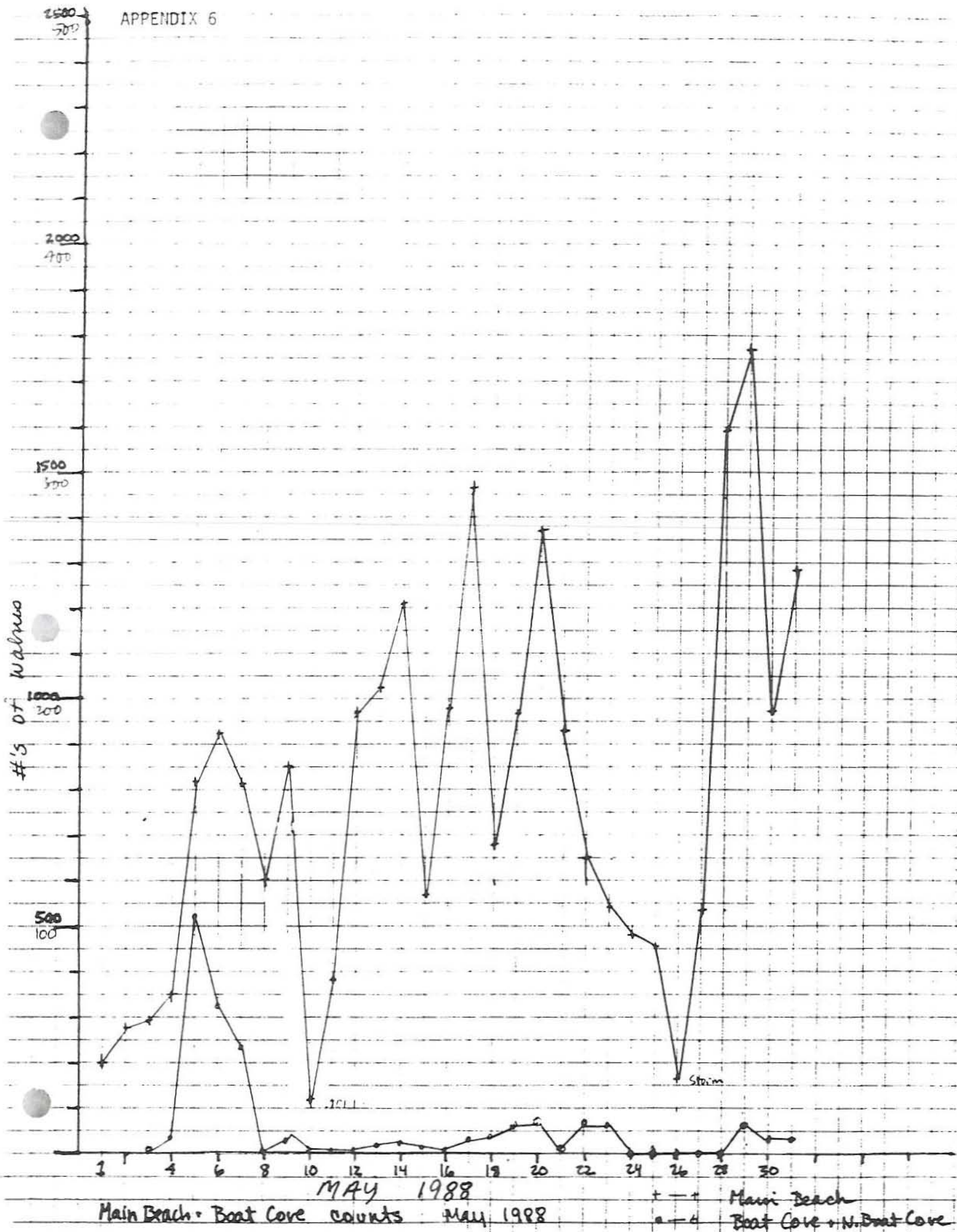
In cabin loft

- | | | | |
|----|--------------------------------------|----|----------------|
| 1. | 48 rolls toilet paper | 4. | styrofoam cups |
| 2. | 3 rolls handiwrap plastic film | | plastic cups |
| | 3 lg. rolls aluminum foil | | " utensils |
| | 2 rolls wax paper | | 2 lg.dish soap |
| | 1 pkg (15 count)gallon ziplock | 4 | sm.box matches |
| | 3 pkg (100 ct.)sandwich ziplock | | 2 bars soap |
| | 2 pkg quart ziplock | | |
| | 13 Hefty steel-sack garbage bags | | |
| 3. | 1/2 container Tang | | |
| | 2 cup o noodles | | |
| | 3 boxes Lite Minute Maid drink mixes | | |
| | 12 oz. Gulden's mustard | | |
| | 3 1/2 # honey | | |
| | 2 # white sugar | | |
| | 2 # brown sugar | | |
| | 45 oz.Carnation hot chocolate mix | | |
| | 6 8 oz. Sunmaid mixed dried fruit | | |
| | 4 8 oz. mission figs | | |
| | 2 # raisins | | |
| | 5 boxes Knorr soup mixes | | |
| | 48 oz. lasagna noodles | | |
| | > 10 # spaghetti noodles | | |
| | 1 pkg. chuka soba Japanese noodles | | |
| | 1 jar curry powder | | |
| | 4 oz. imitation vanilla flavoring | | |
| | 1 12 oz. pkg. noodles | | |
| | 1 6 oz. pkg. powdered eggs | | |

WISH LIST

Handheld VHF radios including extra batteries and capability
for being charged off the solar array (ICOM-11 recommended)
Binoculars
Tripod
Anemometer & rain gauge
New roofing-prefer aluminum (within next two years)
Wood for cook platforms and trail work
Metal stakes/rebar for trail work
New linens/new foam mattresses

APPENDIX 6



2500

APPENDIX 6

2000

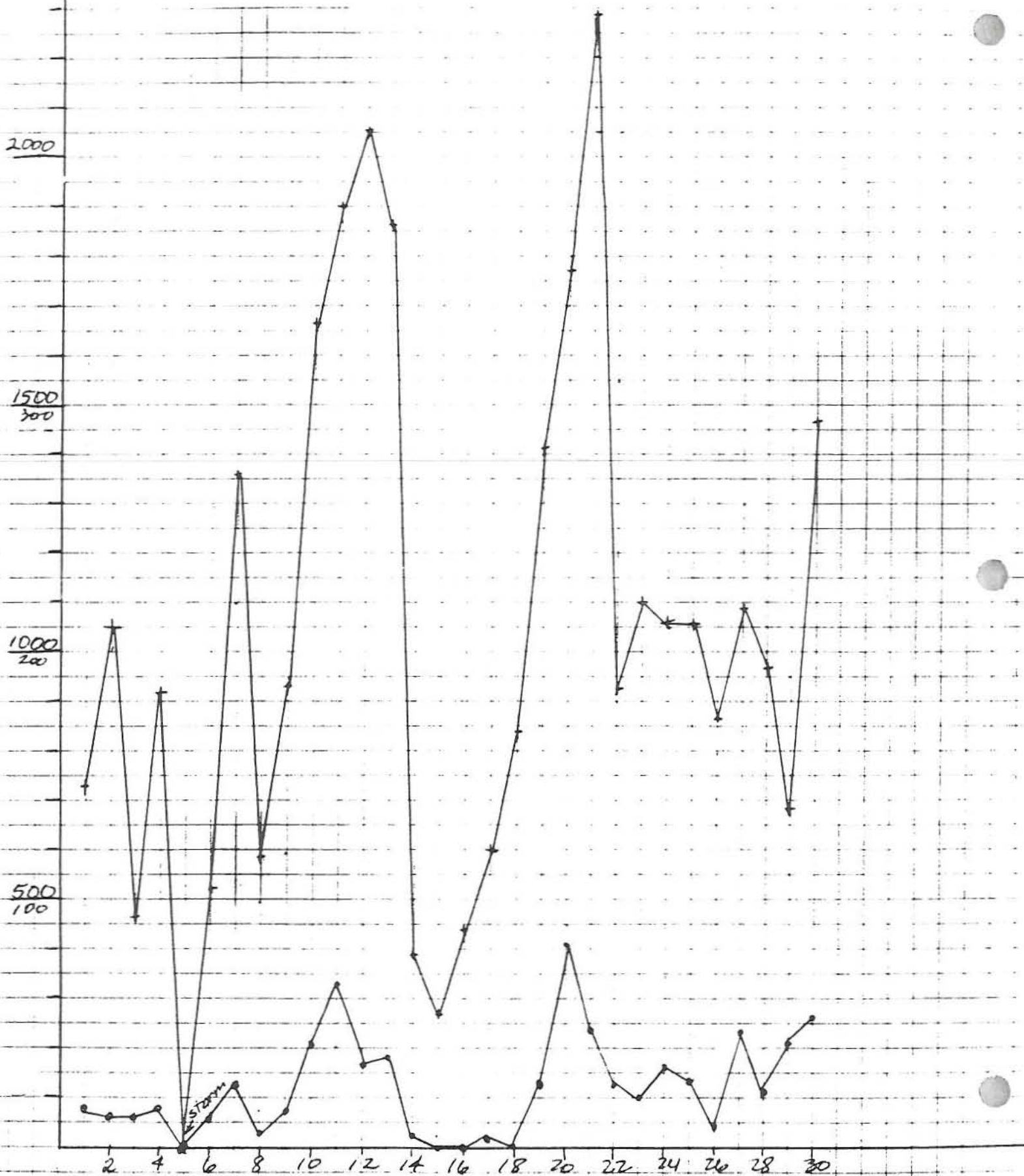
1500
3001000
200500
100

Mani Beach + Boat Cove counts, June 1988

Mani Beach
Boat Cove

N. Boat ind.

2500m



APPENDIX 6

2000

1500

1000

500

2

4

6

8

10

12

14

16

18

20

22

24

26

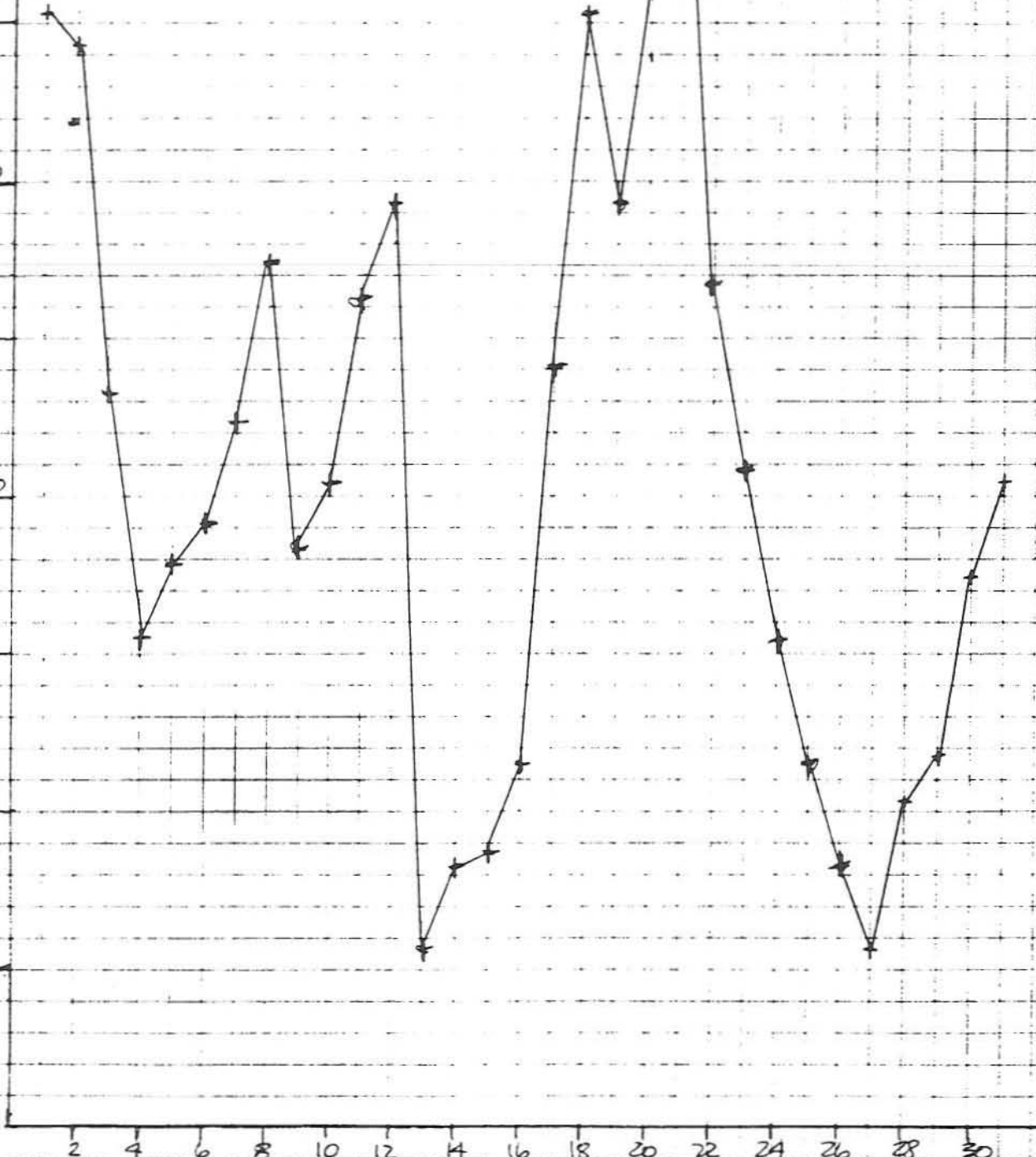
28

30

main Beach

July 1988

+ — +

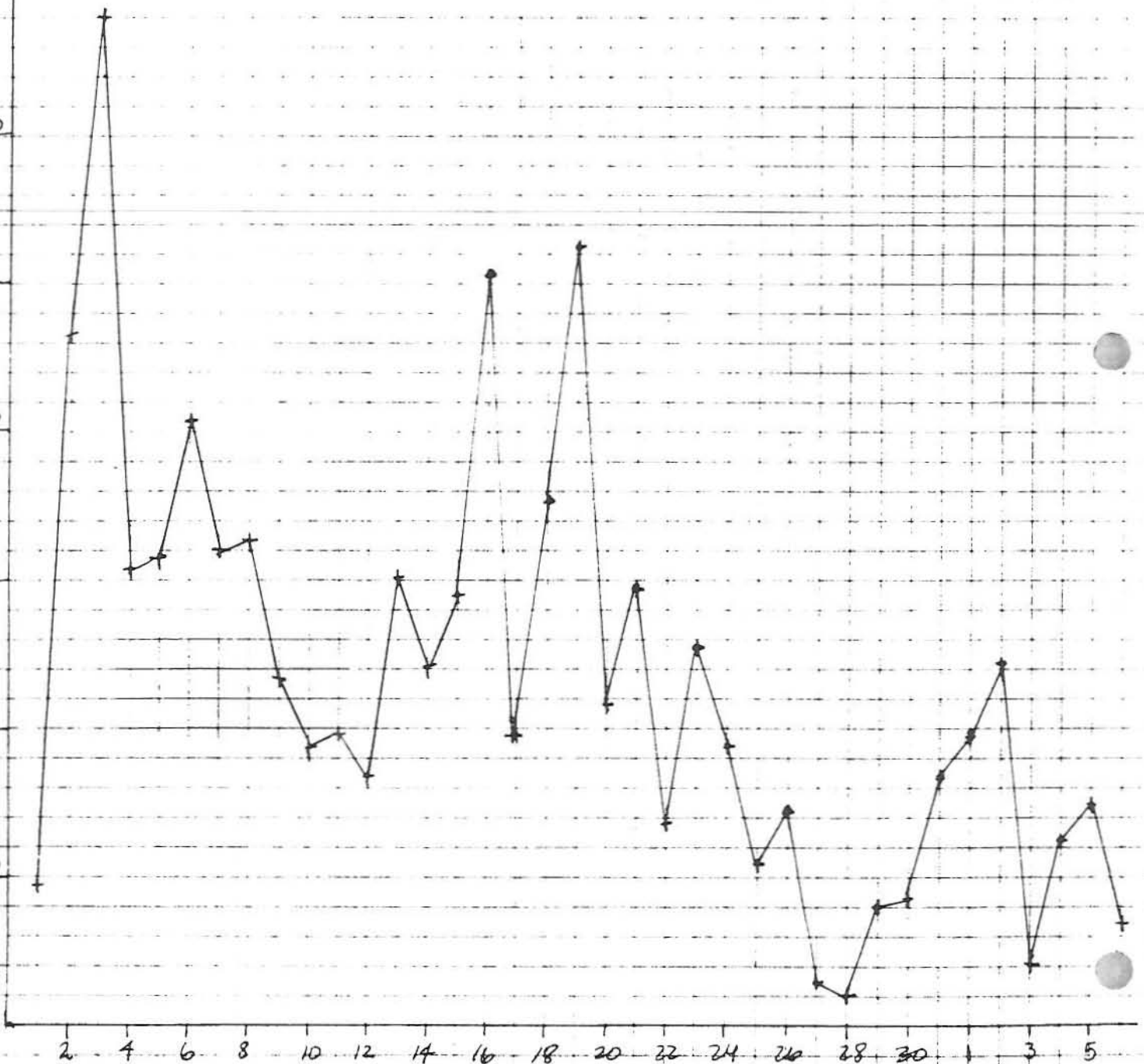


APPENDIX 6

2500
2000
1500
1000
500
250

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36

main beach August 1988



APPENDIX 6

400

300

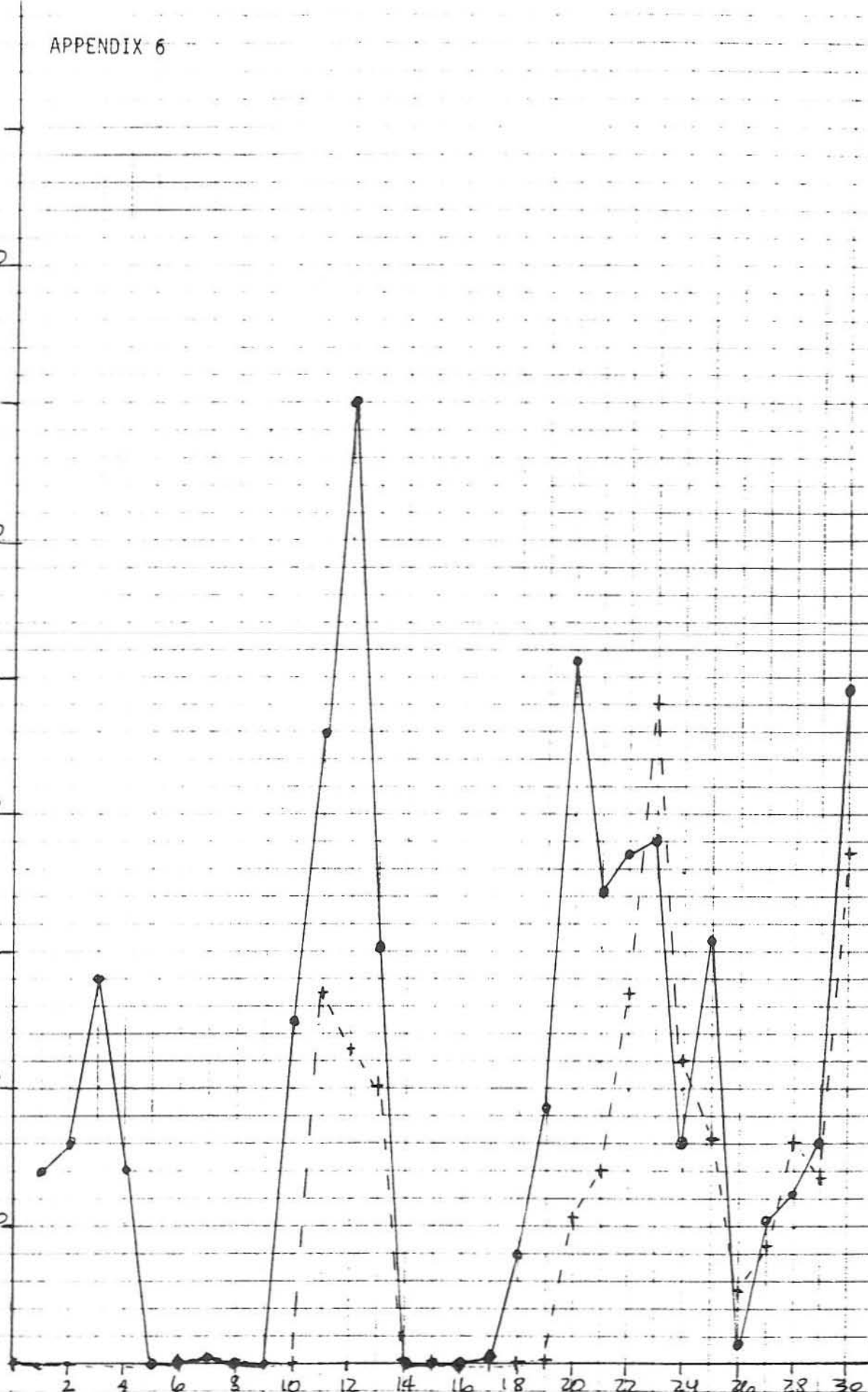
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100

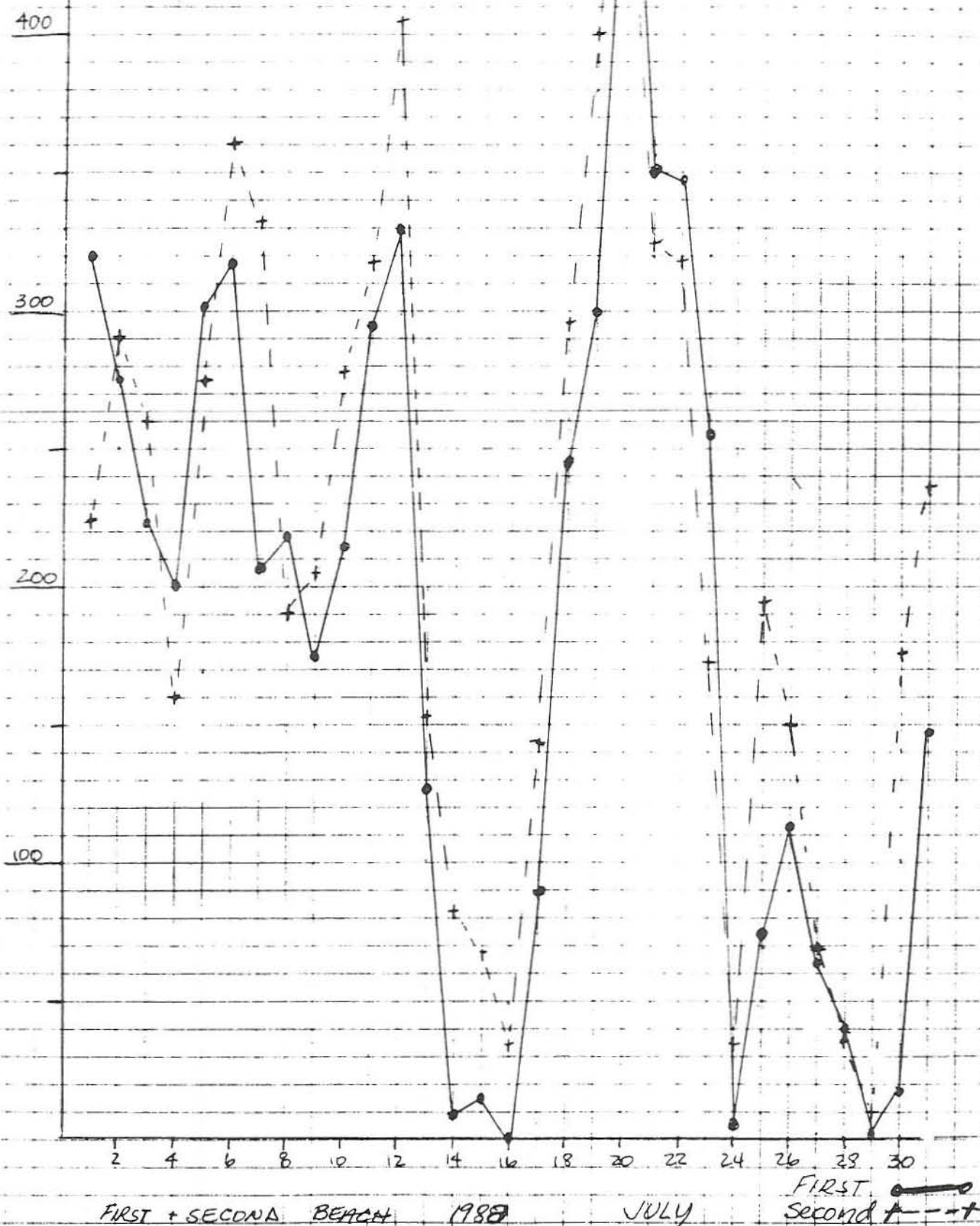
50

FIRST + SECOND BEACH JUNE 1988

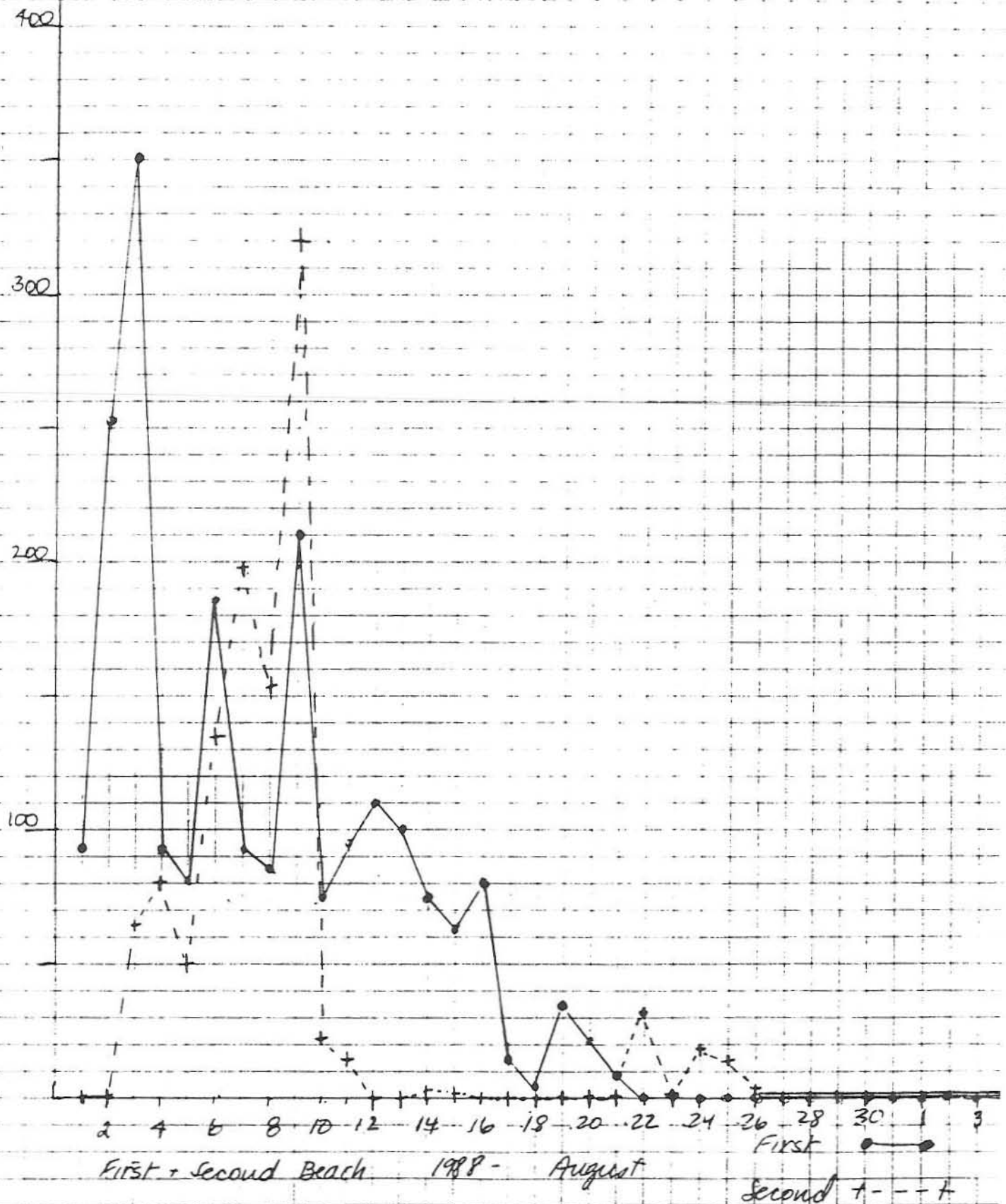
First
Second + - - - +



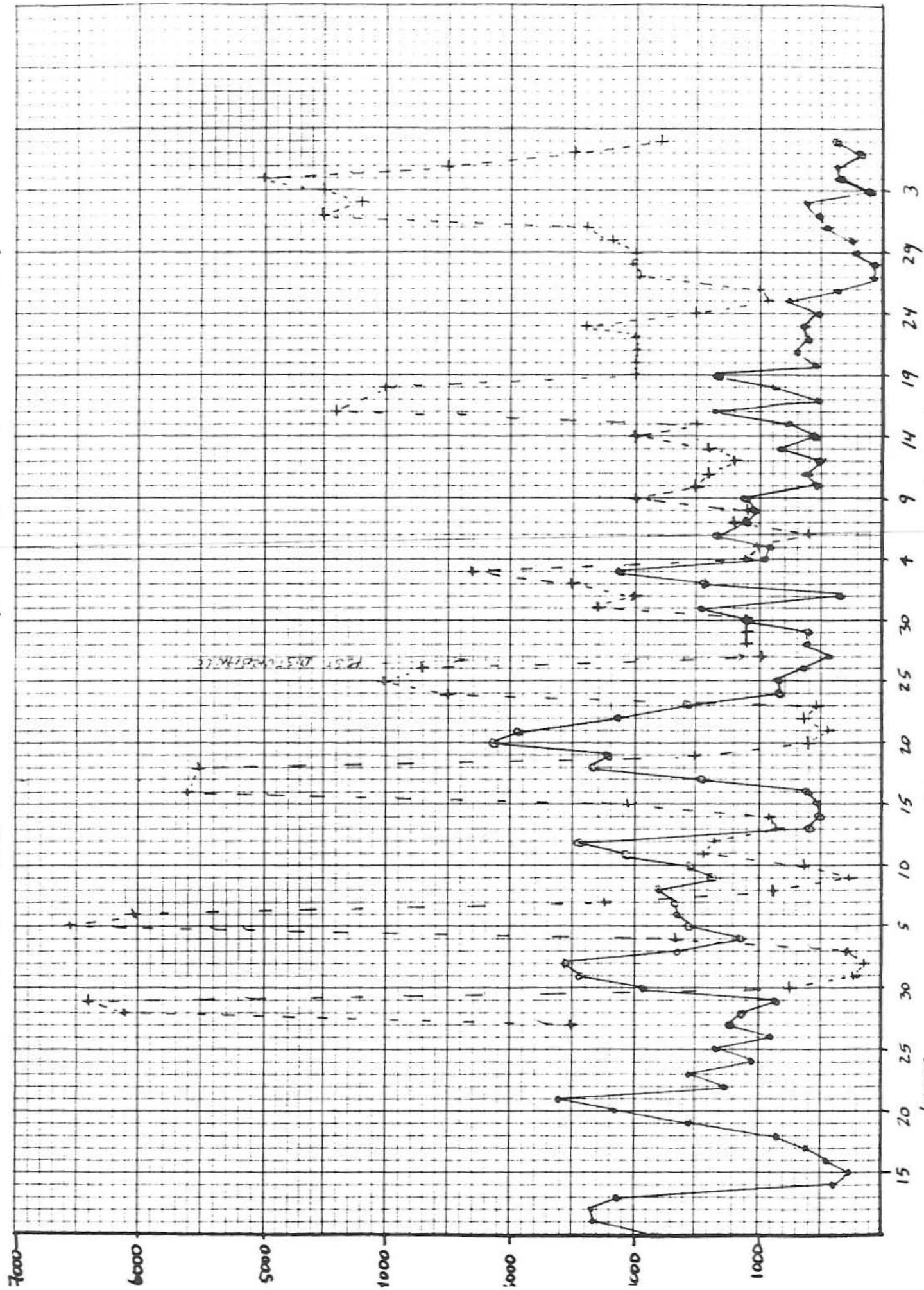
APPENDIX 6



APPENDIX 6



Round Island (E. side) and Cape Peirce 1988 counts compared



AUGUST

JULY

JUNE

Cape Peirce +---+

APPENDIX 6

Table 1. Results of observations of black-legged kittiwakes on Round Island, 1988.

	OP I	OP II	OP III	Cm Plot	Combined
Nest Attempts	63	79	31	32	210
Nests with Eggs	62	73	30	27	192
Clutch Size	1.48	1.53	1.77	1.43	1.53
Hatch Success	0.68	0.65	0.60	0.58	0.64
Chicks Fledged	40	47	23	4	114
Fledge Success	0.45	0.64	0.72	0.17	0.61
Reproductive Success	0.65	0.64	0.77	0.15	0.59
Productivity	0.59	0.59	0.74	0.13	0.54

Clutch size: number of eggs per nest with eggs.

Hatch success: eggs hatched per eggs laid.

Fledge success: chicks fledged per eggs hatched.

Reproductive success: chicks fledged per nests with eggs.

Productivity: chicks fledged per nest attempt.

OP: Kittiwake plots at Observation Point

Cm Plot: Kittiwake plot at the cormorant nesting site (near cabin)

APPENDIX 6, cont.

Table 2. Phenology of black-legged kittiwakes on Round Island, 1988.

	Date	Duration (Days)	Standard Deviation	Sample Size
First Egg	May 31			
Average Egg*	June 7		5.23	134
Incubation		26.0	2.59	54
First Chick	June 26			
Average Hatch	July 3-4		5.43	108
Rearing		43.5	4.07	49
First Fledgling	August 5			
Average Fledge	August 16		4.50	111

*Date of first egg layed in a nest

Table 3. Results of cormorant productivity studies on Round Island, 1988.

Cormorants	
Nest Attempts	26
Nests With Eggs	25
Clutch Size	3.4
Hatch Success	0.71
Chicks Fledged	54
Fledge Success	0.90
Reproductive Success	2.16
Productivity	2.08

Clutch size: number of eggs per nest with eggs.

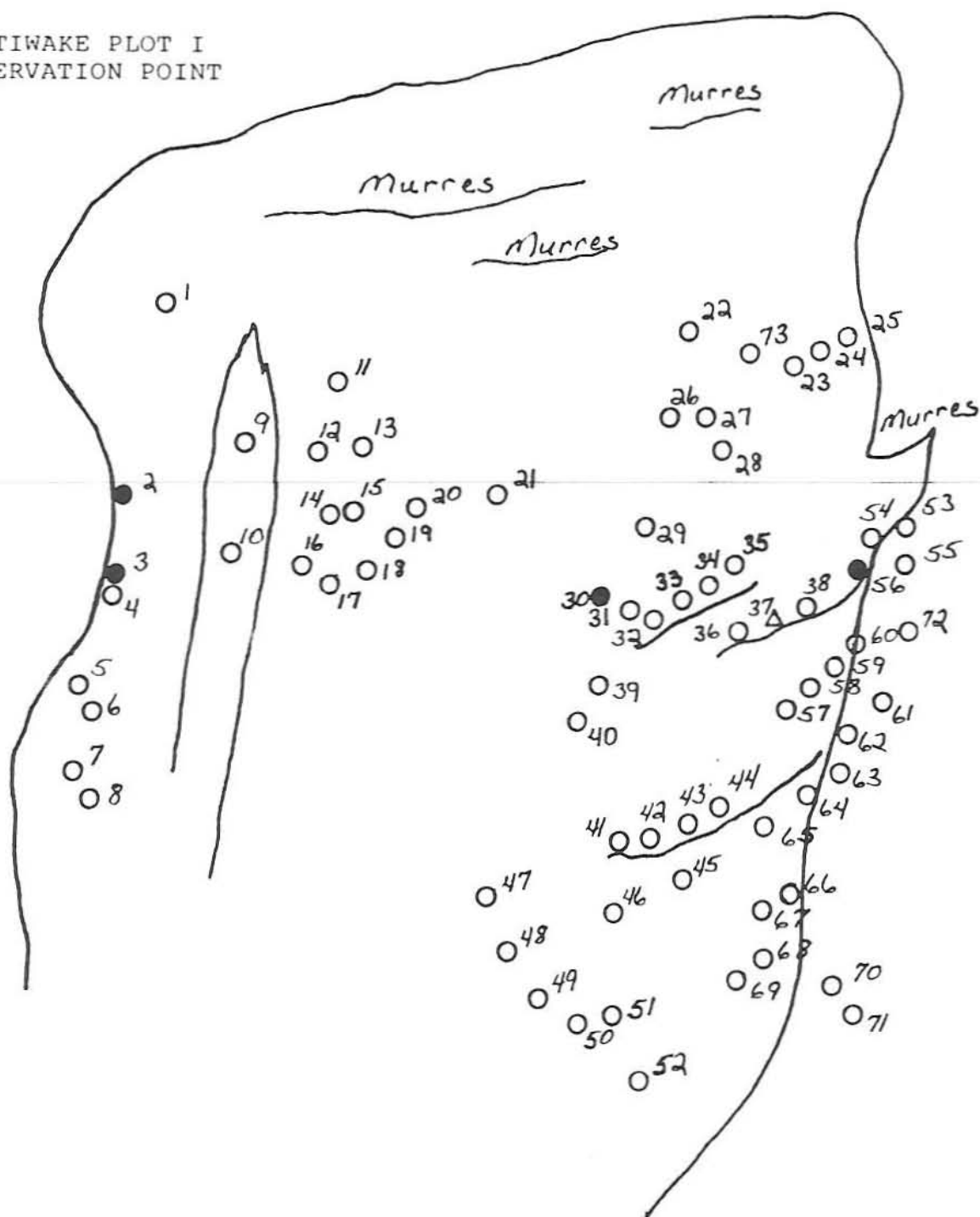
Hatch success: eggs hatched per eggs laid.

Fledge success: chicks fledged per eggs hatched.

Reproductive success: chicks fledged per nests with eggs.

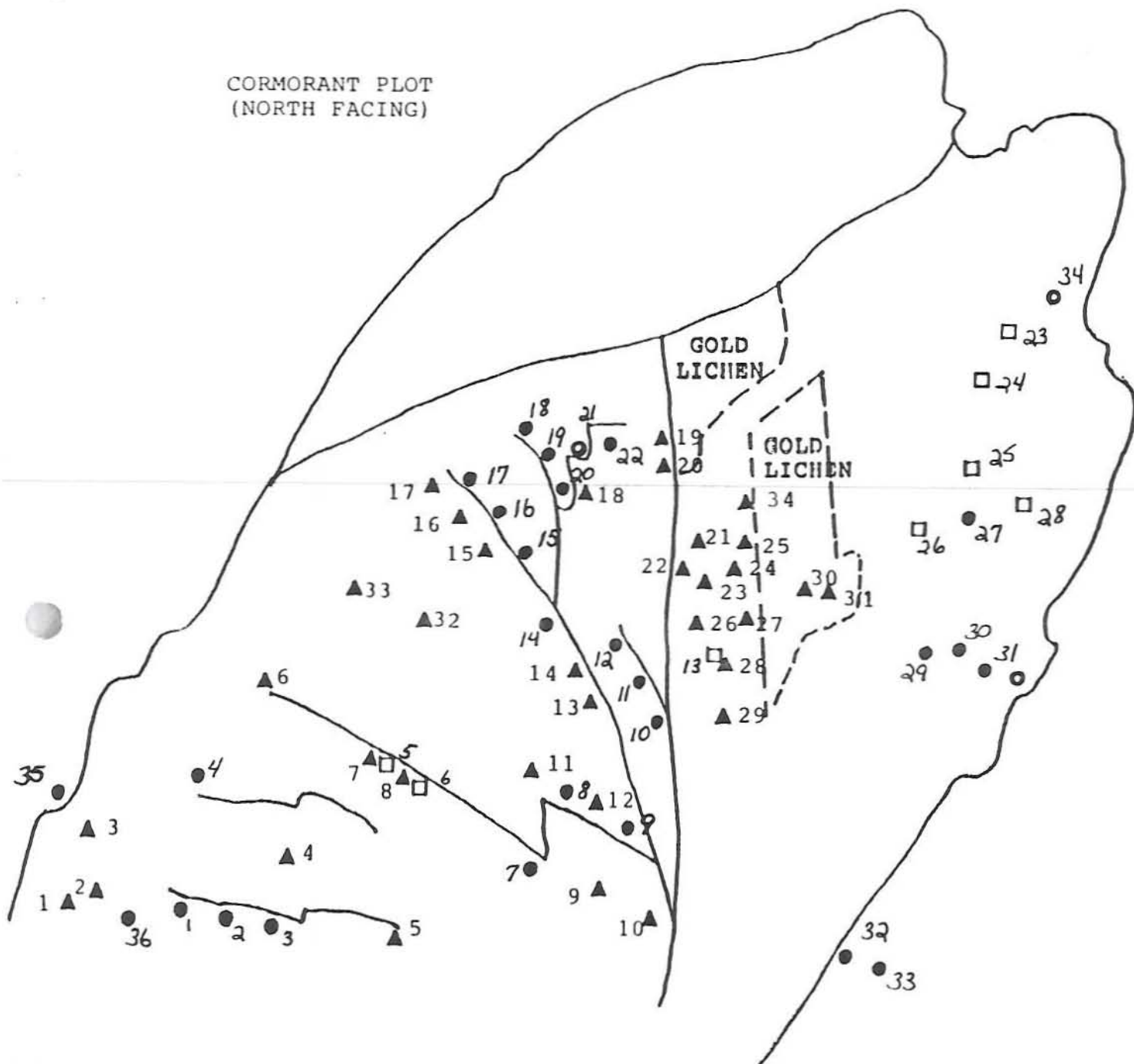
Productivity: chicks fledged per nest attempt.

KITTIWAKE PLOT I
OBSERVATION POINT



- KITTIWAKE NEST
- NEST NOT VISIBLE FOR OBSERVATIONS
- △ NO NEST BUILDING ATTEMPTS MADE

CORMORANT PLOT
(NORTH FACING)



- CORMORANT NEST
- CORMORANT NEST (NOT VISIBLE)
- CORMORANT NEST SITES USED IN '87, BUT NOT '88
- ▲ KITTIWAKE NEST

APPENDIX 7

1988 Radiotracking, Round Island

Date	No Signal Heard	Willi	Corny	Niner	Friday	Sigi	Blue Tusk	Gold Tusk	Pink Tusk
6/14			X						
6/15			V						
6/16	X								
6/17	X								
6/18		V							
6/19		X							
6/20		V							
6/21	X								
6/22				V					
6/23	X								
6/24	X								
6/25	X								
6/26	X								
6/27					X		V		
6/28		X			X		V		
6/29		X					V		
6/30			V	X			V		
7/1			X	X			V		
7/2		NO MONITORING DONE							
7/3	X						V		
7/4	X						V		
7/5	X								
7/6		V							
7/7		V			X				
7/8					X				
7/9					X		V		
7/10	X								
7/11			X						
7/12			X						
7/13	X								
7/14	X								
7/15	X								
7/16		NO MONITORING DONE							
7/17	X								

Date	No Signal Heard	Willi	Corny	Niner	Friday	Sigi	Blue Tusk	Gold Tusk	Pink Tusk
7/18	X								
7/19					X		V		
7/20	X								
7/21	X								
7/22			X						
7/23			X						
7/24		V							
7/25		V							
7/26	X								
7/27	X								
7/28	X								
7/29	X								
7/30	X								
7/31	X						CP?		
8/1			CP?	CP?	CP?	CP?			
8/2	X		CP?	CP?	CP?	CP?			
8/3	X		CP?	CP?	CP?	CP?			
8/4			CP?	CP?	CP?	CP?			
8/5		X							
8/6	X								
8/7	X								
8/8	X								
8/9	X								
8/10	X								
8/11	X								
8/12	X				CP				
8/13	X				CP				
8/14		X							
8/15	X								
8/16							V		
8/17	X								
8/18	X								
8/19	X								
8/20	X								

Date	No Signal Heard	Willi	Corny	Niner	Friday	Sigi	Blue Tusk	Gold Tusk	Pink Tusk
8/21		X							
8/22		V			CP	X?			
8/23	X				CP				
8/24	X								
8/25	X								
8/26	X								
8/27	X								
8/28	X								
8/29	X								
8/30	X		CP						
8/31	X		CP						
9/1	X								
9/2	X								
9/3	X								
9/4	X				CP				
9/5	X								
9/6	X								

KEY

- X = Heard only
 V = Visual location
 CP = animal heard/seen at Cape Prince
 ① = Bledover suspected for most of these signals.

Appendix 7

DESCRIPTIONS OF "TAGGART" WALRUS RESIGHTED IN 1988

BT (Blue tusk): First seen 6/27/88. Short worn tusks, right tusk has blue foam about 2"-4" below mandible. Slight amount of metal visible beneath epoxy.

GT (Gold tusk): First seen 7/9/88. About 1/2-way down left tusk is gold epoxy. Hose clamp clearly visible with slight amount of blue epoxy next to hose clamps on outside of tusks. Left tusk is about 4" shorter than right tusk. Tusk is very discolored around epoxy.

PT (Pink tusk): First seen 8/9/88. Pink and gold epoxy, no blue seen, located midway on left tusk. Both tusks blunted, right looks blunted and worn (about 25+ years old?).
