

1980

ROUND ISLAND REPORT

SUMMER 1980

BY

Jim Taggart

&

Cindy Zabel

DISTURBANCES

The number of disturbances during 1980 were fewer than any of the past four years. A total of fifteen disturbances occurred.

One boat landed on the tip of the spit causing a substantial disturbance. Approximately 2,000 walrus were harrassed off the beach by rock throwing and from people being too close to the herd. Six people were apprehended and informed that they were in violation of trespass of the sanctuary. Although they were belligerent, these people left with no further violation of the sanctuary. No other significant boat disturbances occurred.

There was a flurry of airplane disturbances on August 21 and 22. Two and six planes respectively circled the island blatantly within the protected air zone. These two days accounted for more than half of the disturbances that occurred the entire season.

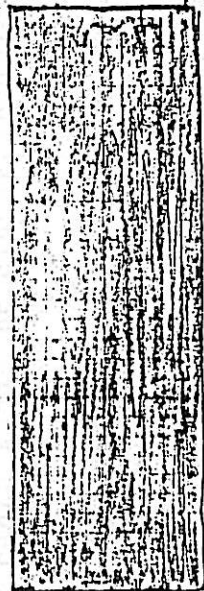
average # disturbances/week

0

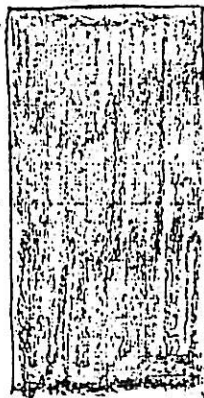
1

2

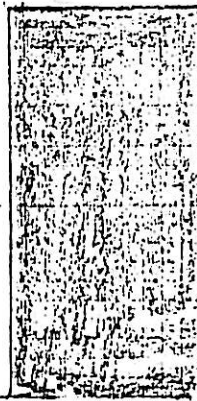
1977



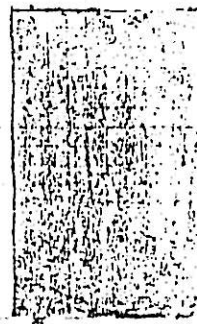
1978



1979



1980



VISITORS

Seventeen groups of visitors came to Round Island during 1980. Seven of these parties camped on the island, and ten of them stayed for only a few hours.

Two of the seven camped groups remained on the island for one night only. Four of the parties who camped on the island arrived by float plane, and all four of these groups were weathered-in for a minimum of three days beyond their planned departure date. Two groups arrived on the island August 29, planning to spend the weekend. Typical September weather set in: clear skies, blowing at least 35 knots, with at least eight foot seas. These two groups were rescued by a fishing boat seven days later in very marginal sea conditions. September weather has been so marginal for any transportation method for the past six years, that we recommend the island be closed September 1 until a tourist cabin is built.

Of the ten groups that visited the island for less than one day, eight parties arrived by fishing boat and two landed in seafood cannery helicopters. Fishing boats are a much superior method of transport to the island, as they can handle much heavier seas than can float planes. We encountered no major problems with fishing boats as most of them had read the permit and entered through the Boat Cove access corridor. We need to emphasize the necessity of fishing boats giving us an ETA. Our research takes us over the entire island, and boats could easily be missed if we were not expecting them. Boats must let us know at least by our 8:30 AM radio schedule if they intend to come to the island that day.

Unlike previous years, the majority of this years' visitors were from the Bristol Bay area. Only two parties were from Europe, and one person from outside of Alaska. People on fishing boats were all Bristol Bay fishermen or local school teachers.

Weather conditions on Round Island cannot be emphasized enough to people who intend to camp on the island. The worst storm we have experienced yet occurred in mid August, in the prime of the tourist season. Winds greater than 75 knots blew apart our Polar Pyramid tent that was guaranteed to withstand 100 mile an hour winds. Luckily, no visitors were on the island during this storm. Accommodations in our eight foot by ten foot cabin would be claustrophobic with extra bodies on the floor.

ROUND ISLAND VISITORS
JULY 1, 1980 - SEPTEMBER 4, 1980

<u>DATE</u>	<u>NUMBER VISITORS/ PARTY</u>	<u>TOTAL LENGTH OF STAY</u>	<u># "UNPLANNED WEATHERED-IN" DAYS</u>	<u>NUMBER MAN-DAYS</u>	<u>NUMBER CAMP-DAYS</u>	<u>MODE OF TRANSPORTATION</u>
7/3 - 7/8	2	6 days	5 (3-DLG 2-RI)	12	10	YUTE AIR
7/3 - 7/19	1	17 days	3	17	16	YUTE AIR-IN FISHING BOAT-OUT
7/19	6	2 hours	0	6	0	FISHING BOAT
7/20	4	5 hours	0	4	0	FISHING BOAT
7/20	2	3 hours	0	2	0	FISHING BOAT
7/20 - 7/22	3	3 days	0	9	6	FISHING BOAT
7/22	5	1½ hours	0	5	0	ICICLE SEAFOOD HELICOPTER
7/23	5	2 hours	0	5	0	FISHING BOAT
7/23	3	2 hours	0	3	0	ICICLE SEAFOOD HELICOPTER
7/25	4	2 hours	0	4	0	FISHING BOAT
8/11	2	4 hours	0	2	0	FISHING BOAT
8/12 - 8/13	2	2 days	2 (2-DLG)	4	2	FISHING BOAT
8/23 - 8/24	2	2 days	0	4	2	FISHING BOAT
8/23	7	3½ hours	0	7	0	FISHING BOAT
8/26	3	1 day	0	3	0	FISHING BOAT
8/29	2	7 days	5	14	12	FISHING BOAT
8/29	5	7 days	5	35	30	YUTE AIR in, fishing boat out.
TOTALS	58	48 days ½ hour	20	136	78	

Visitor use of Round Island has not increased significantly since 1977. The mode of transportation changed with more fishing boats bringing visitors, and fewer airplanes arriving than in previous years. Local use did increase during 1980 relative to past years, with many Bristol Bay fishermen stopping in for a few hours visit. (Four parties non-local, 14 parties local.)

Visitors created no major disturbances of walrus herds while arriving or departing from the island, unlike previous years. The "Round Island Permit" creating an entrance corridor through Boat Cove seems to have prevented unnecessary harassment of walrus.

WALRUS RESEARCH

Introduction

The three primary objectives for the 1980 field season were:

1. Estimate abundance of walruses each day.
2. Determine the length of haul-out and feeding excursions.
3. Test methods of attaching visual tags.

I. Abundance of Walruses

A. Methods

The total number of walruses hauled-out was estimated daily. Each beach on the island was individually estimated from vantage points on nearby cliff tops. Large beaches were subdivided to facilitate estimates. We estimated the abundance of walruses on the entire island for each day of the season.

B. Results

The abundance of walruses on the island was characterized by dramatic fluctuations (see graph 1). The first two peaks and the last three peaks built up and declined precipitously. The last two weeks of July were characterized by irregular build-ups and declines of less magnitude. This irregular period coincided with a period of very hot weather (maximum black bulb temperature at camp of greater than 20 degrees Centigrade). Correlations between trends and abundance of walrus have not yet been calculated.

The first two peaks are spaced about 9 and 11 days apart. The peaks at the end of the summer are further apart, 19 and 15 days apart. Increasing time between peaks may be a seasonal trend. Beginning August 28, there were 1000 or less walruses for nine days (for unknown reasons). Interestingly, this extended period of low abundance was the first low after a major storm that occurred on August 17-18.

II. Duration of Haul-out and Foraging Excursions, Determined by Telemetry

A. Attachment of Transmitters

A total of 21 transmitters were attached to walrus tusks. For a summary of attachment method and duration of attachment see chart 1.

Fifteen transmitters were attached to the tusks of sleeping walruses with a hydraulically powered banding tool that we developed last winter. Eleven out of the fifteen transmitters were still attached to walruses and transmitting when we departed the island on September 21.

The banding tool, which was about six feet long (for safety), constricted a commercially manufactured band (Band-it, Denver) when high pressure water was valved into a hydraulic cylinder. This tool had two major attributes, no noise and a lot of torque. The transmitter itself was attached to the band with a bracket made of perforated stainless steel sheeting. When thoroughly cleansed and scarified, epoxy adheres to this mesh effectively. A layer of underwater epoxy (Aquatapoxy, American chemical Corp.) was pigmented and applied to the bracket several days before attachment of the transmitter. This secured the transmitter in the bracket and increased the sightability of the transmitter. Immediately before attachment to a walrus tusk, the inside of the band and bracket was liberally covered with freshly mixed Aquatapoxy.

The four hydraulically attached transmitters that were unsuccessful are described as follows: two visual tags were attached to the second tusk of the walrus with transmitter #056. This walrus was located visually and electronically on June 18, two days after it was tagged, and was never again picked up visually or electronically. We suspect this walrus never returned to Round Island. Transmitter #684 failed electronically, after it was attached to a walrus. The signal became very weak with a range of approximately 30 meters. When attaching transmitter #558, the walrus awoke as I turned the valve on, shearing the band off before it had time to fully tighten. Nevertheless, the transmitter remained attached for 26 days. Transmitter #400 fell off after 64 days for unknown reasons.

Six transmitters were attached with a latex banding tool which we also developed last winter. A band of latex tubing was stretched over a semi-circular head. When the expanded band was slipped onto the tusk of a walrus, the walrus would lever the band onto his tusk as he raised his tusks into the horizontal threat position.

Two of these six transmitters were applied with rubber tubing that was covered with non-hardened underwater epoxy. One transmitter of this design fell off immediately, and the other remained attached for 61 days. The remaining four transmitters were covered with fiberglass mesh that was saturated with underwater epoxy and then tied onto the latex band. These four conglomerants were variably successful. One was never picked up, one stayed on 32 days, another stayed on 16 days, and one was still attached when we left the island.

B. Monitoring Transmitters

The island was scanned once daily by carrying an automatic scanning receiver around the island (simultaneously a daily census of walrus abundance was conducted). The scanner was programmed at the frequency where the transmitters produced the maximum signal when the walrus last hauled out. To ensure that the transmitters did not drift out of range, frequencies .002 kHz above and below the most up to date frequencies were also scanned.

C. Results

Graph 2 displays the haul out pattern of each transmitted walrus over time. The horizontal axis identifies the banded walrus by the frequency of the transmitter. The penciled line represents the time period that the transmitters were attached; blackened boxes on the line represent the number of days that the walrus were hauled out, non-blackened boxes represent number of days spent at sea.

The radioed walrus' haul-out periods are synchronized at the beginning and end of the field season. When compared to the island abundance data, (the graphs have the same scale), it is clear that these synchronized haul-out periods coincide with the dramatic peaks in abundance. During the last two weeks in July, haul-out of radioed walrus was irregular, as was the total number of walrus on the island.

Graph 3 illustrates the haul-out profile of individually radioed walrus. Boxes above zero represent the number of days hauled-out, boxes below zero represent the number of days spent at sea. Walrus spent much less time hauled-out than they spent at sea. Overall, they were hauled out 26% of the time (see graph⁴). It is also clear that much individual variation exists.

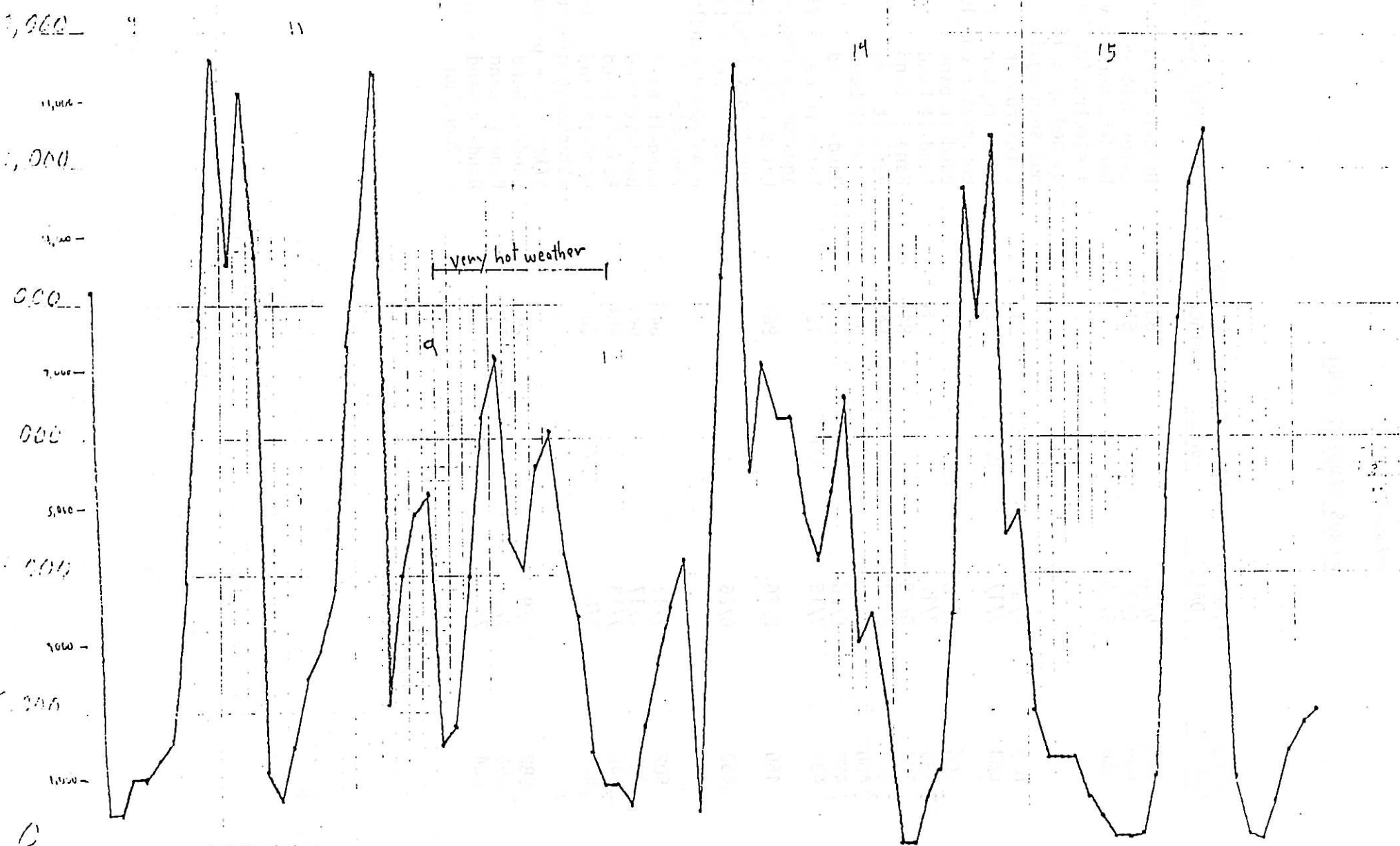
III. VISUAL TAGS

Visual tags were placed on 14 walrus with the latex banding tool. These tags were constructed by clamping strips of saffragging onto the latex tubing. Six of the visually marked walrus were double tagged. Throughout the field season there were a total of seven visual resights. Dates of these resights were June 15, June 18, June 23, July 5, July 15, and August 16. Four of these resights were double tagged walrus still with two tags, one was a single tagged walrus, and two were double tagged walrus resighted with only one tag. In addition, one tag that was attached on June 7 (a single tagged walrus) was recovered from a carcass at Cape Seniavin in mid July. Another tag was beach combed on Round Island (from a single tagged walrus).

Obviously the data is so scant that we can only draw a couple of very basic conclusions concerning the durability of these visual tags. Sixty-nine days is the longest time that we know a tag remained attached. A minimum of two tags fell off. Visual inspection through binoculars indicated that the tags were migrating up and down on the tusks.

Considering that this device was at the first stage of development, we were encouraged by the success. A mechanical expander that would stretch heavier weight bands may solve the tag loss problems.

Graph D



11 14 15

August

sent

chant 1

WALRUS BANDING STUDY

<u>FREQ. 164.XXX</u>	<u>ATTACHMENT DATE</u>	<u>FALL OFF DATE</u>	<u># OF DAYS ATTACHED</u>	<u>ATTACHMENT METHOD</u>
023	6/27		85+	Band-it band
040	6/9	8/9	61	Latex Rubber
056	6/16	-		Band-it band - visually + electronically picked up 6/18 - then not seen again
083	6/9	6/10	1	Latex rubber
083	7/17	8/7	32	Latex rubber + fiberglass, underwater conglom.
100	6/18	-	94+	Band-it band
145	7/17	-	64+	Band-it band
188	6/28		84+	Band-it band
204	7/17		64+	Band-it band
400	6/28	8/30	64+	Band-it band
420	6/28		84+	Band-it band
439	7/16	8/1	16	Latex rubber + fiberglass, aquatopoxy conglom.
460	6/26		86+	Latex rubber + fiberglass, aquatopoxy conglom.
480	6/26			Latex rubber + fiberglass, aquatopoxy conglom. Nev resighted.
502	7/17		64+	Band-it band
520	7/17		64+	Band-it band
542	7/13		68+	Band-it band
558	7/8	8/2	26	Band-it band - loose attachment didn't come in after 8/2 - presumed off.
582	7/9		74+	Band-it band
656	7/9		74+	Band-it band
684	7/9			Band-it band - electronic malfunction

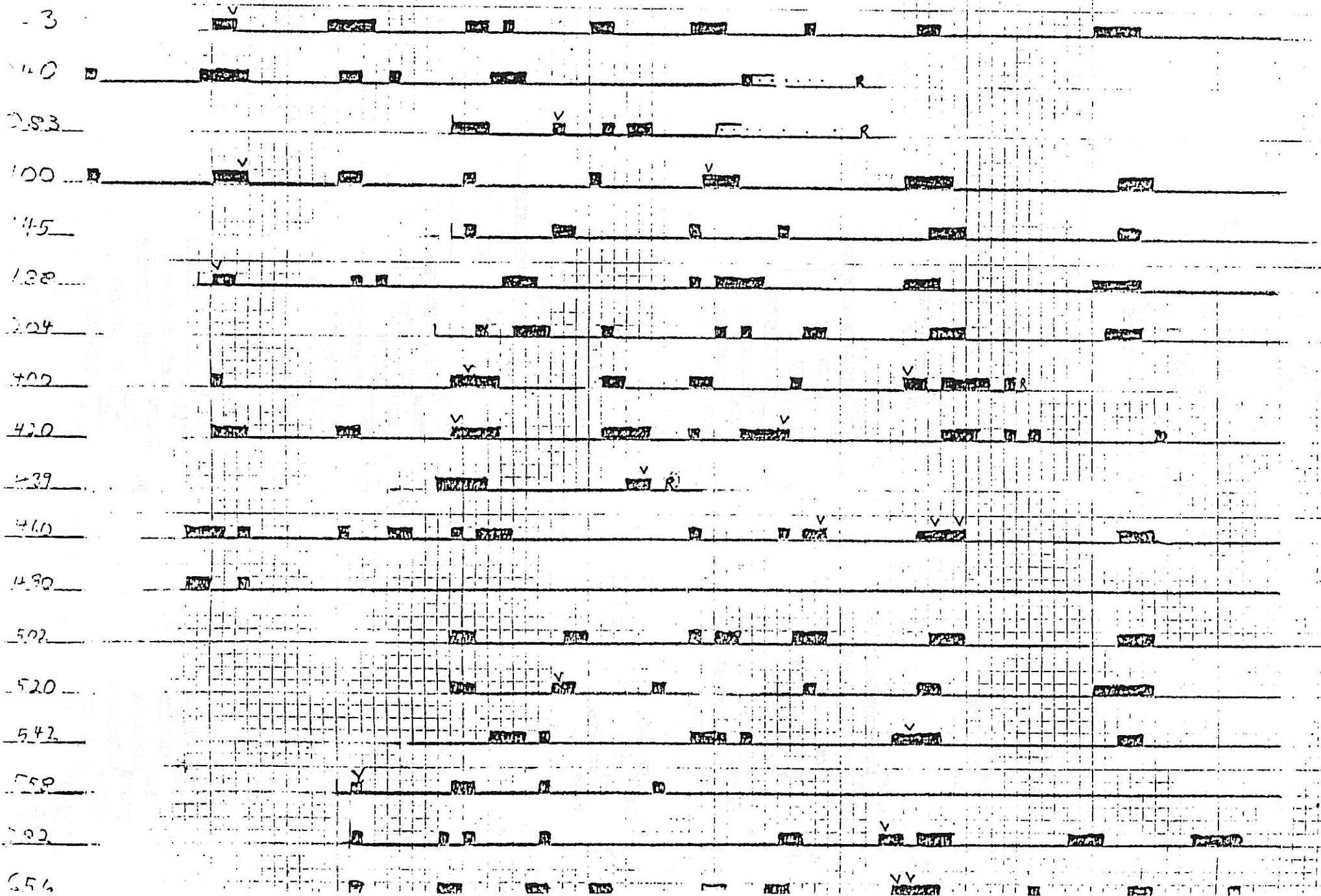
Graph Π

June

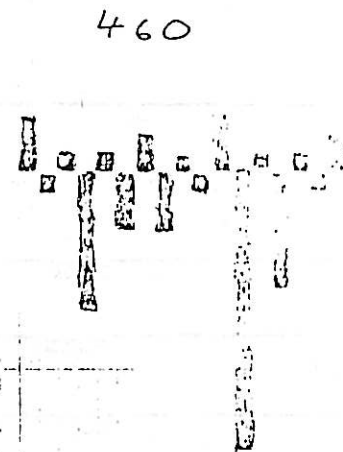
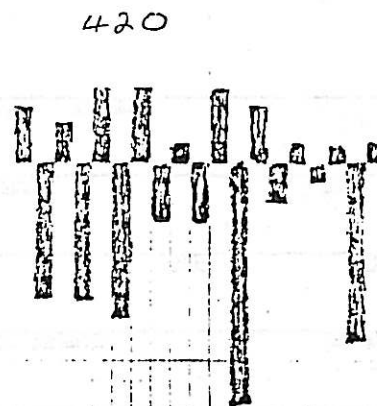
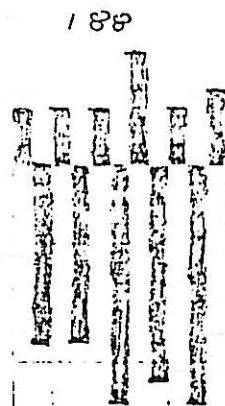
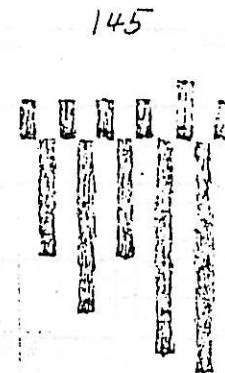
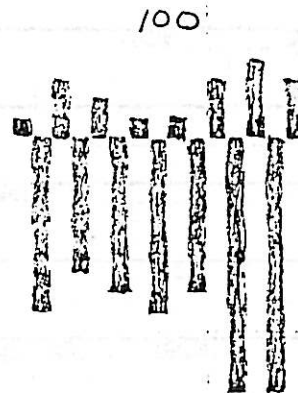
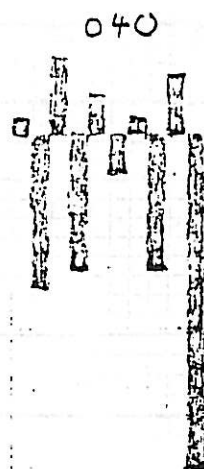
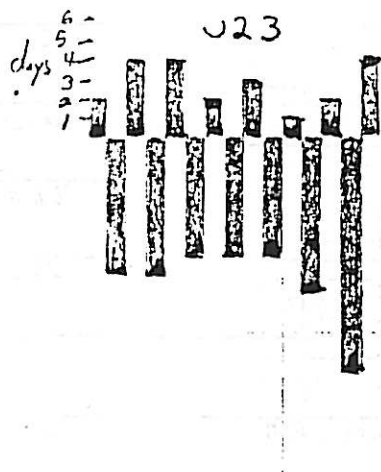
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July

August

$$S = pT.$$


Graph III



Copy in continuation

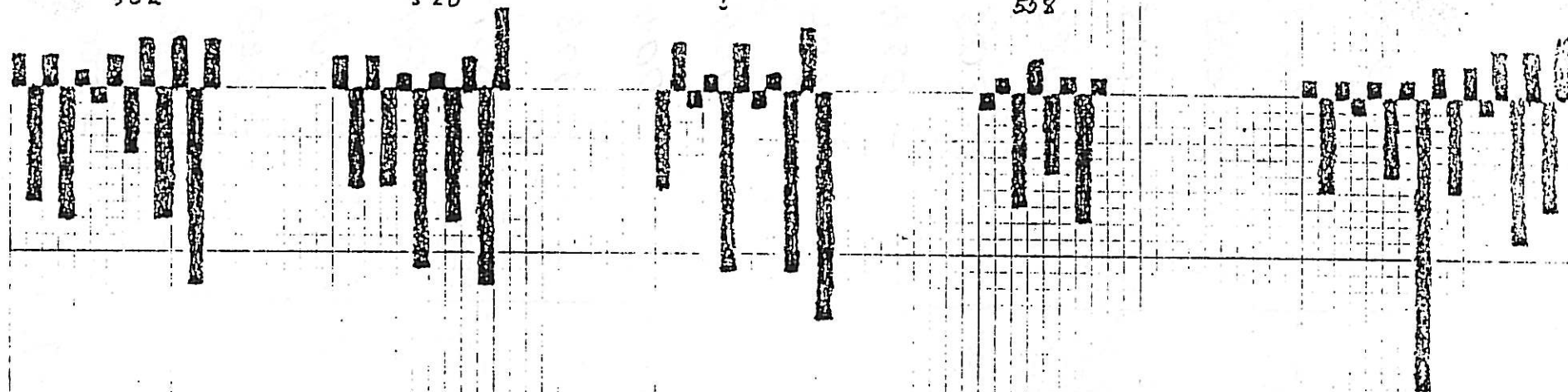
502

520

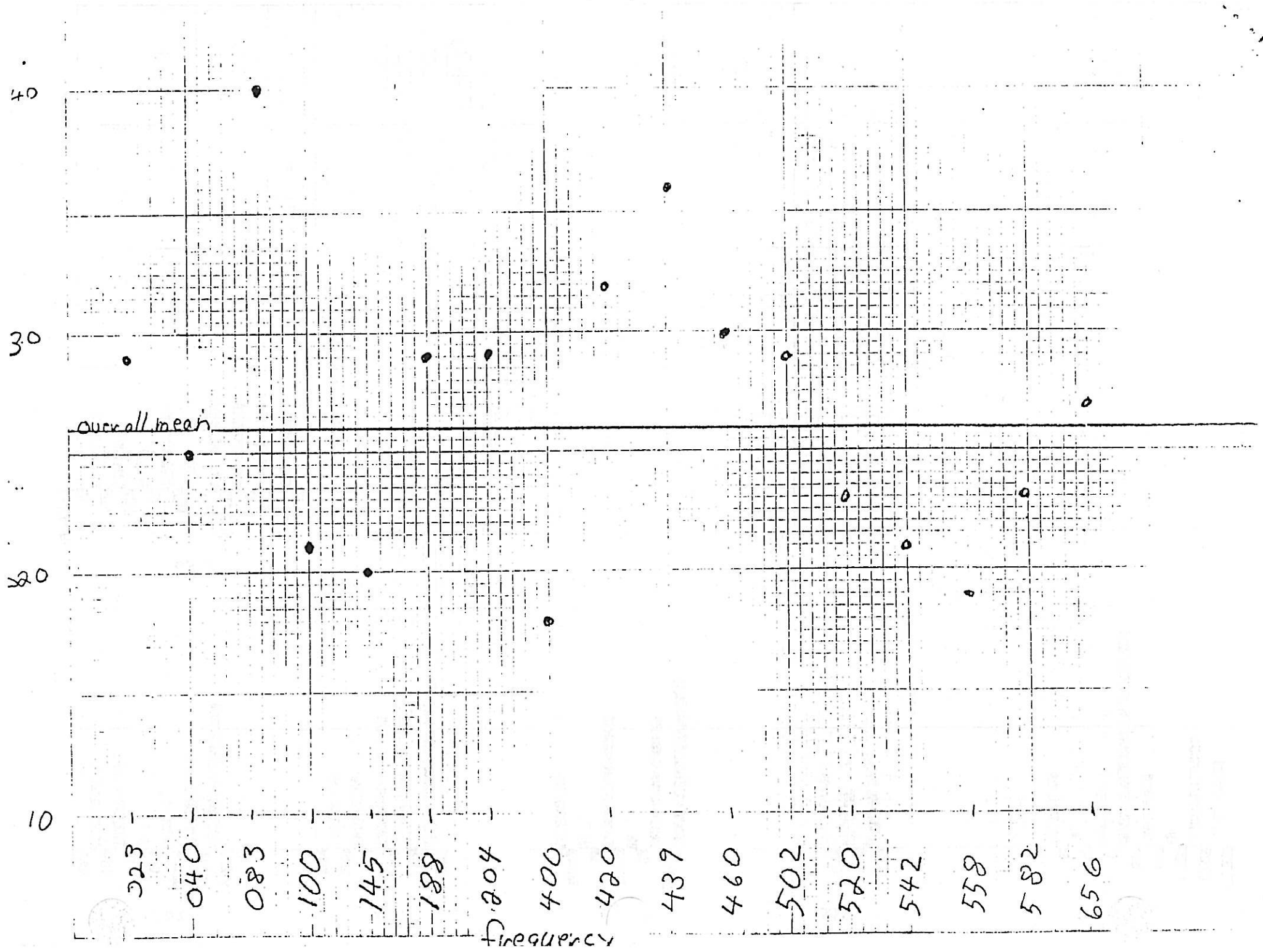
558

1-16-59

656



Graph V



MEMORANDUM

1980

TO: ☐

Ken Taylor
Game Biologist
Dillingham, AK

DATE : September 8, 1980

FROM:

Al H
Jim Taggart & Cindy Zabel
Game Biologist I, Game Tech. III
Round Island, AK

SUBJECT: 1980 Interim Report, Round
Island

The objectives we expect to accomplish this year are:

- 1) Prevent harassment of walruses on the sanctuary
- 2) Assist visitors so that observation of walruses is done in a non-disruptive manner
- 3) Conduct walrus research
- 4) Study the red fox population

cc: Jim Faro *copy sent 9/9/80. JZ*

JT:CZ:jcb

1980 INTERIM REPORT, ROUND ISLAND

DISTURBANCES

Compared to past seasons the number of disturbances has dropped dramatically.

One boat landed on the tip of the spit causing a substantial disturbance. Approximately 2,000 walrus were harrassed off the beach by rock throwing and people being too close to the herd. Six people were apprehended and informed they were in violation of tresspass of the sanctuary. Although they were belligerent, they left with no further violation of the sanctuary. No other significant boat disturbances occurred.

There was a flurry of airplane disturbances the 21 and 22 of August. Two and five planes respectively circled the island blatantly within the protected air zone. In addition, throughout the summer, six planes circled the island on the edge of the protected air zone.

Apparently word is getting out that access to the island is by permit only.

WALRUS RESEARCH

There were two major objectives for the 1980 season:

1. We surveyed the entire island each day to estimate the number of walrus hauled out. Autocorrelation analysis will be run on these data as well as correlations with weather parameters.
2. We determined the length of haul out and feeding excursions of individual walrus by attaching transmitters to the tusks. The island was scanned for transmitters once daily while survey for abundance was conducted.
3. Several types of tags were tested for durability and visibility.

The transmitters were attached by two methods. Fifteen transmitters were attached to the tusks of sleeping walrus with a hydraulically powered banding tool we developed last winter. Of these, fifteen transmitters, two had electronic malfunctions, and one fell off around August 25. The remaining 12 are still attached and functioning.

Six transmitters were attached with a latex banding tool, which we also developed last winter. Around the latex band was a conglomeration of pigmented underwater epoxy and fiberglass fiber. There was variable success

with this technique. Once transmitter fell off immediately, one was never picked up, 2 stayed on 3 weeks, two stayed on 5 weeks, and one was visually resighted August 26. No analysis has been done on the transmitter data yet. The walruses are hauled out from 2 - 5 days and foraging trips range from 7 - 12 days.

Visual tags were placed on 14 walruses with the latex banding tool. Double tagged walrus were resighted with only one tag. This technique needs further development to minimize tag loss. Nevertheless one tag was recovered on a walrus carcass on Cape Seniavin.

RED FOX BEHAVIOR STUDY

During the months of May and June individual foxes on Round Island were followed from distances as close as 25 feet, and their social behavior and activity patterns were observed. Breeding foxes led me to their dens, and male foxes were observed delivering birds to dens where nursing females retrieved the food. Although many fox studies have been conducted by other researchers, direct observation of wild foxes is virtually non-existent (with the exception of a few notes from Murie). Whether male foxes assist in feeding and raising young has remained unknown. During July and August, I intensively observed activity at 2 den sites. Frequency of trips each adult fox made to the den, food items they brought in, adult-pup interactions, and pup-pup interactions were all observed and recorded.

There are complex reproductive systems occurring on Round Island, never before documented among foxes. One male mated with 2 females who nursed their litters in separate dens about 1/8 mile apart. The male delivered food to both dens while the females nursed, and the females left only for short periods of time to forage for themselves. I observed pups at both dens about July 10. By July 15 the 2 litters had been combined into the larger of the 2 dens and all 3 adults delivered food to the pups.

Two females were associated with another den, although only one was lactating. The second female was submissive to both the lactating female and the male. I observed this "helper" fox dig a second den on July 15, and the 5 pups were seen the next day in the new den about 100 yards upslope from the original den site. The "helper" fox was frequently seen "playing" with the pups, and the parent foxes were never observed doing this. All 3 foxes delivered birds to the den. By August 15, the family had moved into a third den site, about 200 yards from the second den. The pups were by this time observed traveling back and forth between the 2 latter dens.

RED FOX BEHAVIOR STUDY - CONTUNUED

Three more active dens were located in late August, after the pups had beat down large patches of grass making the dens fairly obvious. Therefore, at least 5 family groups were reproductively active this year. From studies done in the midwestern US, one family group would be expected on an area the size of Round Island. The adult fox population is at least as great as the 12 foxes associated with 5 dens, and I estimate there are probably 20 adults. (I can visually recognize 10 adults from natural markings, all on the east $\frac{1}{2}$ of the island, 3 known to be non-breeding.) Such unusually high densities of foxes has never been documented and may explain the complex social system. I estimate there are 35 pups.

A male and female adult pair have been extensively followed on the east side of the island; they were not reproductively active. The range of this non-breeding pair is a small area within the larger range of the polygamous male and 2 reproductive females. The non-breeding pair are subordinate to the parent foxes, but are tolerated within their range. Aggressive displays were frequently observed, but no fighting or biting was ever seen.

Data will be analyzed to determine if there are dominance heirarchies within sibling groups. Past studies with captive foxes indicated there was relative dominance, i.e., whichever pup first found a food item, kept that food from siblings. It appears that on Round Island there are absolute dominance heirarcies. Among 10 siblings tagged at one den, aggressive male pups were frequently seen taking food from siblings.

Pups were tagged at the 2 den sites we intensively observed. At one den pups were snared with fishing line dangled into their "playground" from a rock 25 ft. directly above the den. The adults were unaware of this procedure, as they were never present when pups were handled. Pups at the second den site were tagged by a combination of methods: one was hand-grabbed, one was snared from a pulley system "clothes line" 15 feet above the den, and the remainder were caught in a Victor box trap.

Two adult foxes have been remotely tagged by snaring them with nylon cable ties. This method allows the fox to collar itself; without being handled. A fox pen has been built at camp, and two foxes have become trapped in this enclosure in the past week, whom have been ear tagged. Their behavior appears to be altered as a result of having been handled.

ROUND ISLAND VISITORS

JULY 1, 1980 - SEPTEMBER 4, 1980

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8/29	2	7 days	5	14	12	FISHING BOAT
8/29	5	7 days	5	35	30	YUTE AIR
TOTALS	58	48 days ½ hour	20	136	78	

Visitor use of Round Island has not increased significantly since 1977. The mode of transportation changed with more fishing boats bringing visitors, and fewer airplanes arriving than in previous years. Local use did increase during 1980 relative to past years, with many Bristol Bay fishermen stopping in for a few hours visit. (Four parties non-local, 14 parties local.)

Visitors created no major disturbances of walrus herds while arriving or departing from the island, unlike previous years. The "Round Island Permit" creating an entrance corridor through Boat Cove seems to have prevented unnecessary harassment of walruses.

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