ALASKA LEGISLATURE COMMITTEE FILES 1987-1988 8672
5037 HRES SJR 24 - SJR 34

609

CONGRESSIONAL MOTIVE

Why did Congress pass the 200-mile limit law in 1976?

On page 3 of the Magnuson Act, Congress describes exactly why it passed that law.

(1) To prevent overfishing;

(2) to rebuild overfished stocks;

(3) to insure conservation;

(4) to realize the FULL POTENTIAL of the nation's fishery resources; and

(5) to assure that our citizens benefit from the EMPLOYMENT, FOOD SUPPLY and REVENUE which could be generated by a national program for the development of fisheries.

Congress had a clear commercial motive. It intended to stimulate new jobs and new sales for American fishing companies, American fish processing companies, American shipyards, companies that supply hardware and services to the American fishing industry, American companies that transport processed fish to market, secondary fish processors throughout America and American fishing towns, too.

How much of the potential employment, food supply and revenue did Congress intend domestic fishermen and processors to capture?

". . . The full potential of the nation's fishery resources." One hundred percent.

Full potential is unambiguous. It means everything. No holdbacks.

That's the goal of our proposal. To capture the full potential of the BSAI pollock fishery for domestic fishermen, domestic processors and domestic businesses associated with the fishing industry.

We think there will be many benefactors of the 100-mile zone around Unalaska in addition to processors and fishermen. Our proposal will boost the volume of pollock and cod handled by DAP processors. That will generate new demand for the services of other Americans such as those listed below.

(1) Shipyard workers in Washington, Oregon, California, Louisiana, Alabama and Florida.

(2) Longshoremen and truck drivers in Alaska, Washington, Oregon and California.

(3) U. S. merchant seamen and ship owners transporting processed fish from Western Alaska to the Orient or the West Coast.

(4) Processing workers from Anchorage, the Pacific Northwest and California who will come to Unalaska, Akutan and King Cove for the new jobs.

(5) Airlines serving Seattle to Anchorage and Anchorage to Cold Bay and Unalaska.

(6) Surimi analog manufacturers around Puget Sound and in California.

(7) Cold storage owners and workers around Puget Sound.

HOW CONGRESS JUDGES THE VALUE OF THE FISHING INDUSTRY TO AMERICA'S ECONOMY

How important does Congress think a totally domestic fishing industry is to our nation?

Congress says just how important on page 2 of the Magnuson Act.

> "Commercial and recreational fishing constitutes a major source of employment and contributes significantly to the economy of the Nation."

Unalaska is one of the capitol cities of the domestic fishing industry. If commercial fishing "contributes significantly to the economy of the Nation", then Unalaska should contribute significantly, too.

To make that significant contribution to the American economy, Unalaska needs priority access for DAP fishermen and processors. That appears to be the most cost effective and reliable way to improve the odds of getting fish to our processors and our town.

We are not asking for any guarantees. All we need is a level playing field on which to compete with other DAP processors for the fish. For several reasons, stated

WHY DAP PROCESSORS NEED PRIORITY ACCESS.

DAP processors are at a distinct competitive disadvantage with joint venture processors in the Bering Sea and Aleutian Islands.

(1) The joint venture product enjoys virtually free access to some important Asian and European markets. DAP product faces public and hidden trade barriers abroad.

(2) Where the joint venture product is subject to import quotas and duties, DAP product commonly faces stiffer ones. In Japan, for example, we understand JVP surimi enjoys a 5¢ to 8¢ per pound lower import duty than DAP surimi does.

(3) The social costs of producing DAP product are much higher than they are for JVP product.

In the process of becoming one of the most civilized nations on earth, the United States has adopted some of the highest human rights standards, sanitation standards, environmental quality standards, occupational, safety and health standards and pure food standards in the world.

Meeting these standards is a direct cost to American manufacturers; in our case, DAP processors.

Most JVP processors enjoy a much lower cost of compliance with these standards. In many cases, the JVP processor is not required by its government to meet many of these standards.

This difference is obvious if you compare the DAP cost of production to the JVP's.

(4) DAP product faces unfair price competition on international markets from some JVP processors. The USSR, Poland and the PRC are command economies whose state enterprises are not required to sell their products at a price that would be break-even or profitable for DAP processors. Top priority for these countries may often be hard currency generation, not profit.

(5) JVP processors pay no user fees for the fish they acquire in the 200-mile zone. If those same processors were receiving deliveries under TALFF, they would be paying permit and user fees to the U. S. government.

DAP shore processors pay a raw fish tax to the State of Alaska, local resource taxes on landed fish and numerous conventional business and sales taxes in their communities.

(6) DAP processors must comply with certain federal laws that do not restrict JVP processors. American fishermen have the option of selling to domestic processors or JVP

processors. Domestic processors do not have the same flexibility. They can only receive direct deliveries from domestic fishermen. The Nicholson Act obstructs foreign deliveries to domestic processors.

The Jones Act effects the DAP processors in many ways. It does not seem to restrict the JVP processor at all.

U. S. federal anti-trust laws isolate DAP processors and promote auction-style pricing in the U. S. Many JVP processors are not subject to anti-trust laws in their homelands. In fact, most of the countries represented in the JVP processing fleet assume that the sale price of their products will not be determined by American-style competition, but by consultation and planning between producers.

(7) We have been told by businessmen in the American fishing industry that JVP processors may enjoy some national subsidies for their fuel, labor and marketing expenses, preferential interest rates on their business loans and distinct tax preferences and deferrals. The magnitude of these advantages to JVP processors is hard to determine.

We suspect that magnitude is greater for JVP processors than it is for DAP processors. If any evidence to the contrary is available, we'd like to see it.

PURSUING THE FULL-POTENTIAL OF THE BERING SEA-ALEUTIAN ISLANDS POLLOCK FISHERY

How close are domestic fishermen and processors to capturing the "full potential" of the Bering Sea-Aleutian Islands pollock fishery?

Let's concentrate on determining the "full potential" wholesale value, first.

To estimate the "full potential" wholesale value of the 1987 pollock fishery we must make several conservative assumptions.

(1) The recovery rate of surimi from raw pollock is at least 20% annually.

(2) The average wholesale price of surimi produced in Alaska by foreign motherships and domestic plants and factory trawlers is $1 per pound.

(3) American joint venture operating companies earn the equivalent of $10 per ton for their services.

(4) All of the DAP pollock is processed into surimi and consumed domestically. (This is assumable because pollock fillet recovery rates are similar to surimi recovery rates. Likewise, wholesale pollock fillet prices approximate surimi wholesale prices.)

(5) Approximately 150 million pounds of surimi will be consumed in the U. S. during 1987. Domestic processors will provide 30 million tons (if they can get the fish). Imports will provide 120 million pounds, or 54,000 tons.

The "full potential" wholesale value of this pollock fishery to the American economy in 1987 will be approximately $568 million.

DAH BS	1,200,000	MT
DAH AI	88,000	MT
TOTAL	1,288,000	MT
	X 20%	surimi recovery
	257,600	MT surimi
	X $2,205	MT wholesale value ($1 per pound)
TOTAL	$568,000,000	

How much of this will DAP fishermen and processors earn in 1987, if processors can acquire the fish?

DAP BS	190,000	MT
DAP AI	57,000	MT
TOTAL	247,000	MT
	X 20%	surimi recovery
	49,400	MT surimi
	X $2,205	wholesale value ($1 per pound)
TOTAL	$108,927,000	DAP wholesale value (includes ex-vessel price paid DAP fishermen)

To this amount, we must add the amount likely to be earned by JVP fishermen and JVP company operators from the 1987 JVP allocation.

BS	Final JVP	1,010,000	MT
AI	Final JVP	30,790	MT
TOTAL		1,040,790	MT

JVP fishermen will be paid approximately $125 per ton for their catch this year.

1,040,790	MT
X $125	per MT
$130,000,000	JVP fishermens' income

American JVP companies will earn approximately $10 per ton for their services. (If there is a better estimate, we welcome it.)

1,040,790	MT
X $10	per MT
$10,040,790	JV operators' income

The total domestic income from this pollcck fishery in 1987 will be approximately $248 million.

$108,927,000	wholesale DAP value
130,000,000	JVP fishermens' income
10,041,000	JVP operators' income
$248,968,000	TOTAL

Is this $248 million the net wholesale value to the American economy in 1987?

No, because American importers are projected to pay $120 million for U. S. surimi imports in 1987.

By subtracting the cost of the imports from the value to DAP processors, JV fishermen and JV operators, we can estimate the net wholesale value of Bering Sea-Aleutian Islands pollock fishery to the American economy.

$249,000,000	domestic pollock income
-$120,000,000	cost of imports
$129,000,000	net wholesale value to U. S. economy

In the Findings Section of the Magnuson Act, Congress writes --

> (7) A national program for the conservation and management of the fishery resources of the U. S. is necessary . . . to realize the full potential of the Nation's fishery resources.

How close is the Nation to realizing the full potential of this pollock fishery in 1987?

Based on our assumptions, we can calculate that.

$568 million is the "full potential" wholesale value of the 1987 pollock fishery.

$129 million is the net wholesale value to the U. S. economy.

$$\frac{\$129 \text{ million}}{\$568 \text{ million}} = 23\%$$

That's how much of the "full potential" of this pollock fishery is being captured by the domestic economy in 1987.

This means the U. S. economy will receive less than one-quarter of the wholesale value generated by that pollock fishery in 1987.

How much motivation is there for the United States to fully utilize that pollock business as soon as possible?

$439 million worth of motivation in 1987 alone, and that's just wholesale value.

By establishing a priority access zone within 100-miles of Unalaska, the North Pacific Council will send a clear signal

to DAP processors and investors:

> "Gear up and compete for the $439 million wholesale value the U. S. economy hasn't yet captured from this pollock fishery. We recognize the DAP processor's competitive disadvantage against JVP processors. To counter-balance that, we've set aside productive fishing grounds where DAP fishermen and DAP processors can compete for the fish."

This policy will lead America to the full potential of the Bering Sea and Aleutians pollock fishery faster than any other.

POLLOCK MIGRATION AND THE 100-MILE ZONE AROUND UNALASKA

"Since pollock are ectotherms, with body temperatures in equilibrium with their surroundings, on- and off-shelf migrations appear to be an adaptive response to the extremely cold temperatures (0.0° to -1.7° C) of the shelf domain during winter. Along the shelf edge at depths of 200-300 m, water temperatures are relatively constant -- 3-5° C throughout the year, providing a warm winter refuge (i.e., freezing avoidance) layer. Dispersal from this layer out onto the continental shelf during summer presumably maximizes the exploitation of different food resources by different size and age classes."

NWAFC Processed Report 79-20
Fisheries Oceanography-
Eastern Bering Sea Shelf
Felix Favorite
October 1979

Pollock and codfish are born with tails. They move around the Bering Sea and Aleutian Islands all their lives. Attempts to corral them are futile. Their behavior is not exactly predictable. But fishermen have developed some ideas about where to find them during the spring, summer, fall and winter. See Appendix I - IV.

One of the best places fishermen find pollock and cod is along the 100-fathom curve near Cape Sarichef. The curve comes up from the Aleutians toward Sarichef, makes a sharp turn to the west and runs up towards the Pribilof Islands. This area

is known as the Horseshoe, because the 100-fathom curve is shaped like one there. Foreign and domestic fishermen have noticed that pollock and cod school up in this hot spot during several months of the year. Later they disperse and the majority of them apparently move to other grounds.

How valuable has this area been to pollock and cod fishermen lately?

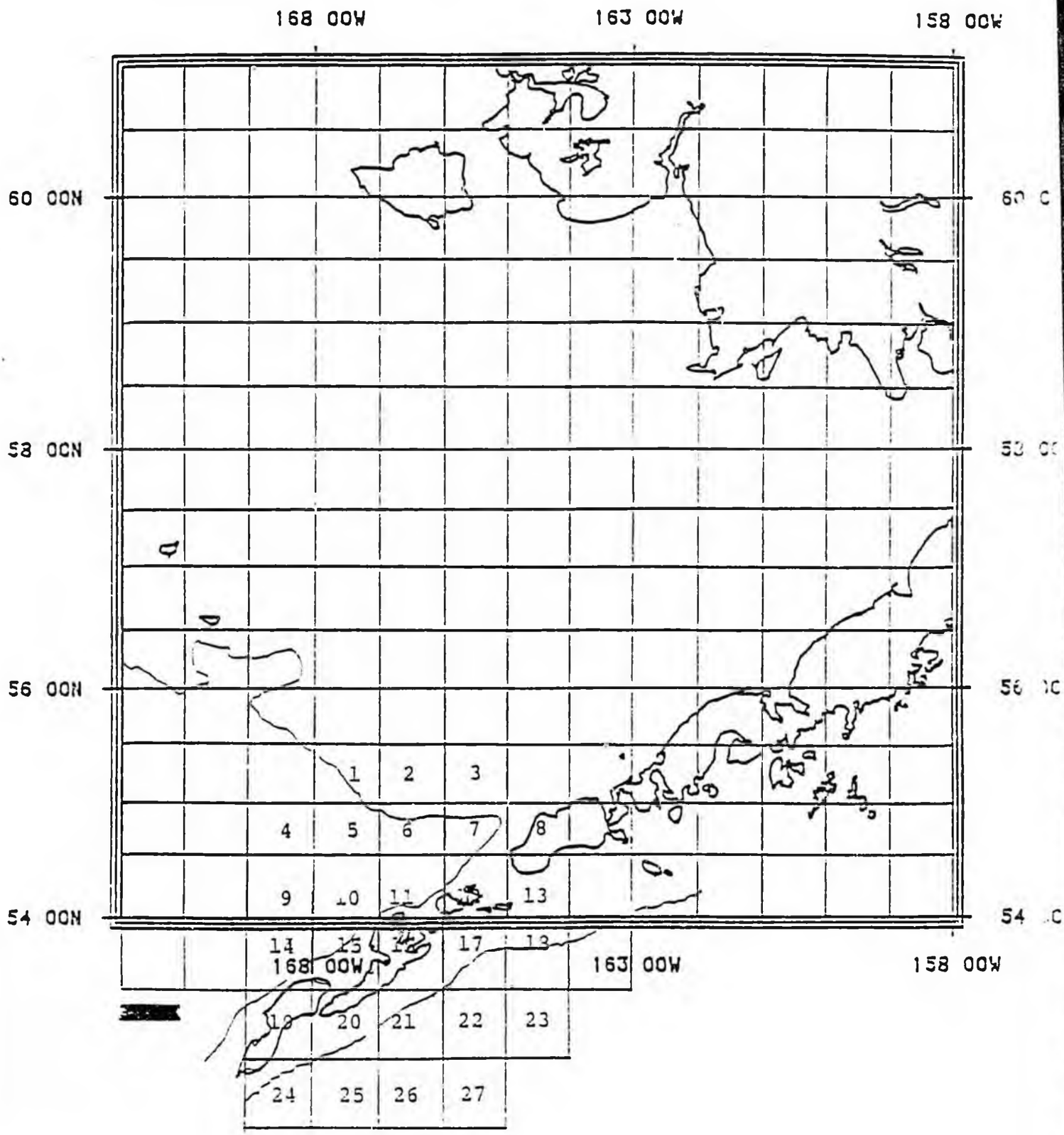
We calculated that by drawing a 100-mile radius around Unalaska, then comparing the monthly catch by foreign and JVP fishermen inside the zone to their total monthly catch of pollock and cod.

From NMFS Foreign Fishery Observer Office in Seattle, we received monthly catch data by one-degree longitude, half-degree latitude blocks in the Bering Sea and Aleutian Islands.

After drawing the 100-mile radius on a navigation chart, we determined which blocks were within the area.

Some blocks were not completely inside the radius. Those that appeared to be mostly-inside the area we added to the blocks that were entirely inside the radius.

The chart on page 21 shows which blocks we judged to be inside the radius and mostly-inside the radius.



BLOCKS INCLUDED IN THE 100-MILE RADIUS

Using NMFS data, we determined the monthly observed JVP catches in 1983, 1984 and 1985. Then we calculated what percent of JVP pollock and cod was caught inside the 100-mile radius. Table I shows those figures.

Table II combines the three annual JVP catches and shows that 36% of the observed JVP pollock catch and 31% of the observed JVP Pacific cod catch came from inside the 100-mile radius.

"Observed" is the key word here. Table III shows what percent of the annual JVP pollock and cod catch was actually observed by NMFS in 1983 - 1985.

Any conclusions drawn from Table I must be refined by data in Table III. For example, Table III shows that there was 100% observer coverage of the JVP pollock catch in 1984 and only 44% observer coverage in 1985. Any conclusions about the monthly pattern of JVP pollock and cod fishing in 1984 are probably more valid than those for 1985. Fuller observer coverage allows us to be more certain about exactly where the JVP catch came from.

Table IV shows the monthly observed foreign harvest of pollock and cod in the Bering Sea and Aleutian Islands. It also shows what percent was harvested within 100 miles of Unalaska.

Table V combines the three annual foreign catches and shows that overall 15% of the pollock and 6% of the Pacific cod was taken inside the 100-mile zone. This implies that JVP fishermen need not fish inside the 100-mile zone to catch their pollock and cod allocations. There are commercial abundances elsewhere that supported the foreign fleets. Since there's very little TALFF anymore, JVP fishermen will not have to compete against foreign fishermen outside of the 100-mile zone.

Table VI shows what percent of the foreign directed pollock and cod fishery was observed by NMFS in 1983-1985.

TABLE I

PERCENT OF THE MONTHLY
BSAI OBSERVED JVP HARVEST TAKEN
WITHIN A 100-MILE RADIUS OF UNALASKA

		WALLEYE POLLOCK		PACIFIC COD	
		Total Observed JV Catch MT	Percent Harvested Inside 100-mile Radius	Total Observed JV Catch MT	Percent Harvested Inside 100-mile Radius
Jan	1983	0	0	0	0
	1984	50	82	293	97
	1985	12	90	16	44
Feb	1983	74	96	455	94
	1984	478	95	2,957	97
	1985	601	12	1,331	96
Mar	1983	300	15	322	63
	1984	28,314	23	5,562	78
	1985	22,178	7	2,965	92
Apr	1983	4,207	89	571	10
	1984	39,653	45	2,896	48
	1985	20,373	21	1,544	39
May	1983	10,677	28	1,250	1
	1984	1,437	3	1,961	3
	1985	2,989	11	1,100	1
Jun	1983	20,247	18	1,251	2
	1984	30,123	34	3,745	1
	1985	9,682	3	2,083	0
Jul	1983	24,133	48	3,142	3
	1984	72,514	4	4,032	3
	1985	46,063	29	2,578	0
Aug	1983	19,995	55	2,019	2
	1984	41,578	5	2,631	8
	1985	31,912	49	2,208	4
Sept	1983	10,038	100	120	100
	1984	10,111	97	1,991	5
	1985	19,335	74	1,508	15
Oct	1983	116	100	34	100
	1984	5,457	94	192	84
	1985	7,895	85	722	17
Nov	1983	0	0	0	0
	1984	260	27	0	0
	1985	1,963	93	79	89
Dec	1983	0	0	0	0
	1984	0	0	0	0
	1985	0	0	0	0

TABLE 11

SUMMARY

	WALLEYE POLLOCK			PACIFIC COD		
	Observed JVP Harvest MT	Observed JVP Harvest Inside 100-Mile Radius MT	Percent of JVP Harvested Inside 100-Mile Radius	Observed JVP Harvest MT	Observed JVP Harvest Inside 100-Mile Radius MT	Percent of JVP Harvested Inside 100-Mile Radius
3-year Total	482,765	174,876	36	51,558	15,874	31

Source: NMFS Foreign Fishery Observer Program
(206) 526-4194

TABLE III

OBSERVED BERING SEA-ALEUTIAN ISLAND
JVP HARVEST AS A PERCENTAGE
OF ACTUAL JVP HARVEST

	WALLEYE POLLOCK			PACIFIC COD		
	Observed MT	Actual MT	% of JVP Observer Coverage	Observed MT	Actual MT	% of JVP Observer Coverage
1983	89,787	146,000	61	9,110	9,662	94
1984	230,025	230,314	100	26,260	24,382	107
198.	162,991	370,000	44	16,134	35,634	45
Average			68			82

** Since not all of the JVP harvest during these three years was observed by NMFS, it is useful to determine how much coverage NMFS did get. This will help the Council assess the validity of the monthly numbers in Table I and Table II.

Source: Resource Assessment Document for Bering Sea-Aleutian Groundfish, 1986
Pages 20 & 29

TABLE III

TABLE IV

PERCENT OF THE MONTHLY
BSAI FOREIGN DIRECTED HARVEST TAKEN
WITHIN A 100-MILE RADIUS OF UNALASKA

		WALLEYE POLLOCK		PACIFIC COD	
		Total Foreign Directed Catch MT	Percent Inside 100-Miles	Total Foreign Directed Catch MT	Percent Inside 100-Miles
Jan	1983	12,330	0	1,375	0
	1984	14,558	0	617	31
	1985	11,219	0	741	0
Feb	1983	49,061	0	2,514	0
	1984	63,845	0	2,671	0
	1985	11,877	0	8,646	0
Mar	1983	36,113	0	3,007	0
	1984	14,328	0	1,514	0
	1985	11,682	0	1,322	0
Apr	1983	36,810	0	3,030	0
	1984	6,568	0	2,381	1
	1985	1,352	0	2,265	0
May	1983	34,670	0	2,700	0
	1984	21,681	0	511	8
	1985	4,053	0	1,504	0
Jun	1983	113,391	7	2,563	0
	1984	80,125	2	5,265	0
	1985	46,209	0	877	0
Jul	1983	147,794	13	3,802	6
	1984	144,687	1	3,437	0
	1985	126,887	0	1,732	0
Aug	1983	154,005	16	3,602	15
	1984	142,637	4	4,649	1
	1985	156,396	0	4,026	0
Sept	1983	129,233	31	2,690	28
	1984	156,224	14	4,654	[illegible]
	1985	135,110	0	3,749	[illegible]
Oct	1983	87,167	60	3,300	42
	1984	97,058	35	6,633	8
	1985	137,171	36	9,027	6
Nov	1983	42,162	49	4,223	42
	1984	93,507	51	11,109	7
	1985	93,254	68	9,635	1
Dec	1983	20,153	0	5,128	17
	1984	67,841	0	11,839	5
	1985	74,651	0	8,945	1

TABLE V

SUMMARY

	WALLEYE POLLOCK			PACIFIC COD		
	Observed Foreign Harvest MT	Observed TALFF Harvest Inside 100-Mile Radius MT	Percent Harvested Inside 100-Mile Radius	Observed Foreign Harvest MT	Observed TALFF Harvest Inside 100-Mile Radius MT	Percent Harvested Inside 100-Mile Radius
3-year Total	2,575,809	389,231	15	145,722	9,028	6

Source: NMFS Foreign Fishery Observer Program
(206) 526-4194

TABLE V

TABLE VI

OBSERVED BERING SEA-ALEUTIAN ISLAND
FOREIGN HARVEST AS A PERCENTAGE
OF ACTUAL FOREIGN HARVEST

	WALLEYE POLLOCK			PACIFIC COD		
	Observed MT	Actual MT	% of Foreign Observer Coverage	Observed MT	Actual MT	% of Foreign Oberver Coverage
1983	862,889	982,363	88	37,984	93,167	41
1984	903,059	1,093,783	83	52,279	133,161	39
1985	809,861	1,179,787	69	52,459	145,426	36
Average			80			39

Source: Resource Assessment Document for Bering Sea-Aleutian Groundfish, 1986
Pages 20 & 29

EXHIBIT VI

OBSERVATIONS ON THE DATA

(1) In all three years, the observed JVP pollock and cod catch was low during the months of November, December, January and February. We think that's because JVP trawlers were in the shipyard in November and December and in Shelikof Strait in January and February. Since Shelikof is closed to JVP fishing this year, we expect much more JVP effort in the Bering Sea and Aleutians.

(2) That increased JVP pollock and cod fishing need not come from within 100-miles of Unalaska, though. In 1983-85, only 15% of the total observed foreign pollock harvest was taken inside the 100-mile radius. See Table V. The areas where TALFF was taken in the past are wide open now that the Council has nearly eliminated foreign fishing. JVP fishermen can catch their pollock allocation outside of the 100-mile zone and JVP processors can cruise with them to those alternative hot spots. Our shore plants cannot. They are much more dependent on the catch from the 100-mile zone around Unalaska.

(3) DAP processing capacity in Unalaska and Akutan is approximately 930 MT per day or 26,040 MT per 28-day operating month. We estimate that DAP floating capacity is approximately 700 MT per day. If the Council has a better estimate, we welcome it.

Estimated 1987 total DAP processing capacity in our area is 1,630 MT per day or 45,640 MT per 28-day operating month.

Table I shows that from January through August, the total observed monthly JVP catch exceeded the current DAP capacity only once in 1983-1985.

We recognize that JVP catch capacity has risen since then. But we think that DAP processors would use many tons of pollock and cod from the 100-mile zone if they could get priority access to it.

Is that just wishful thinking?

Not after what happened in Unalaska last December.

POLLOCK FOR CHRISTMAS

By December 1986, all joint venture fishing was over for the year. Two large American trawlers, the Aldebaron and the Arcturus from Anacortes, Washington, agreed to deliver pollock and cod to Great Land Seafoods in Unalaska. During the previous 11 months, Great Land was unable to buy enough fish for surimi production because most American trawlers preferred delivering to joint venture motherships.

From December 9 to December 16, Great Land processed 2.7 million pounds of pollock delivered by these two trawlers. That's 153 tons per day processed by approximately thirty people. One of the managers at Great Land told us that if they could count on pollock deliveries like that all year, they'd put in another filet line and boost daily production substantially. (They already have the plant space for it.) That would put an additional fifteen to twenty people to work processing surimi.

Great Land did receive more deliveries from these trawlers during the two weeks right after Christmas. The problem is that the Great Land managers were notified that the two trawlers will return to joint-venture fishing later in January.

The shortage of pollock in Unalaska is inhibiting new investment in the plant and the creation of new jobs there, too.

We're looking for a practical way to get pollock and cod to Unalaska in the same magnitude it arrived just before Christmas. Our whole town was excited about those first eight days of prosperity. With the North Pacific Council's help we'll have many more days like them, soon.

It's not pleasant being low man on the fishery allocation totem pole -- especially when the Magnuson Act says DAP processor needs should be provided for first, not last.

CONCLUSION

There's been a serious shortage of pollock and cod in Unalaska and Akutan during 1986. Most American trawlers have delivered all of their catch to joint venture processing ships at sea. Even though one Unalaska processor offered a 25% higher price for pollock, he wasn't able to attract many deliveries last year. Consequently, DAP shoreplants will be deploying several tenders in 1987; hoping to buy pollock and cod on the grounds from U. S. fishermen. Even if they can acquire some fish this way, creation of a 100-mile domestic fishery zone around Unalaska will still be vital to them. It will give all DAP fishermen and processors several important competitive advantages over their JVP counterparts (as the Magnuson Act intended.)

(1) The DAP fishermen's CPUE within the zone will be maximized in the absence of simultaneous JVP fishing nearby. DAP fishermen will be able to load up faster, thereby maximizing their catch per month.

(2) The fuel cost and running time for DAP fishermen will be minimized since most of the hot spots within the 100-mile zone are only 10 hours from Unalaska and Akutan. Minimizing run time helps maximize deliveries and income per month.

(3) Pacific cod bycatch in DAP pollock deliveries will be maximized by the absence of the JVP fleet. Cod filet sales really improve the DAP processor's monthly income statement. They make him more competitive with JVP processors.

For these reasons, we ask the North Pacific Council to accept our proposal as Amendment 11 to the Bering Sea - Aleutian Islands Groundfish Management Plan for 1988, send it out for public review and adopt it at the May meeting.

The Council may receive other proposals to solve the pollock shortage in Unalaska and Akutan.

We only request that they not be substituted for ours in the amendment cycle.

APPENDIX I

CATCH PER UNIT EFFORT
IN THE SUMMER SURVEY

These following three CPUE charts show the relative abundance of pollock during the NMFS summer surveys.

In 1983 and 1984, all ten best CPUE's were outside the 100-mile radius of Unalaska.

In 1985, only two of the ten best CPUE's were inside the 100-mile radius of Unalaska.

Most of the best summer pollock fishing appears to be outside the 100-mile radius of Unalaska.

In 1983 and 1984, several of the ten best CPUE's were just beyond the 100-mile radius of Unalaska.

CPUE's change from month to month. Like many fishermen, we believe some of the best January to May and September to December CPUE's for pollock and cod are probably found inside the 100-mile radius or just beyond it.

Those CPUE's can be maximized by allowing DAP fishermen only inside the zone. Simultaneous fishing by JVP fishermen in the same area will probably reduce the CPUE for the DAP fleet.

During the spring months, Pacific cod school up inside the 100-mile radius. Cod is very valuable to DAP processors in our area. Receiving pollock deliveries with a high

percentage of Pacific cod bycatch is a bonus to them. Large-scale JVP trawling inside the 100-mile zone will probably diminish the Pacific cod tonnage delivered to DAP processors.

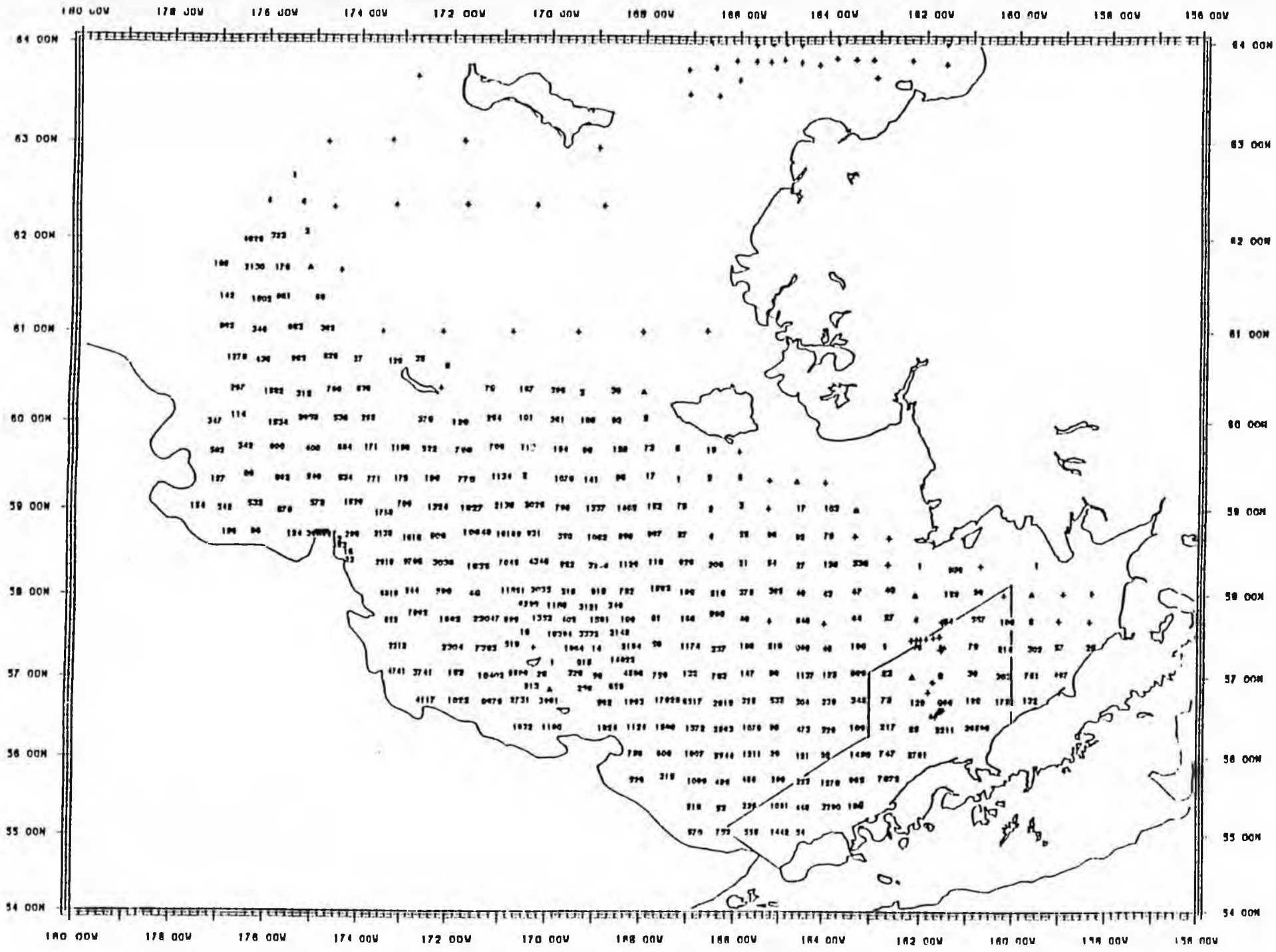
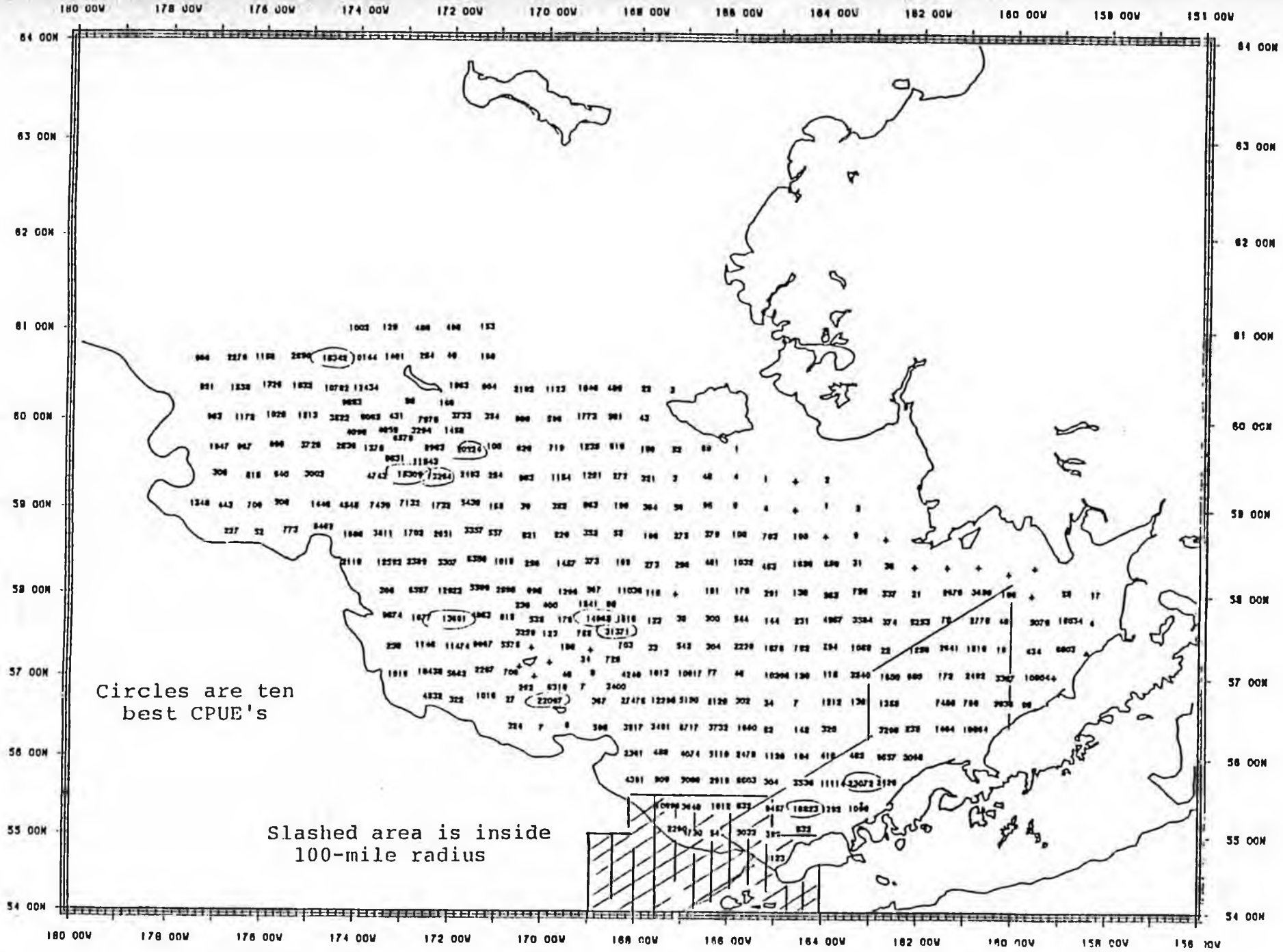
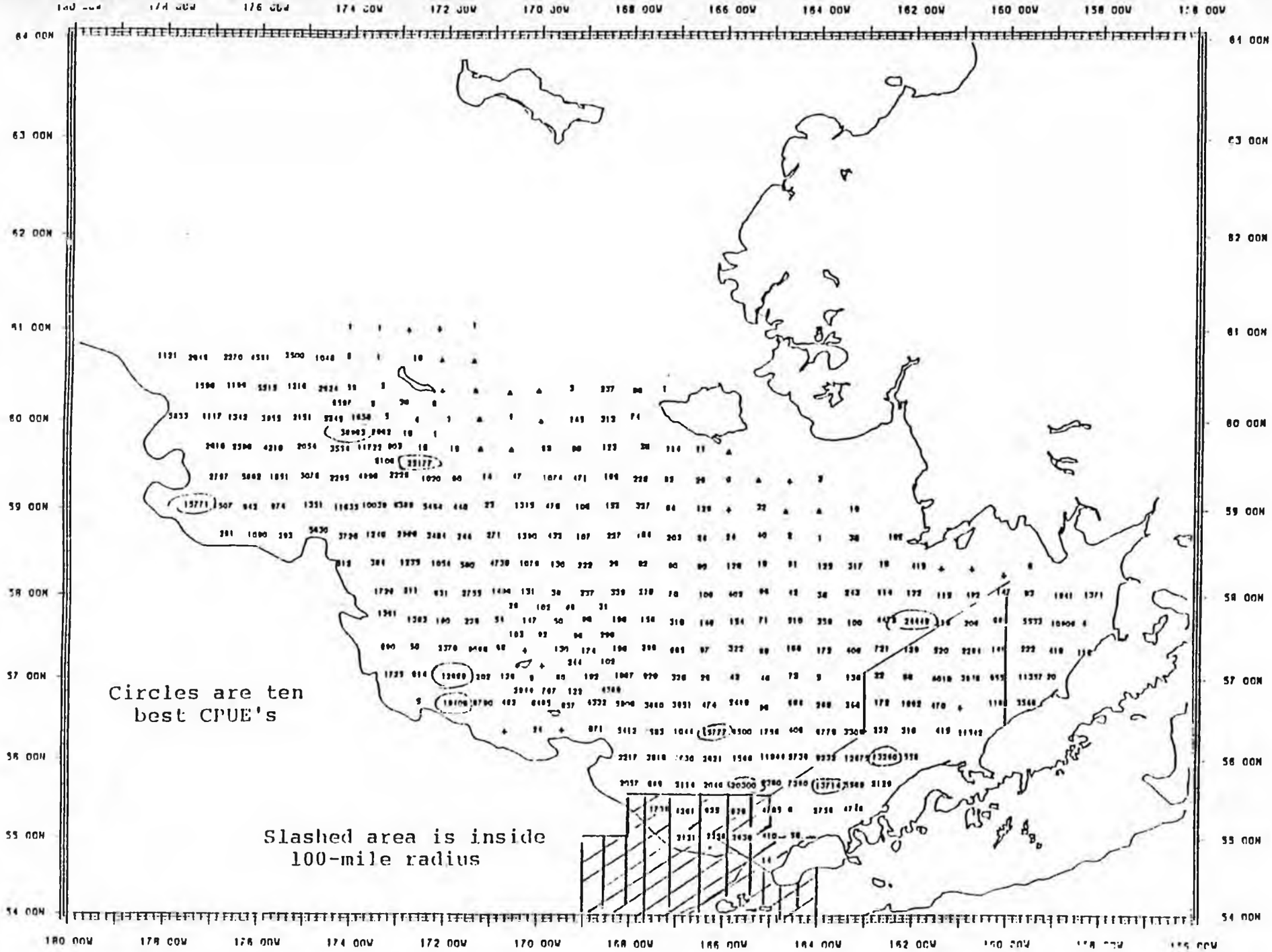


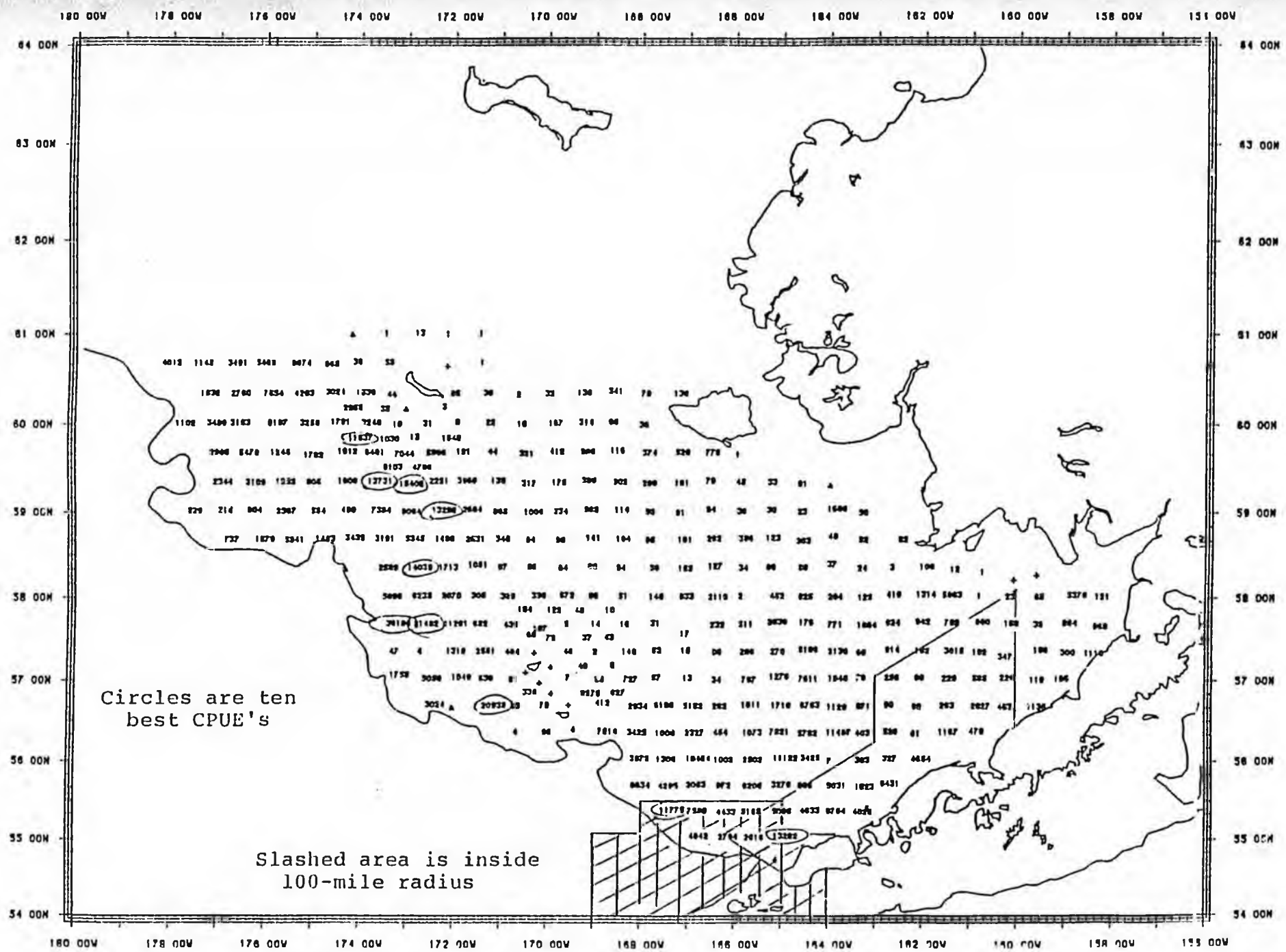
Figure 31.--Catch per unit effort (lbs/hr trawled) of walleye pollock (Theragra chalcogramma) from 1982 research survey data.



.--Catch per unit effort (lbs/hr trawled) of walleye pollock (Theragra chalcogramma) from 1983 research survey data.



.--Catch per unit effort (lbs/hr trawled) of walleye pollock (Theragra chalcogramma) from 1984 research survey data.



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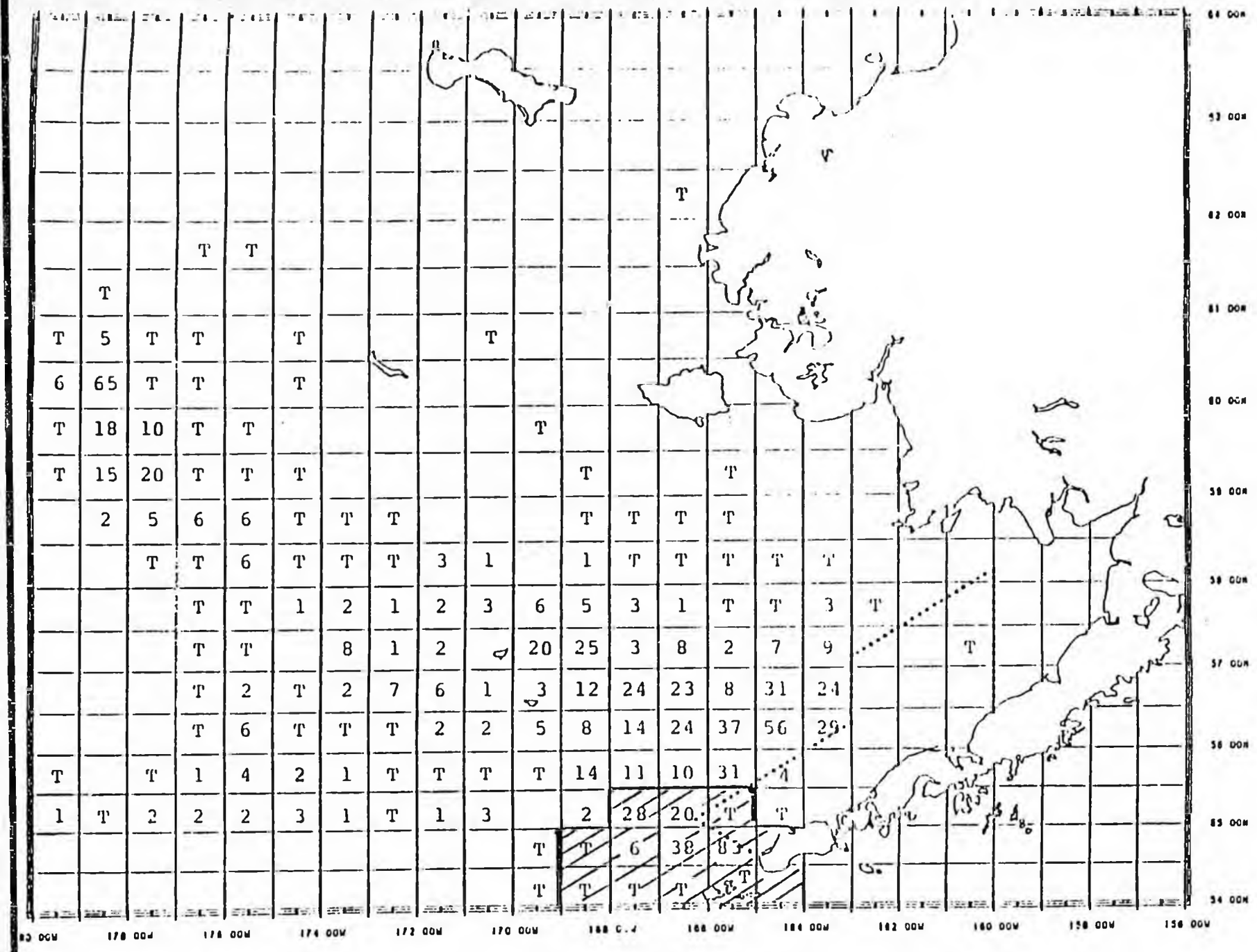


Figure 8.--Foreign-reported catch (thousands of metric tons) of walleye pollock in 1982.
T = less than 500 t.

SLASHED AREA INSIDE 100-MILE ZONE

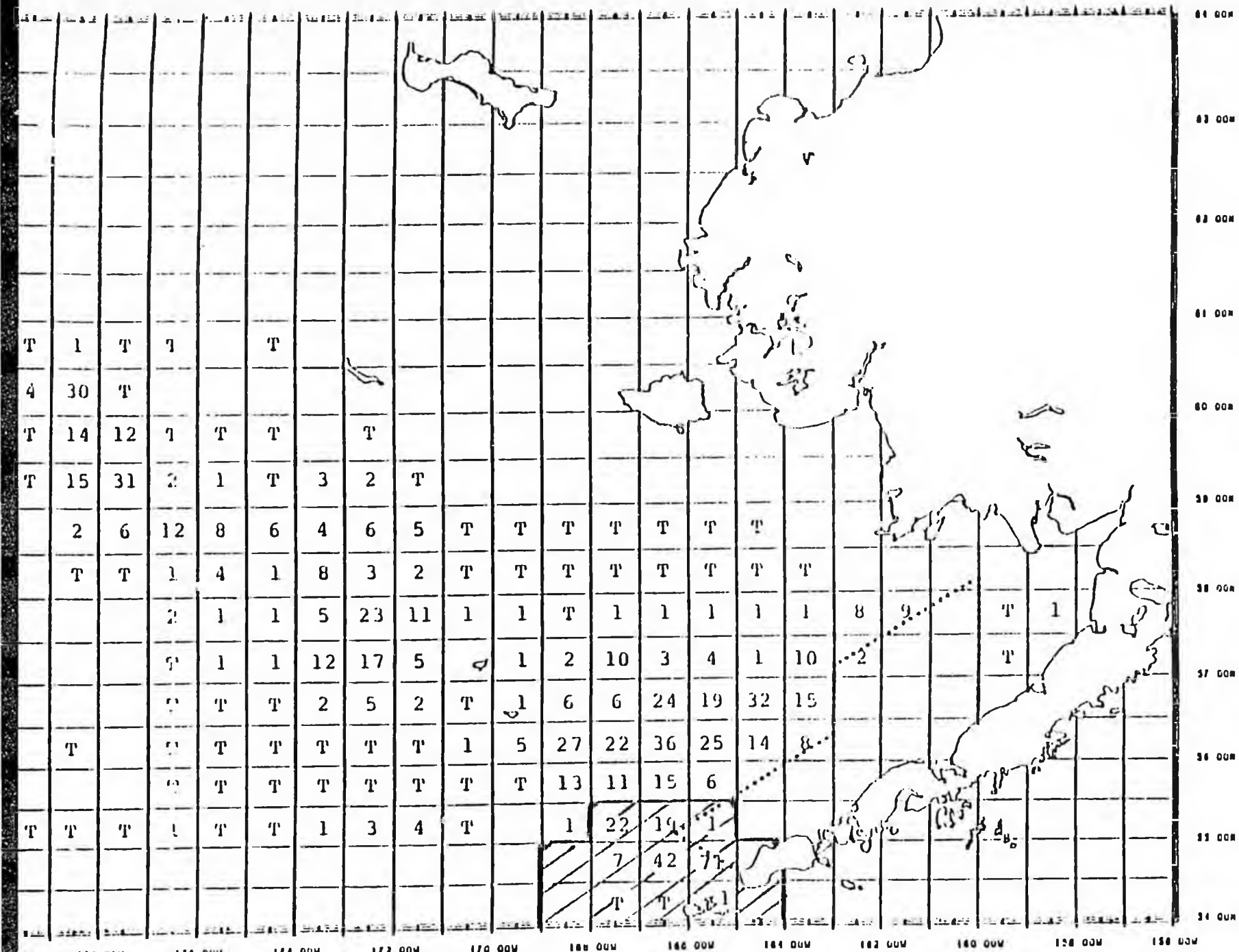


Figure 9.--Foreign-reported catch (thousands of metric tons) of walleye pollock in 1983.
T = less than 500 t.

HASHED AREA INSIDE 100-MILE ZONE

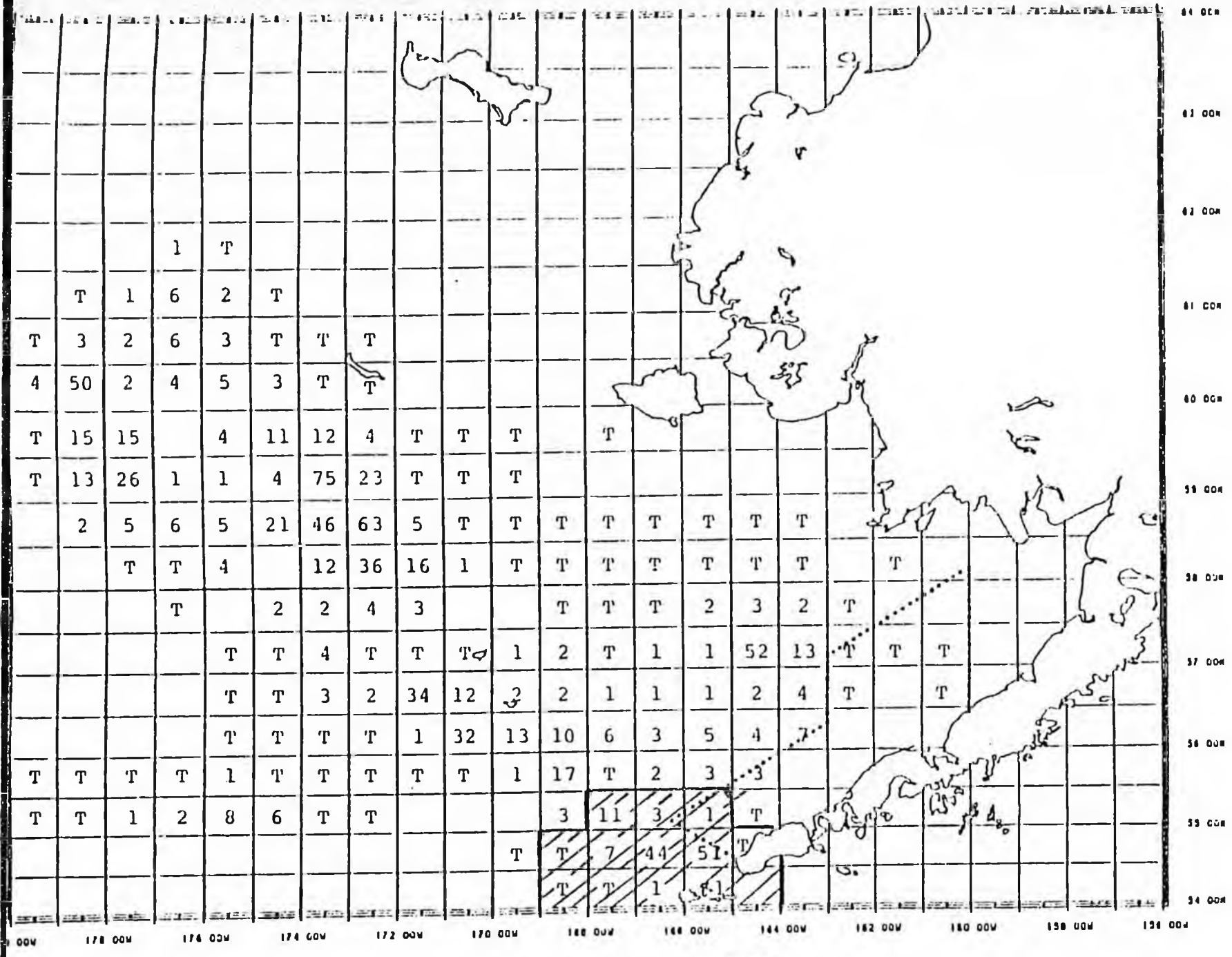
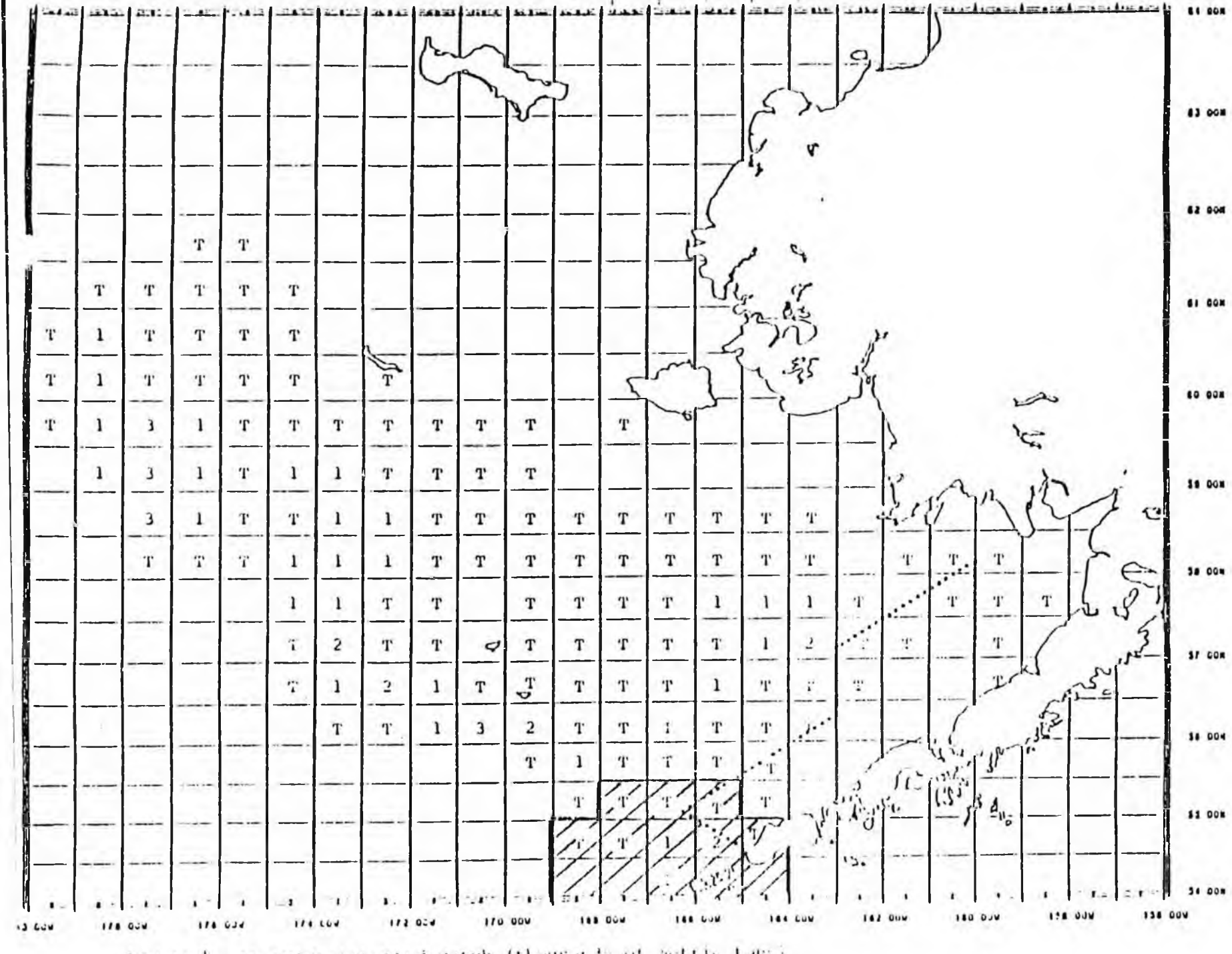


Figure 10.--Foreign-reported catch (thousands of metric tons) of walleye pollock in 1984.
T = less than 500 t.

SLASHED AREA INSIDE 100-MILE ZONE



[illegible] Japanese-operated catch (thousand of metric tons)
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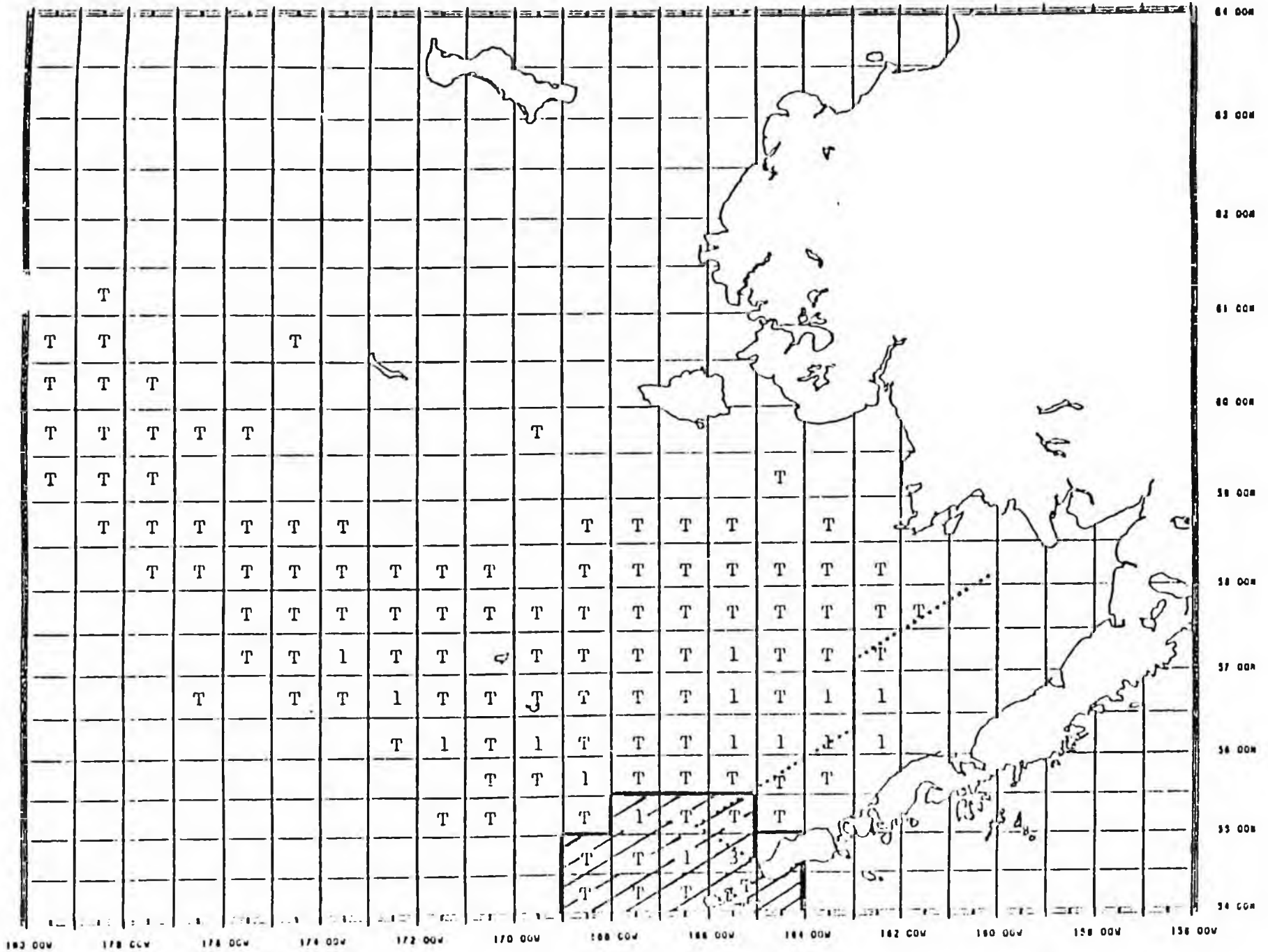


Figure 13.-Foreign-reported catch (thousands of metric tons) of Pacific cod in 1982.

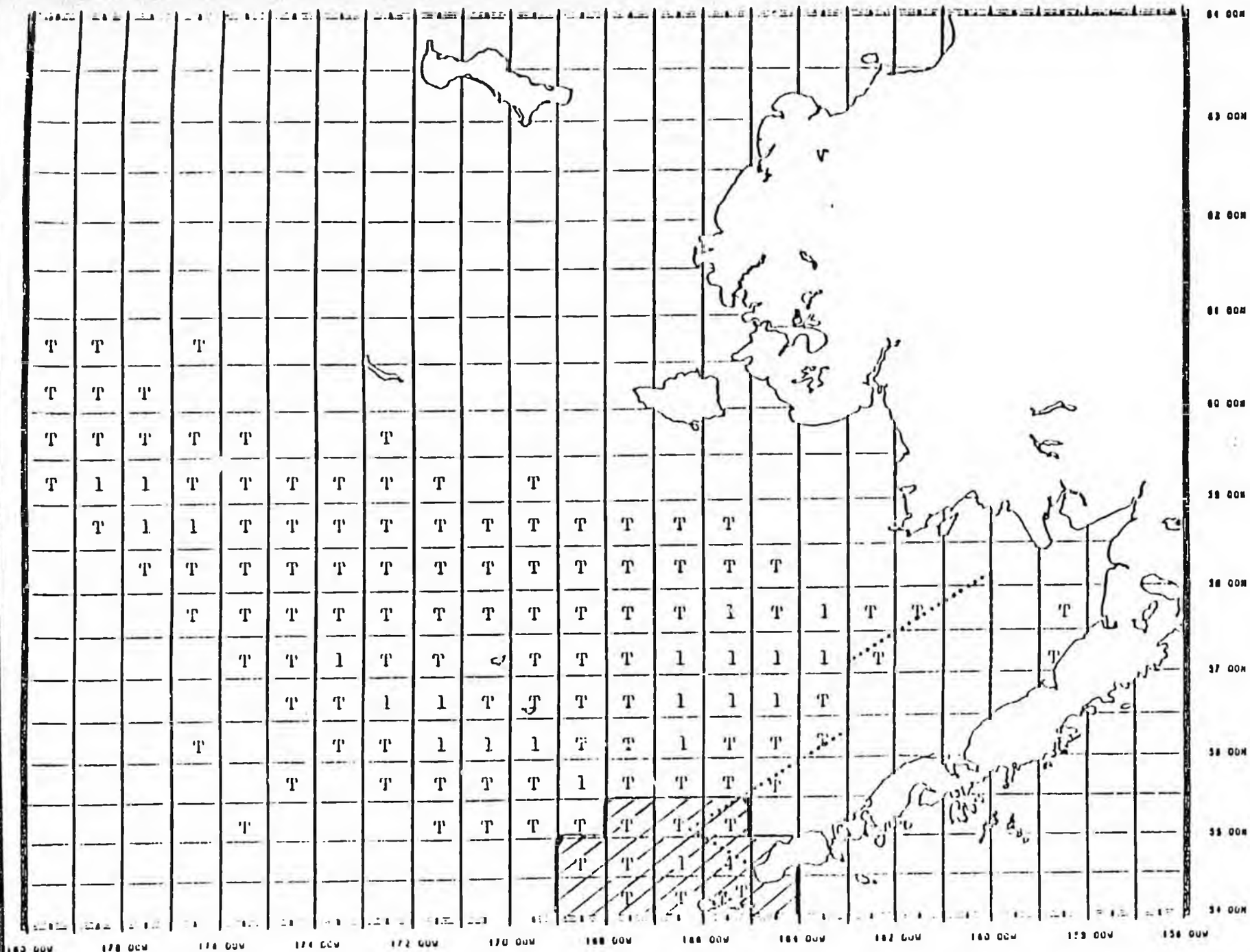


Figure 11. -Foreign-reported catch (thousands of metric tons) of [illegible] in 1984.

[illegible] AREA INSIDE 200-MILE ZONE

APPENDIX III

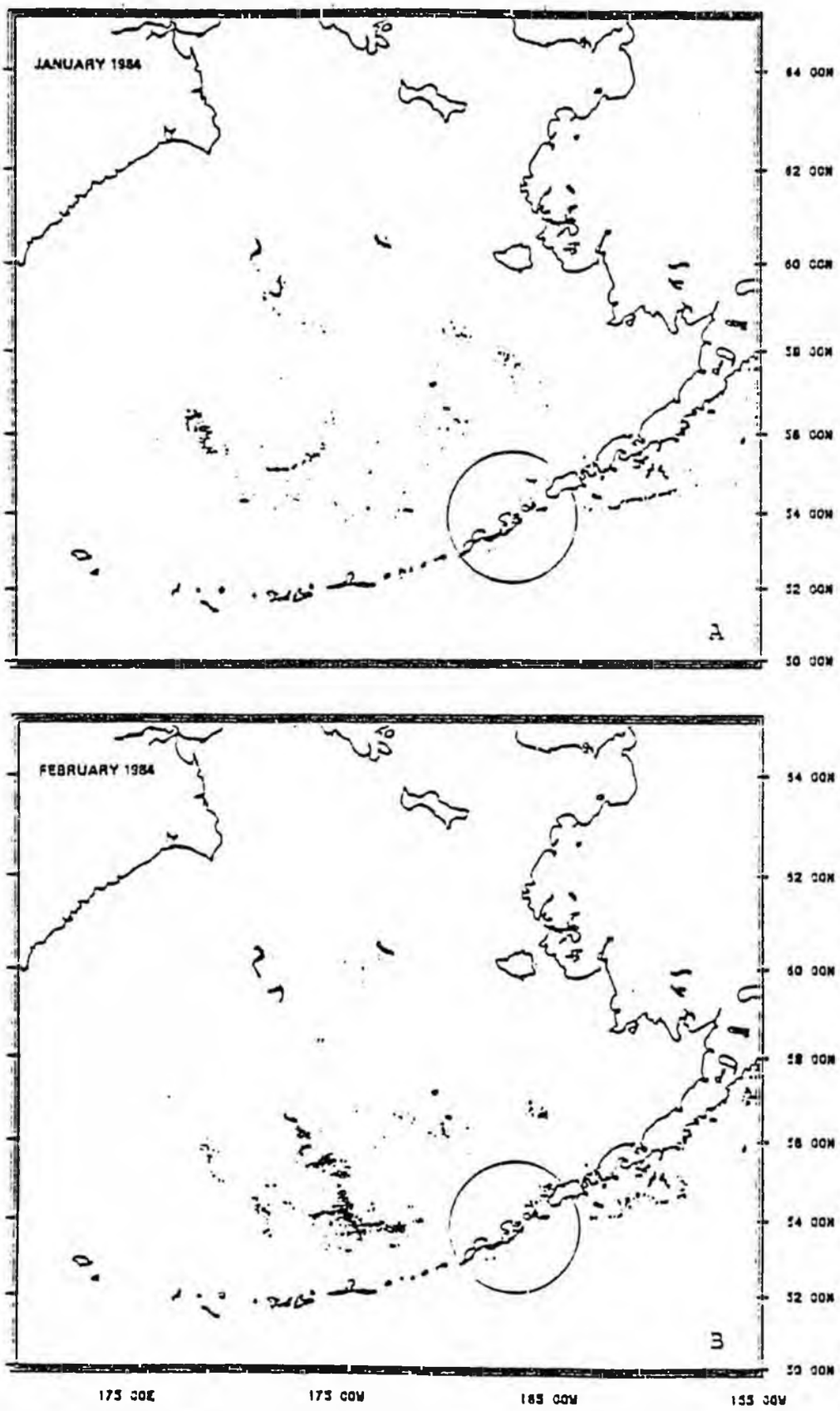


Figure 3.—Total distribution of fishing effort in 1984, by month.

Circle is 100-mile radius from Unalaska

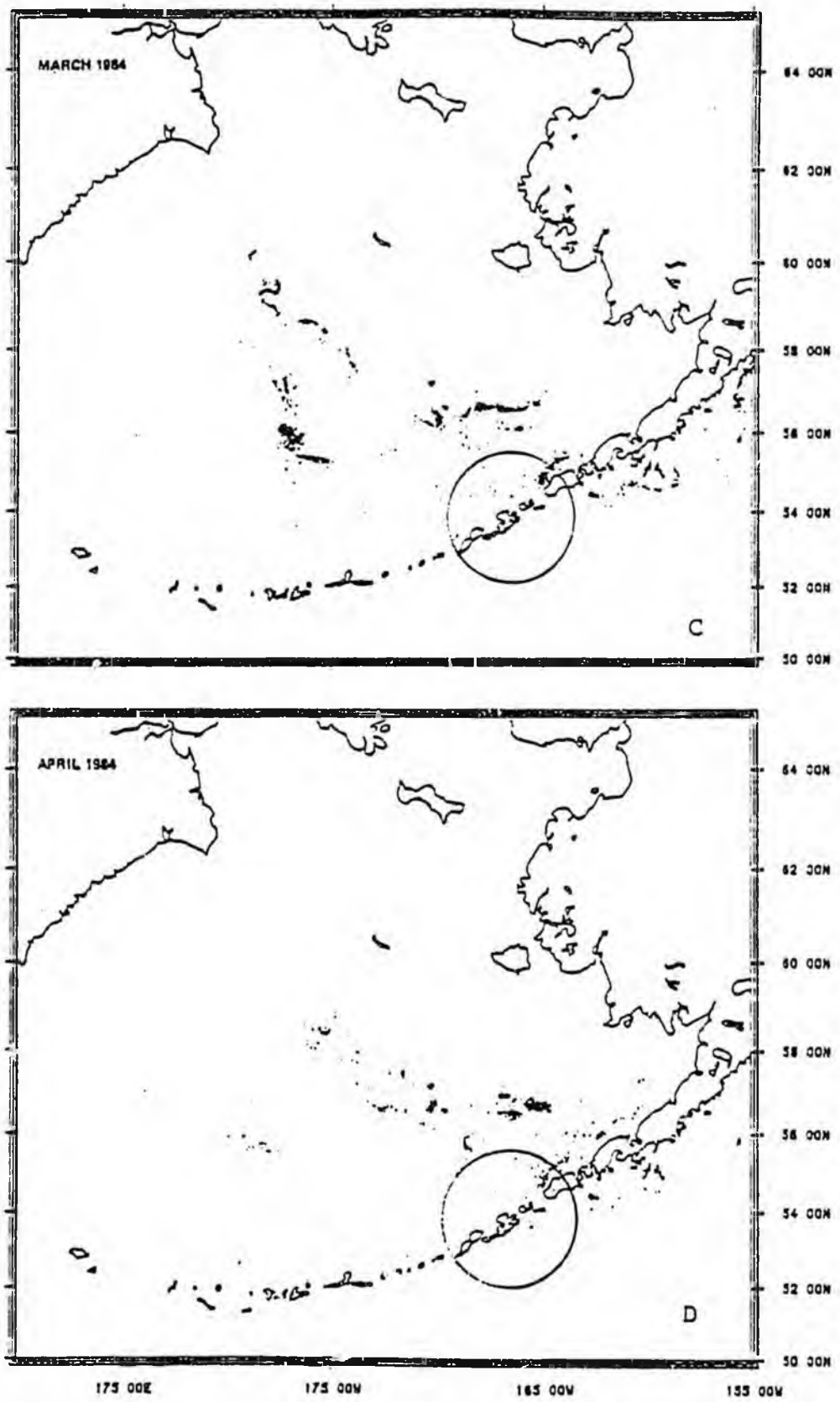


Figure 3(cont.)—Total distribution of fishing effort in 1984, by month.

Circle is 100-mile radius from Unalaska

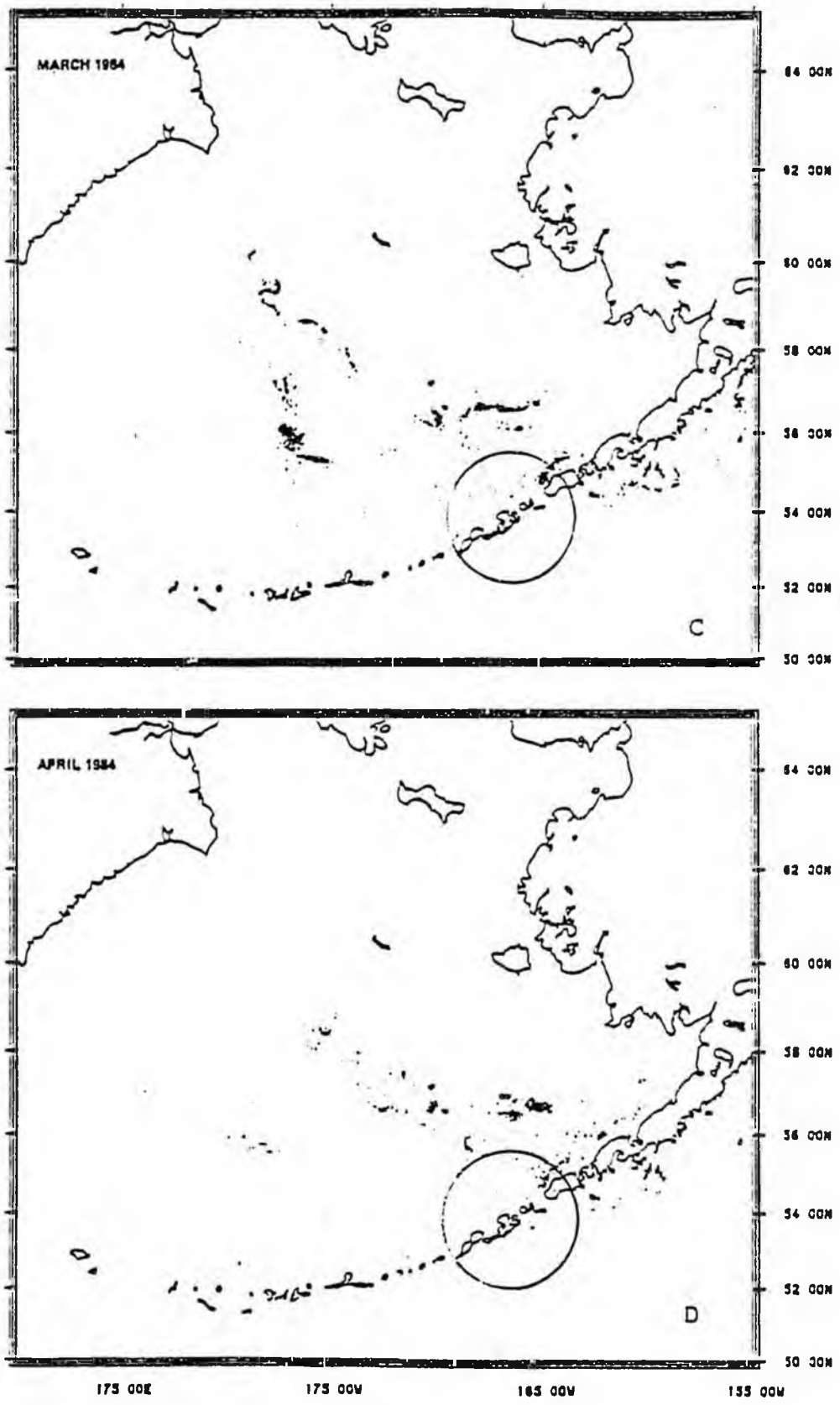


Figure 3(cont.)—Total distribution of fishing effort in 1984, by month.

Circle is 100-mile radius from Unalaska

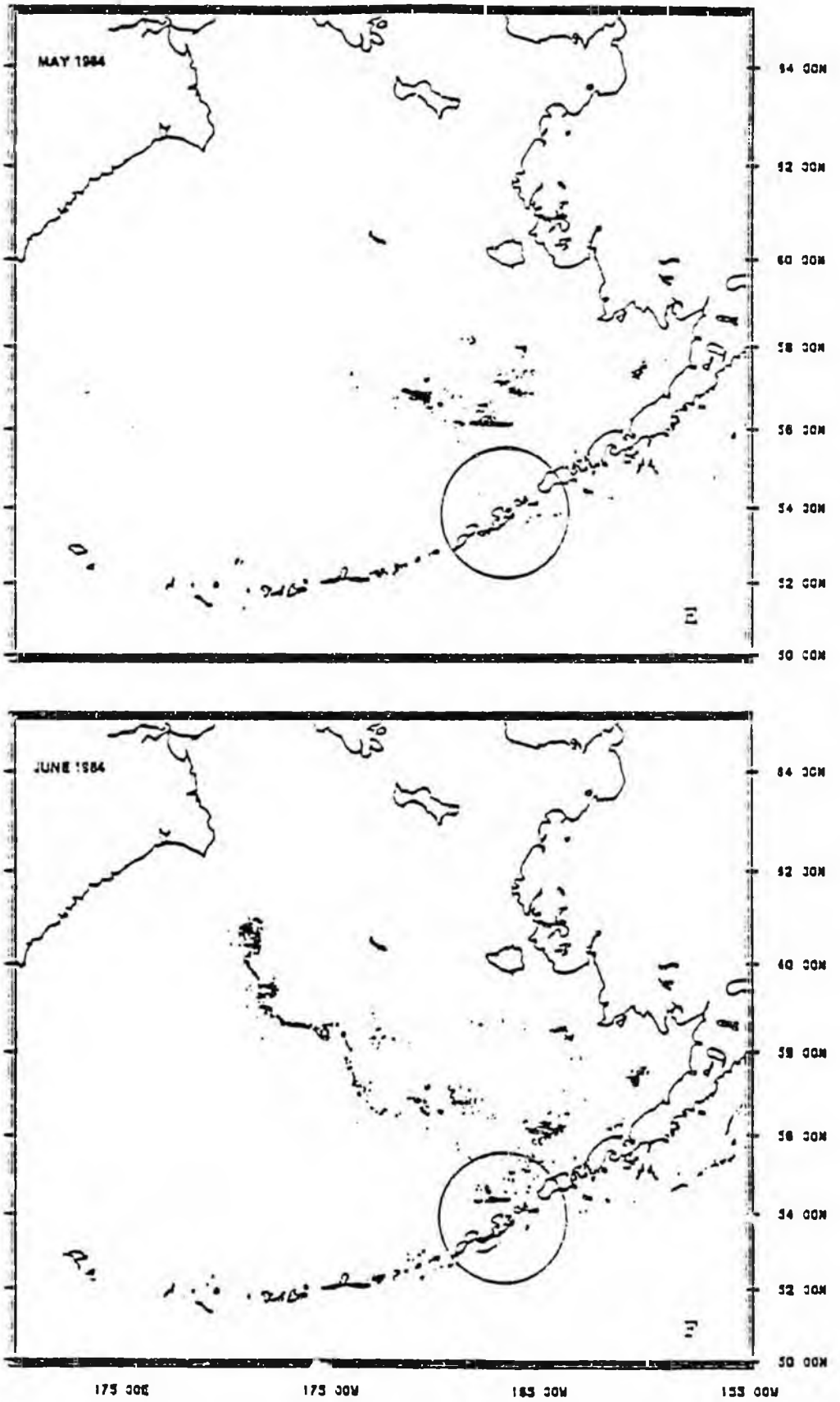


Figure 3(cont.)—Total distribution of fishing effort in 1984, by month.

Circle is 100-mile radius from Unalaska

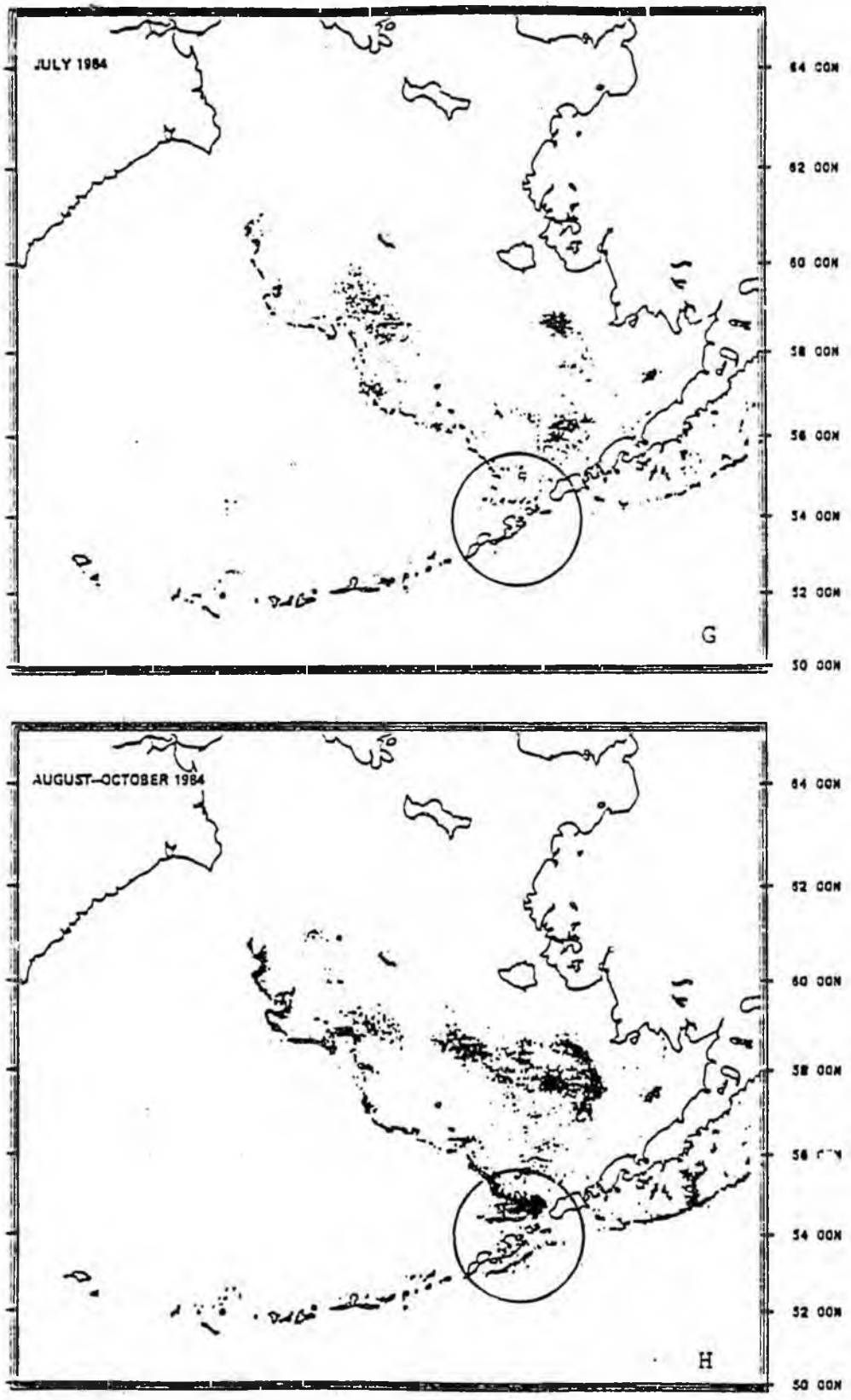
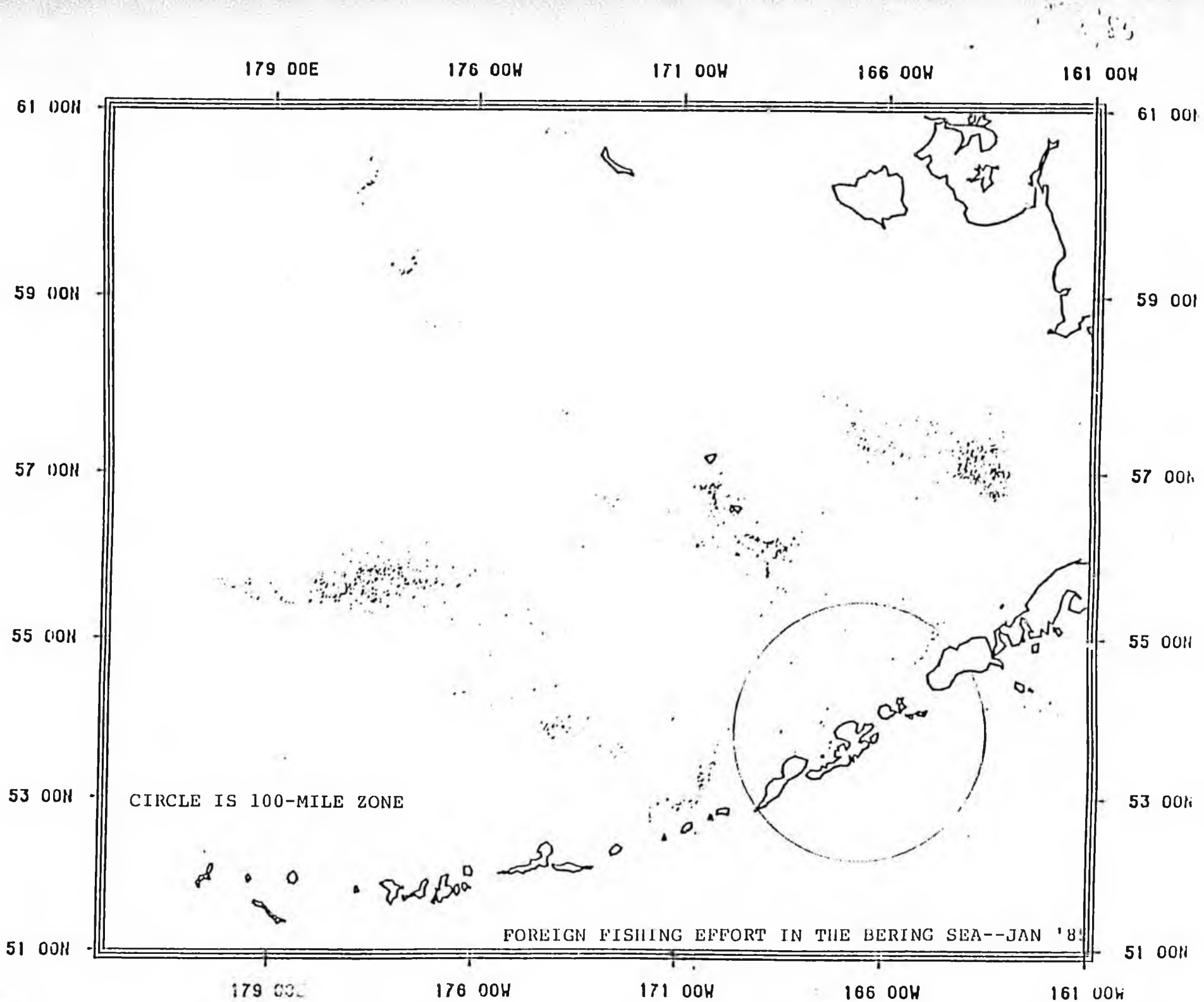


Figure 3(cont.)—Total distribution of fishing effort in 1984, by month.

Circle is 100-mile radius from Unalaska

APPENDIX IV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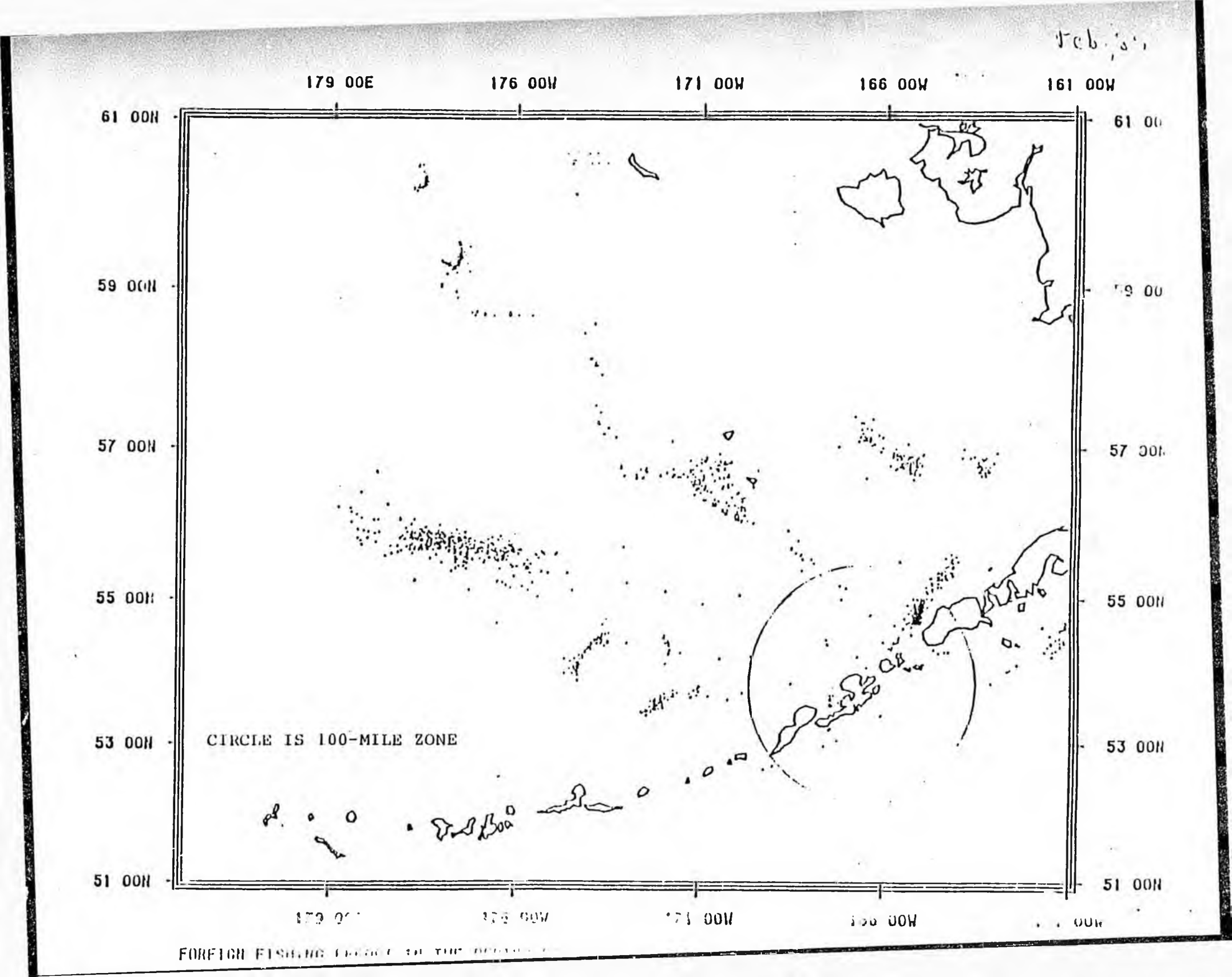
FOREIGN FISHING EFFORT IN THE BERING SEA--JAN '8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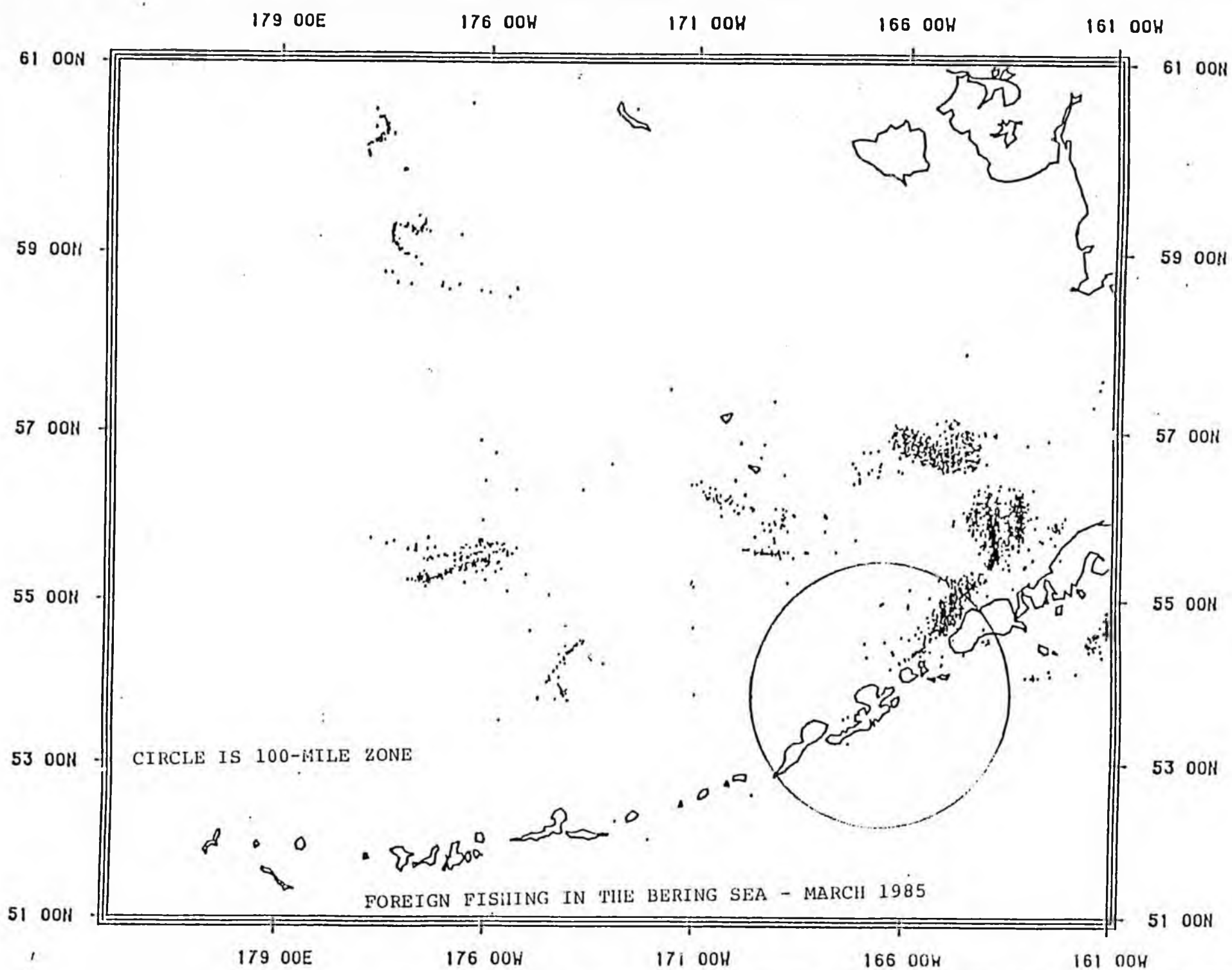
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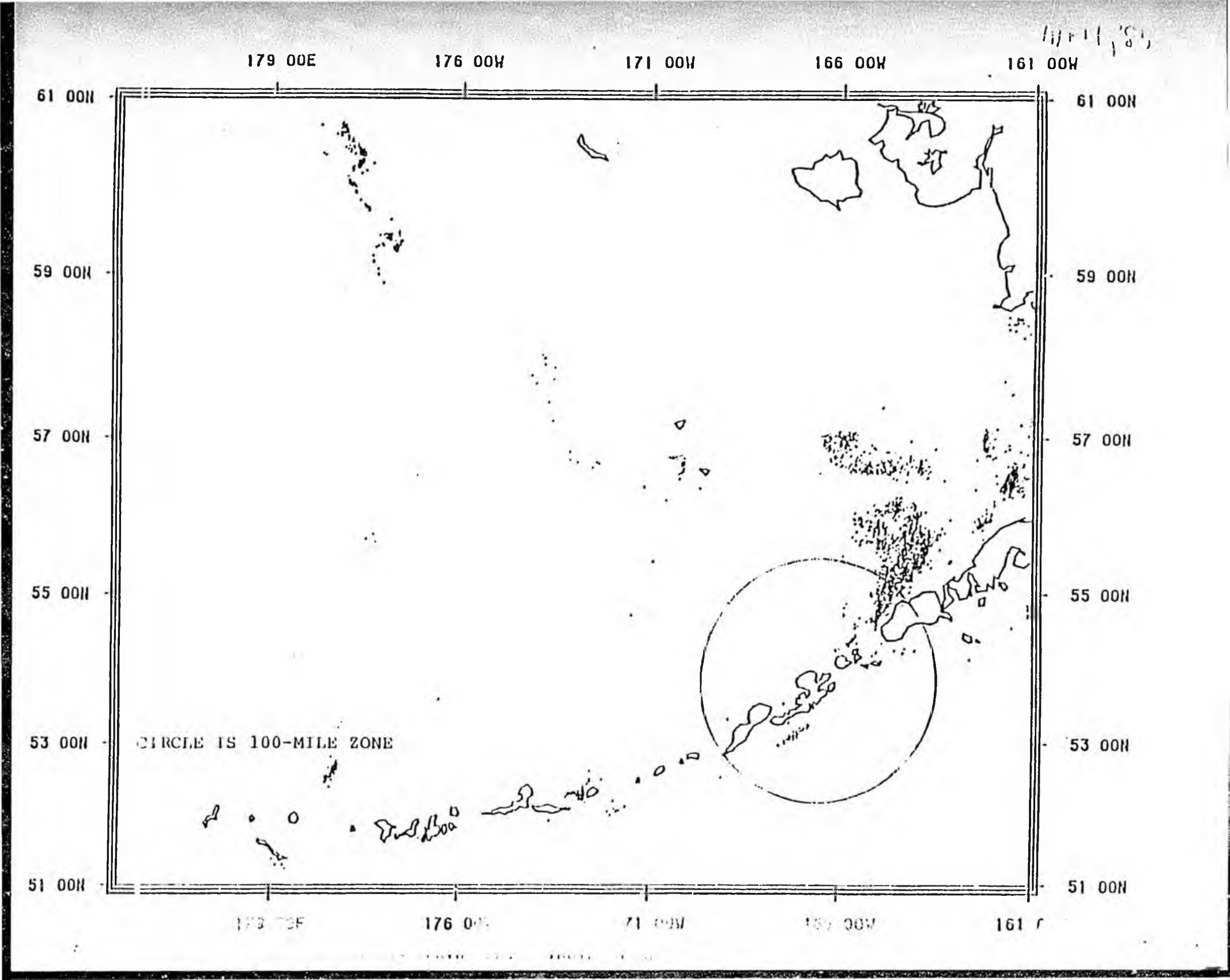
FOREIGN FISHING IN THE BERING SEA - MARCH 1985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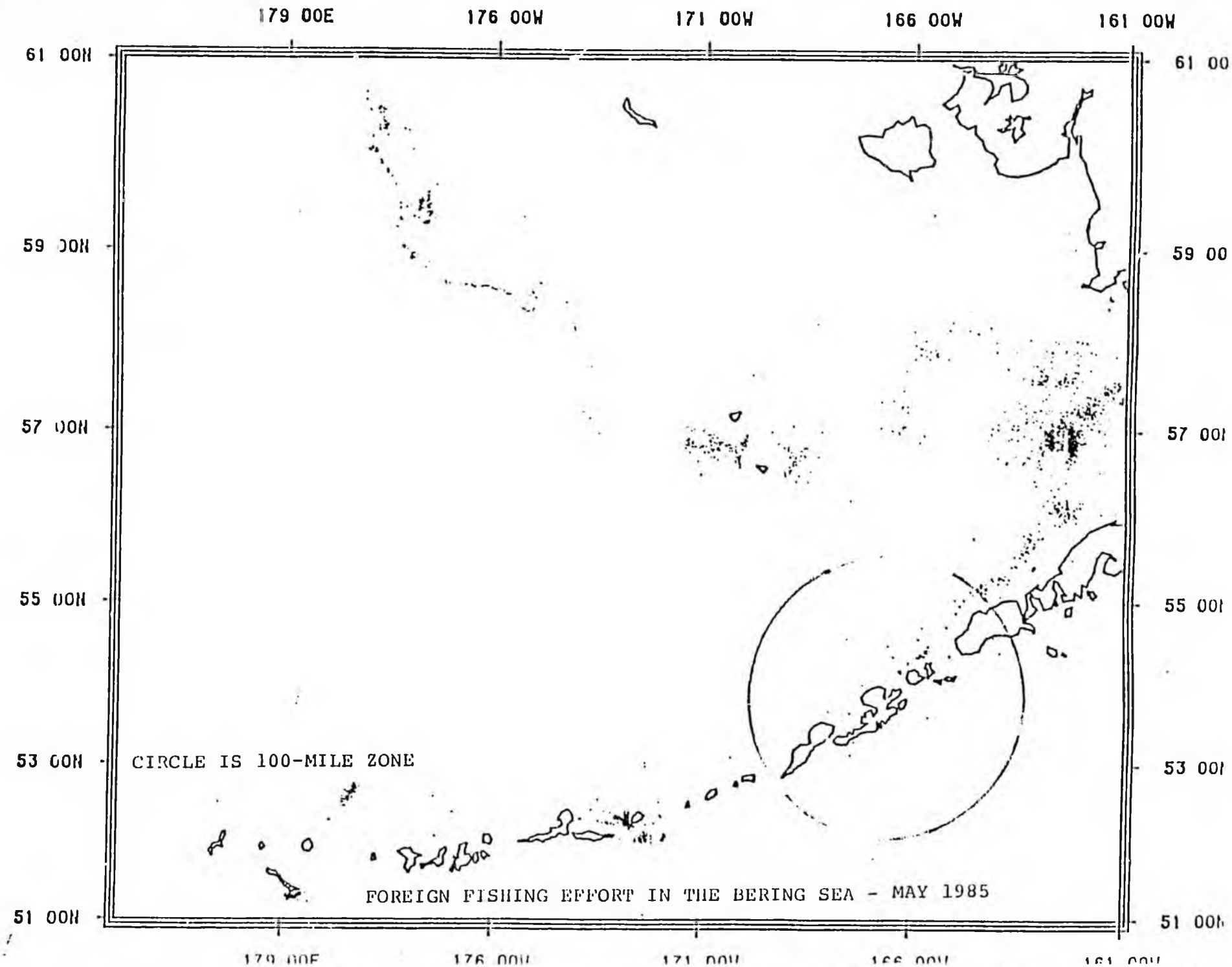

FOREIGN FISHING EFFORT IN THE BERING SEA - MAY 1985

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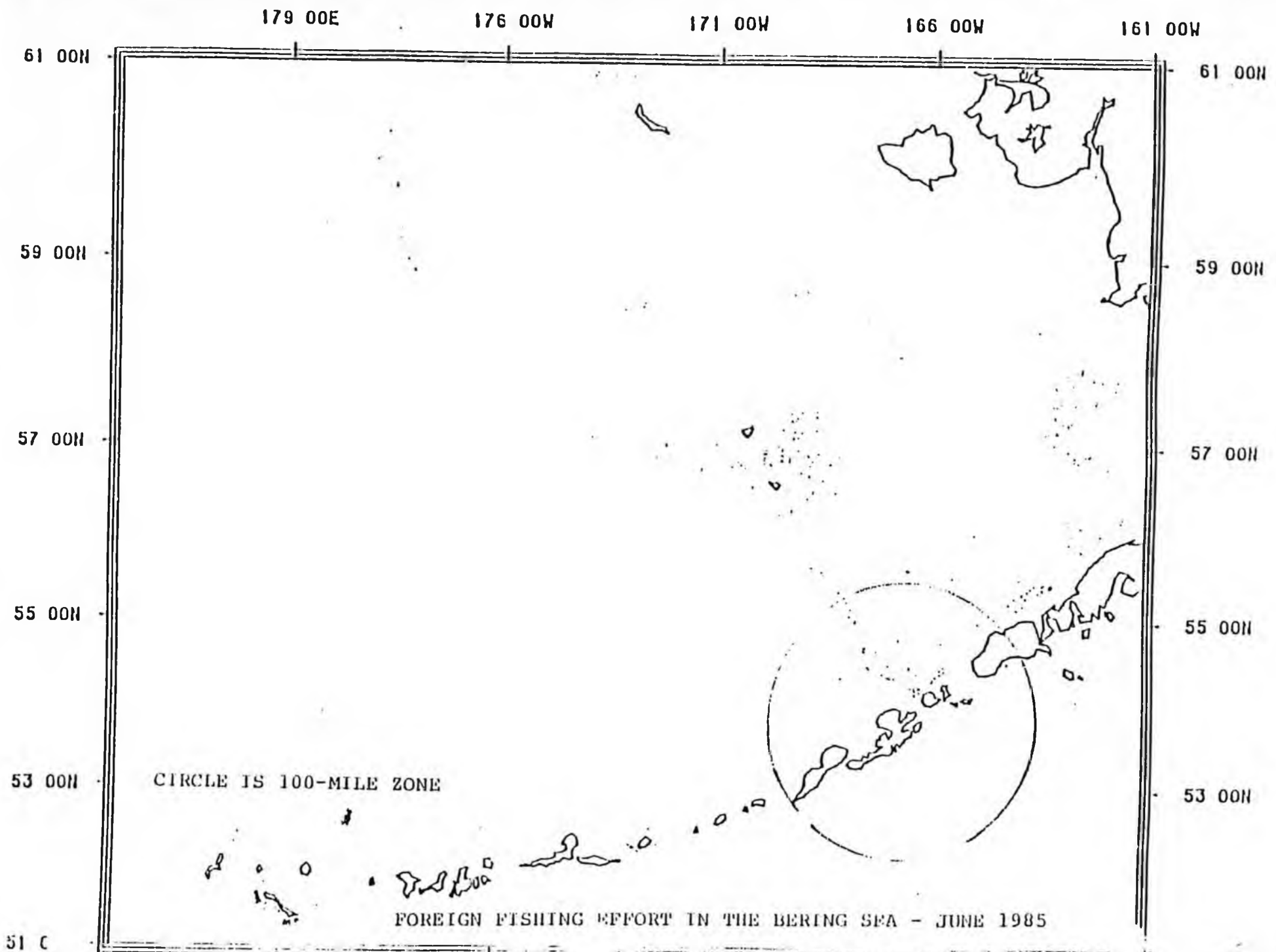

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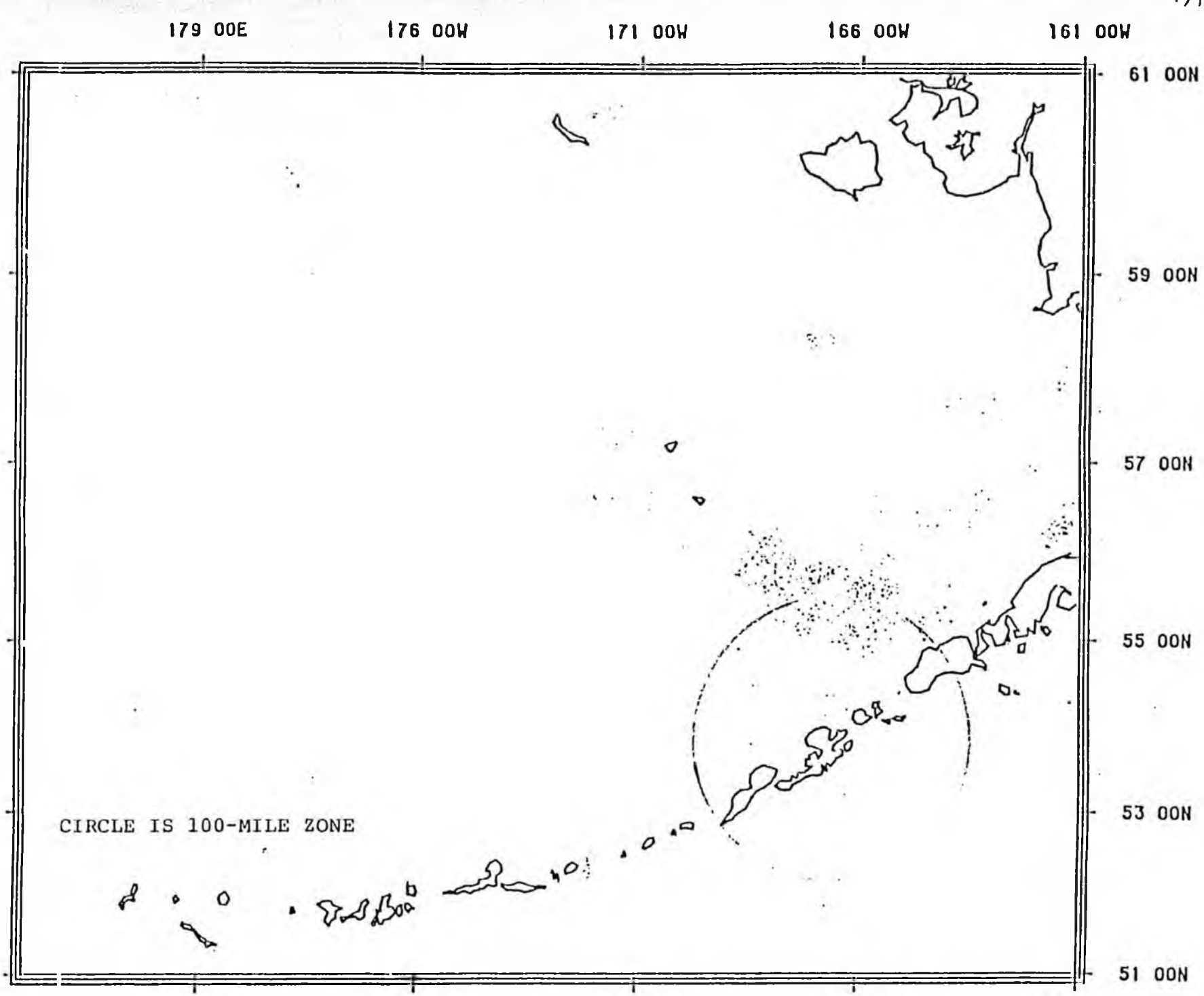
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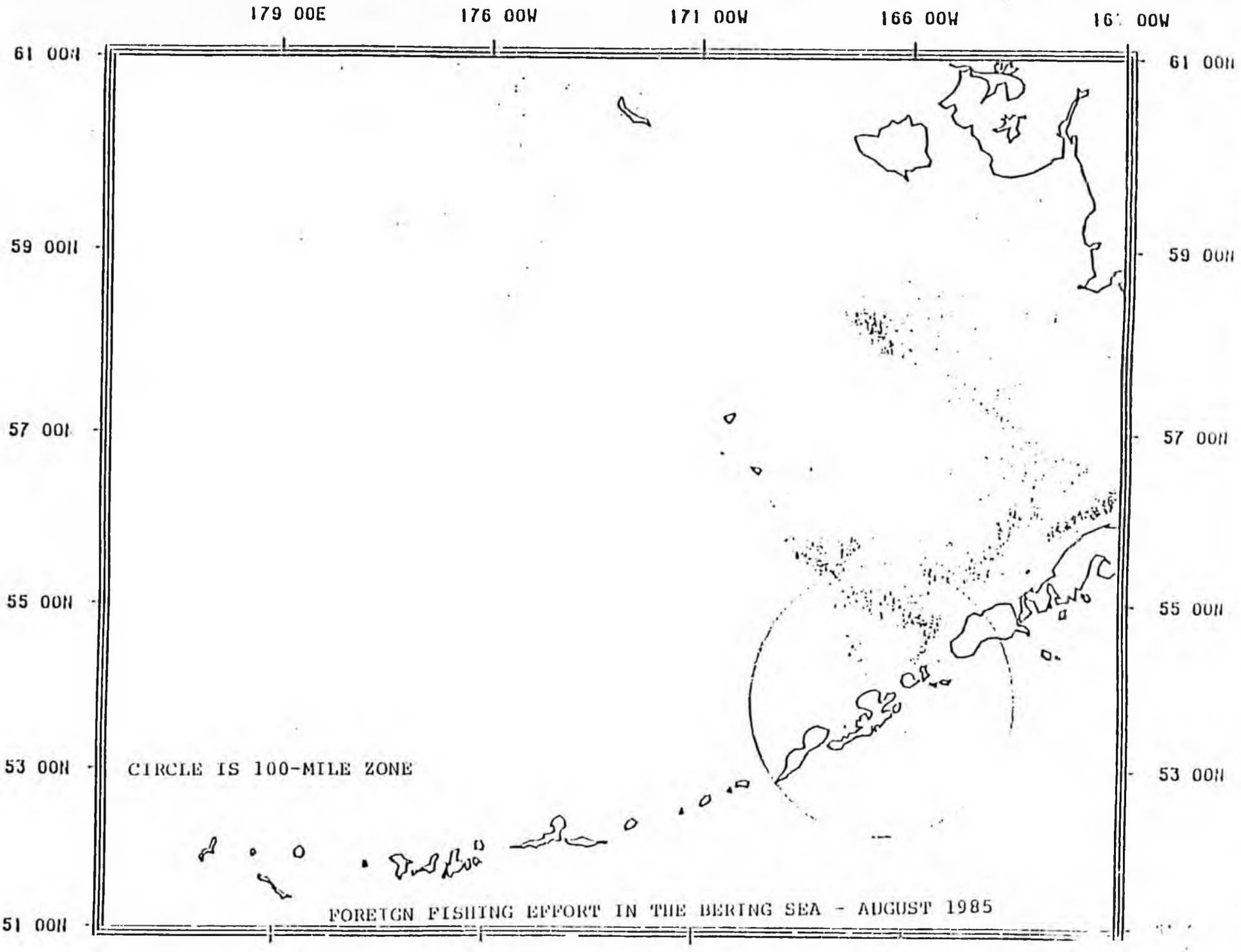
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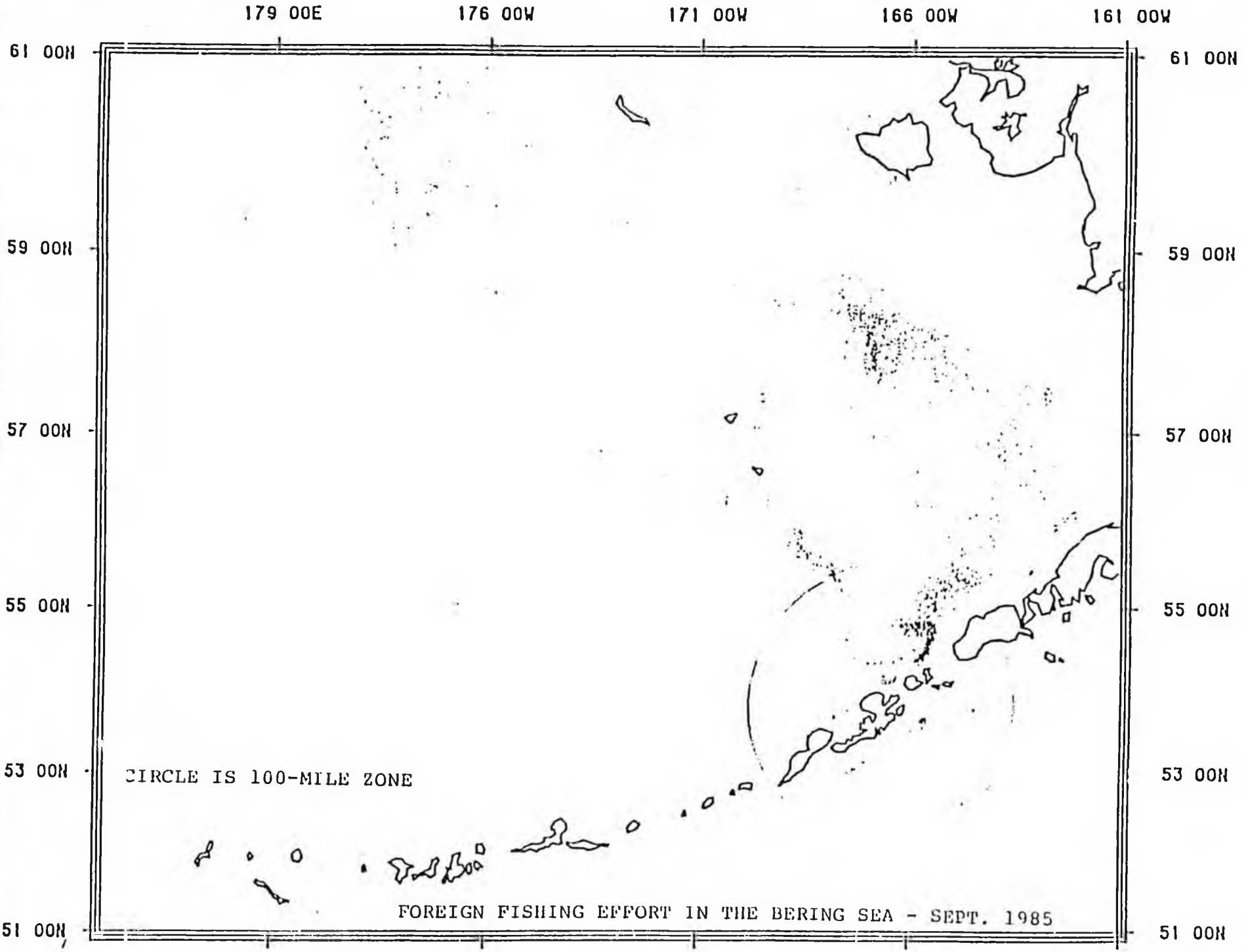
FOREIGN FISHING EFFORT IN THE BERING SEA - AUGUST 1985

SEPT. ABER



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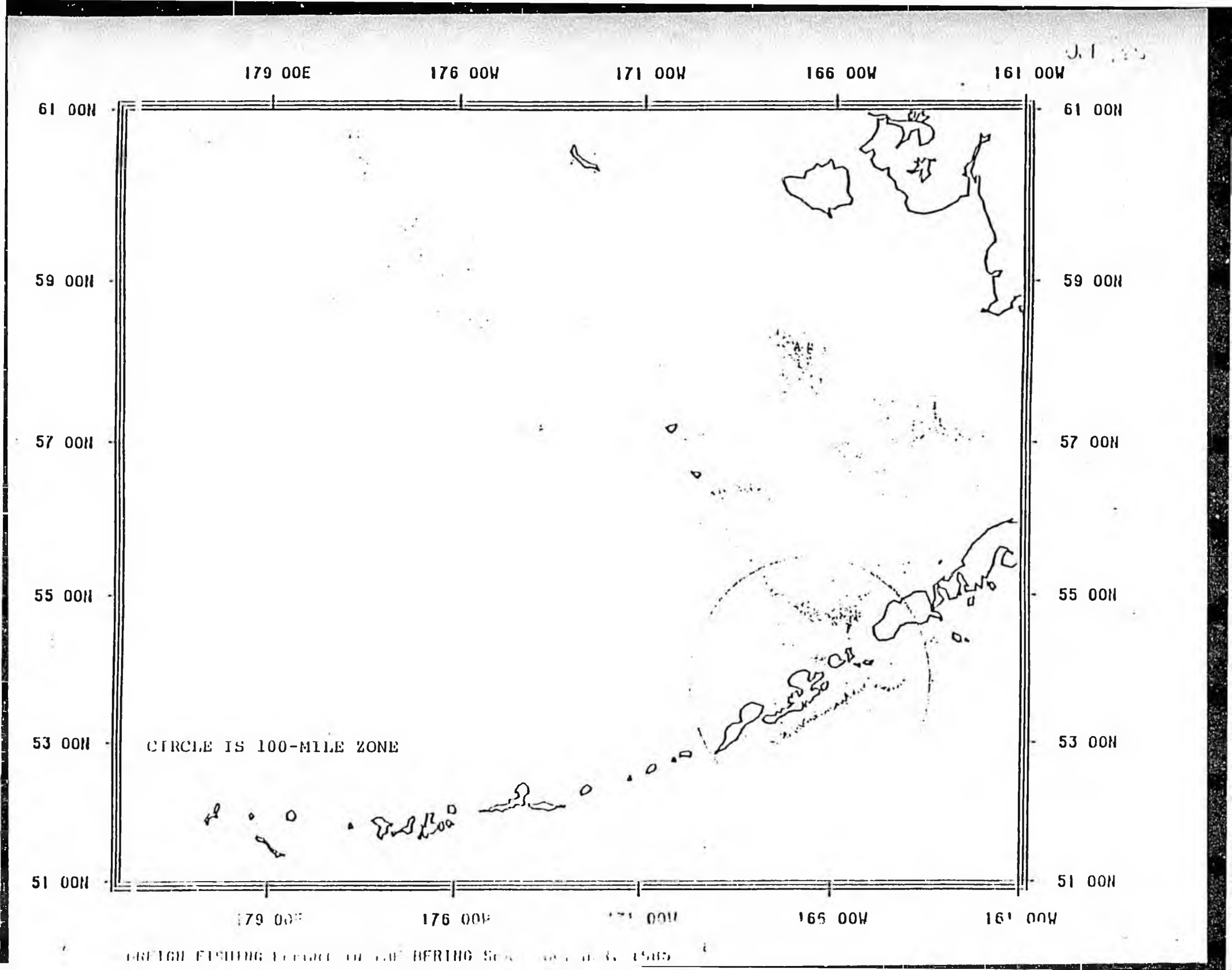
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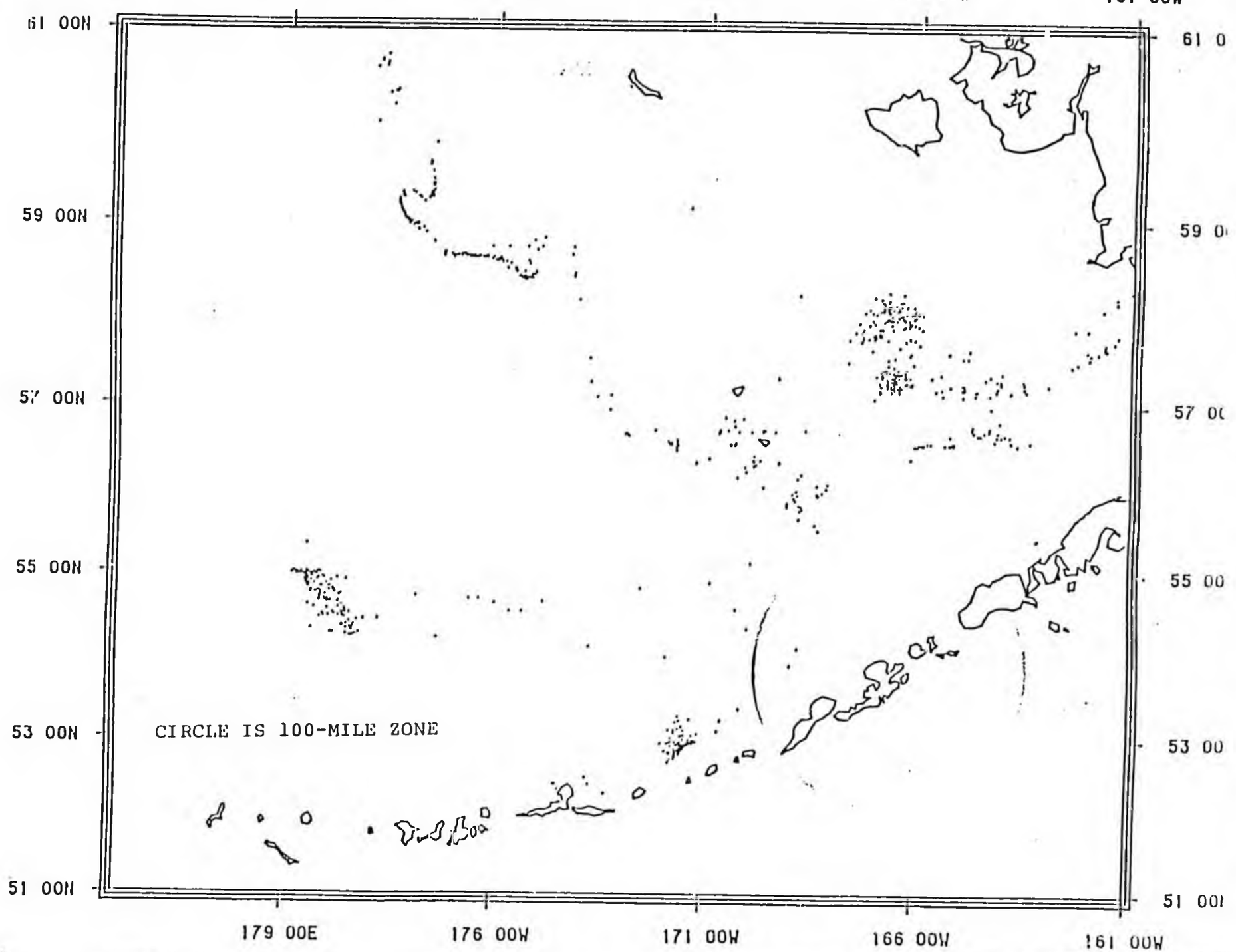
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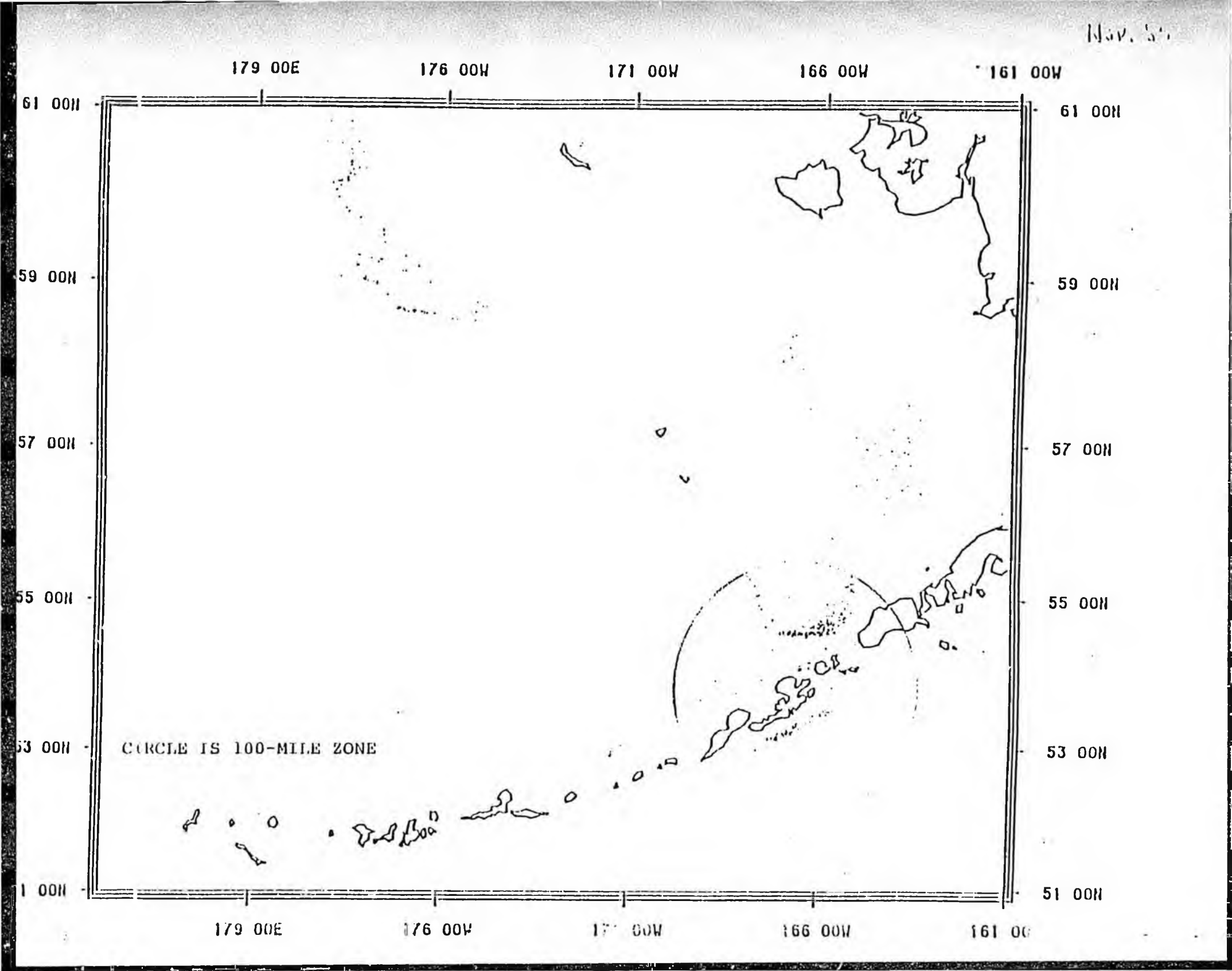
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CIRCLE IS 100-MILE ZONE

SJR

34

STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE

REQUEST:

Bill Version : SJR 34
Publish Date : 3/27/87

Revision Date: 3/27/87
Title : Relating to the interception of Alaska salmon on high seas
Sponsor : Binkley, Jones, et.al.
Requestor : Senate Resources

Agency Affected : ADF&G
BRU :

Components :

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES	-0-					
TRAVEL	-0-					
CONTRACTUAL	-0-					
SUPPLIES	-0-					
EQUIPMENT	-0-					
LAND & STRUCTURES	-0-					
GRANTS, CLAIMS	-0-					
MISCELLANEOUS	-0-					
TOTAL OPERATING	-0-					
CAPITAL	-0-					
REVENUE	-0-					

FUNDING: (Thousands of Dollars)

GENERAL FUND	-0-					
FEDERAL FUNDS	-0-					
OTHER	-0-					
TOTAL	-0-					

POSITIONS:

FULL-TIME	-0-					
PART-TIME	-0-					
TEMPORARY	-0-					

ANALYSIS :

Prepared by : Roland Shanks
Phone : 465-4100
Division : Commissioner's Office
Date : 4/8/87

Approved by Commissioner : Dave Gallenswerth
Date : 4.8.87
Agency : Fish and Game

Distribution (by preparer) :
- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)
- Senate Secretary

HOUSE COMMITTEE REPORT

(9)

Date referred: 4/22/87

FURTHER REFERRALS:

DATE: May 8, 1987

The Resources Committee has considered SJR 34

Relating to the interception of Alaska salmon on the high seas.

RECOMMENDS:

[ ] replace with _____ [ ] the same title

[ ] attached amendment(s) [ ] a new title

[x] do pass

[ ] do not pass

[ ] no recommendation

[ ] individual recommendations

[ ] additional referral to the _____ Committee

ADOPTS: [ ] _____ letter of intent

ATTACHES NEW FISCAL NOTE(s):

[ ] fiscal impact

[ ] zero fiscal note

[ ] zero with analysis

[ ] same as previous fiscal note published _____

[ ] same as previous zero fiscal note published _____

SIGNING DO PASS:

Herrmann

Pearce

Sund

Davidson

Hoffman

Cotten

Springer

SIGNING OTHER RECOMMENDATIONS:

Shultz

Adelheid Herrmann Herrman

Chairman's signature

STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE

Bill Version : SJR 34
Publish Date : May 8, 1987

REQUEST:

Revision Date:
Title :

Agency Affected : None
BRU :

Sponsor : Binkley, Jones, Hensley, et al
Requestor :

Components :

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	0	0	0	0	0	0

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS : (Attach a separate page if necessary)

Prepared by : House Resources Committee
Phone : 465-3711
Division :
Date : May 8, 1987

Approved by Commissioner : Adelheid Herrmann
Date :
Agency :

Distribution (by preparer):
- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)
- Senate Secretary

Senator Johne Binkley
Alaska State Senate
P.O. Box V • Juneau, Alaska 99811 • (907) 465-4985

Finance Committee
Co-Chairman

M E M O R A N D U M May 6, 1987

TO: REPRESENTATIVE ADELHEID HERRMANN, CO-CHAIR
REPRESENTATIVE SAM COTTEN, CO-CHAIR
House Resources Committee

FROM: SENATOR JOHNE BINKLEY

SUBJ: SJR34, relating to the high seas interception of Alaska salmon

I am extremely concerned over recent developments regarding the status of certain western and interior Alaska salmon stocks and actions taken by the Japanese with respect to onboard observers on their high seas salmon fleets. The recently negotiated U.S./Japan high seas salmon agreements are completely unsatisfactory in providing adequate protection for certain severely depleted western and interior Alaska salmon stocks. Furthermore, I believe that the recent position taken by the Japanese by refusing to allow United States observers on Japanese catcher vessels operating in international waters off the coast of Alaska makes folly of the recent salmon renegotiations between our two countries.

For the past several years, United States observers have been allowed on Japanese catcher vessels operating in international waters off the coast of Alaska to monitor compliance with international salmon harvest agreements. Without independent onboard observers there is little incentive for the Japanese high seas fleets to respect the negotiated chinook salmon quotas.

Some western and interior Alaska salmon stocks are so severely depressed that extraordinary conservation measures are required again this year. The proposed restrictions include the reduction and elimination of certain directed salmon fisheries, as well as additional subsistence restrictions. Conservation problems for the Kuskokwim and upper Yukon chinook stocks appear to be long-term, as escapements in these river systems have been far below Alaska Department of Fish and Game (ADF&G) objectives for the past four to five years.

The Yukon and Kuskokwim region in western Alaska is one of the most economically disadvantaged in the United States. Commercial fisheries represent the single most important source of cash income, yet produce an average of less than $7,000 per fisherman per year. The ADF&G estimates that total losses from the proposed conservation restrictions on the Kuskokwim fishery may total $1 million this year from a fishery in which the total amount paid to the fishermen averages $3 million per year.

In a March 20, 1987 letter to Ambassador Negroponte, the ADF&G states that conservation problems for Kuskokwim and upper Yukon chinook stocks are worse than were known during the recent renegotiations. The ADF&G believes this warrants additional action on the part of the Japanese.

One mechanism to generate leverage for Japanese concessions on the interception problem is through the issuance of the marine mammal permit. I recommend that we appeal to National Oceanic and Atmospheric Administration Administrator Calio through Senate Joint Resolution 34 to not issue the permit until the Japanese have agreed to allow United States observers on their vessels in international waters. Moreover, I further recommend that we request Administrator Calio impose, at a minimum, the restrictions recommended by Administrative Law Judge Dolan on the number of certain marine mammals that can be taken by the Japanese fleets incidental to their salmon harvest.

I am optimistic that a reduction in the marine mammal take by the Japanese high seas salmon fleets will result in a reduced harvest of Alaska salmon.

We are experiencing a conservation crisis with respect to this important American resource. Our local fishermen are being shut down so that the Japanese can catch our salmon in our waters. This situation is unacceptable to me and to the thousands of western Alaskan fishermen who depend on salmon for income and food.

Thank you for your consideration and support of this most important resolution.

STATE OF ALASKA

STEVE COWPER, GOVERNOR

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

P.O. BOX 3-2000
JUNEAU, ALASKA 99802-2000
PHONE (907) 465-4100

March 20, 1987

The Honorable John D. Negroponte
Assistant Secretary
Oceans and International Environmental
and Scientific Affairs
Department of State
Washington, DC 20520

Dear Ambassador Negroponte:

Harold Sparck has indicated that he had a chance to discuss the Japanese high seas salmon fishery and your forthcoming trip to Japan. Harold requested that I follow up with you regarding the status of Western Alaska chinook stocks and the economic and biological implications of high seas interceptions of these fish.

Enclosed is a department paper outlining western Alaska chinook stock status. I apologize for its length, but it is mostly for background to use as you see fit. I will summarize the findings and their implications for the 1987 season.

Conservation problems exists for two of the major stock components in this area--the Yukon and Kuskokwim. These are not short-term problems, as escapements in both rivers have been depressed for four or five years. In the case of the Kuskokwim, this problem is so severe that it will preclude a directed commercial fishery and may require some restrictions in the subsistence fishery. Protection of chinook will also probably mean a reduction in the number of chums and reds which can be taken commercially as well, since the timing of these stocks overlap. Total losses to the Kuskokwim fishery from these restrictions may be as much as $1 million in a fishery that only averages about $3 million ex-vessel value per year.

The Yukon and Kuskokwim region is one of the most economically depressed in the United States. Fisheries are the single most important source of cash income in this area as well as an important food source to the subsistence economy of most villages. Despite its importance to the area, the average commercial fisherman makes less than $7,000.00 per

year for his efforts. Obviously, interception of salmon on the high seas has a very significant economic impact to the Indian and Eskimo residents of this region.

Estimates of interception of western Alaska chinook salmon average about 100,000 fish per year for recent years prior to the latest INPFC renegotiations. An additional loss is incurred by fish which drop out of the nets uncounted which is only partially offset by the fact that some of these fish would have died from natural mortality before returning inshore. The net result was probably an average loss of 160,000 western Alaska chinook salmon per year. The renegotiation will result in a zero interception in the Central Bering Sea, but it takes eight years to totally close this area. It does not substantially reduce interceptions in our EEZ, but hopefully the U.S.S.R. quota of 50,000 chinook salmon will be more closely adhered to since their catches are being better monitored by our negotiated increase in observer coverage. Overall, the renegotiation should reduce known interceptions by about one-half over time.

To make a long story short, it would be desirable from a conservation and economic standpoint to reduce their interceptions of western Alaska chinook as far as possible as soon as possible. Adherence to the U.S.S.R. quota level in our zone will help, but we would also like to ensure that we get more help, faster in the central Being Sea (donut) area than currently envisioned under the treaty eight year phase out. The Soviets also have a 20,000 fish chinook quota in the donut area. We would like to have a better feeling for how tightly the Soviets will try to make the Japanese adhere to this figure, but beyond that we would like some assurances the actual catch is monitored. The Soviets do have observers on Japanese motherships in this area but not on catcher boats. There is no way to determine if catcher boat operators are discarding chinook to avoid the ceiling without this coverage.

For the last several years, the U.S. has had an industry agreement with Japan that allowed us to leave our catcher-boat observers onboard when their boats went to the donut from our zone. Japan has now indicated that this agreement ended with the 1986 season and they refuse to renew it. <u>This is unacceptable to us since it will leave us with no ability to monitor catch levels in the donut area</u>. We may have large increases in retained or non-retained catch during this period of phaseout with a very negative impact on our ability to rebuild these stocks.

Even with better catch monitoring and assuming the Soviets force Japan's compliance with their quotas, the net impact of Japanese interceptions (known catch and dropout) could

total 80,000 western Alaska chinook in 1987. The alternative of an unmonitored central Bering Sea fishery is potentially much worse. We have no way to apportion these catches by river system, but the Yukon and Kuskokwim account for the majority of the western Alaska runs, so we would assume a substantial portion of these fish would be bound for these rivers.

In summary, our conservation problems on Kuskokwim and Upper Yukon chinook stocks are worse than was known during the recent negotiations. We believe this warrants additional action on the part of the Japanese. The actions which we think need to be taken are:

1. Maintenance of prior levels of U.S. catcherboat observer coverage in the central Bering Sea (donut) area.

2. Assurance by Japan that their mothership fishery catches of chinook salmon in the centeral Bering Sea and our EEZ during the period of phaseout under the current agreement will not exceed those of recent years which have generally been less than the Soviet quotas for these areas.

3. Reduction in these catch levels in at least the short term in each area to take into account the severity of the current conservation problem.

Thank you for your assistance. Please feel free to contact me for any further information you may need. We would be pleased to meet with you and Japanese government or industry representatives to explain these issues if required.

Sincerely,

Steven Pennoyer
Deputy Commissioner

Enclosure

cc: Senator Johne Binkley
John Katz
Rod Swope

WESTERN ALASKA CHINOOK STOCK STATUS

INTRODUCTION

This report summarizes catch, escapement, and stock status for western Alaska chinook salmon (Oncorhynchus tshawytscha). The geographical bounds of western Alaska include the following areas: Kotzebue Sound, Norton Sound, Yukon River, Kuskokwim Bay, Kuskokwim River, Bristol Bay, the North side of the Alaska Peninsula, and the Aleutian Islands (Figure 1).

Chinook salmon are found throughout western Alaska. The commercial and subsistence fisheries are concentrated in the Port Moller area off the Alaska Peninsula; in Bristol Bay, especially in the Nushagak and Togiak areas; Kuskokwim Bay and the lower Kuskokwim River; the Yukon River; and southern Norton Sound. There are negligible amounts of chinook salmon harvested in the Aleutian Island area. More than 90 per cent of the chinook salmon produced in western Alaska originate in the Nushagak, Kuskokwim, and Yukon Rivers. Although western Alaska chinook salmon are harvested for subsistence, and sport purposes, the majority are taken in commercial fisheries (Table 1). The fisheries are conducted in nearshore coastal waters, except for the Yukon and Kuskokwim Rivers where commercial and subsistence fisheries are prosecuted within the rivers. The gear used to capture chinook is primarily nylon gillnets with mesh size 8 1/2 inches or smaller. Some harvest of chinook occurs with fishwheels in the upper Yukon and Kuskokwim Rivers.

THE FISHERIES

Chinook salmon were first harvested for subsistence purposes. Remnants of salmon net stone sinkers have been found in old village sites at Cape Denbigh in Norton Sound that date back to 400 B.C. (ADF&G 1972). Periodic subsistence catch reports available since 1920 for some western Alaska locations are presented in Table 2. However, the quality and completeness of subsistence statistics was poor until 1960. Since 1960, the average annual subsistence chinook harvest has been approximately 81,000 fish. Subsistence harvest has averaged 22 % of the total harvest of chinook during this same period (Table 1). In some locations, such as the Kuskokwim River, the subsistence harvest has frequently exceeded the commercial harvest. The subsistence fishery is managed by a permit system which specifies a guideline harvest level. In recent years management measures have become more restrictive than in the past.

The first significant commercial harvest of chinook salmon began in Bristol Bay during the late 1800's and in the Alaska Peninsula, Kuskokwim and Yukon areas during the early 1900's (Table 3). The average commercial harvest of chinook salmon in

western Alaska since 1960 is approximately 296,000 fish (Table 1). Management of the commercial fishery is primarily by gear restrictions and time - area closures. In recent years management measures have become more restrictive, primarily through reduction in fishing time.

CATCH, ESCAPEMENT, AND STATUS OF STOCKS

The Alaska Department of Fish and Game is concerned over the current abundance level of Western Alaska stocks of chinook salmon. Catches of Western Alaska Chinook salmon have been steadily declining since 1983 (Figure 2), with the 1986 harvest the lowest since 1976. In 1986, escapement levels were substantial less than desired levels for chinook stocks that are harvested in the Kuskokwim River, Goodnews Bay, Nushagak, and Togiak fisheries. Escapement levels for the upper Yukon River (mostly spawning in Canada) chinook stocks in 1986 were also less than desired levels. The following sections outline in greater detail the status of stocks for the most important chinook salmon commercial fisheries in western Alaska, Bristol Bay, Kuskokwim, and Yukon areas.

Bristol Bay.

Prior to 1952 virtually all of the commercial harvest of Bristol Bay chinook was in the Nushagak district. Since then approximately 25% occurs in other Bristol Bay districts, with the Togiak district being the most important of the other districts. Some of the chinook harvests occurs incidentally in the sockeye fishery. The commercial fishery has averaged less than 100,000 chinook per year until the mid-seventies (Table 3), either because of low stock abundance or market limitation. Catches have increased markedly since 1976, in response to a combination of factors including: increased resource availability, increased effort, and more favorable markets. Subsistence harvests have been increasing (Table 2) and have averaged 10,600 fish per year since 1975.

Escapement levels in the Nushagak and Togiak Rivers, based on aerial surveys, have increased markedly since the mid-seventies (Table 4). This suggests that the increased catches of chinook during this same period was, in part, due to increased abundance of chinook.

The 1986 return of chinook salmon to Bristol Bay was very poor. The catches of chinook in the Nushagak and Togiak districts was the lowest since 1975. The combined aerial survey estimate of chinook escapement to the Nushagak and Togiak River in 1986 was the lowest ever observed (aerial surveys were initiated in 1967). Because escapements of chinook salmon in Bristol Bay River Systems have been near or above goals until this year, there remains a favorable potential for continued strong returns of

chinook salmon to Bristol Bay River systems. However, in view of the weak 1986 Bristol Bay chinook return, fisheries should be managed with some degree of caution until run strength is assured.

Kuskokwim Area.

Kuskokwim Area commercial catches were first documented in 1913. However, the fishery remained at a relatively low level until the early 1960's. The Kuskokwim area commercial fisheries have been somewhat stabilized by a gradual reduction in fishing time allowed with large mesh sizes that are more efficient in capturing chinook salmon. Note that Kuskokwim Area fisheris include the Quinhagak and Goodnews Bay fisheries.

The Kuskokwim chinook fishery is the only major chinook fishery in Alaska where the subsistence utilization has frequently surpassed the commercial utilization. Since 1975, the total annual harvest has averaged 118,300 fish (55,800 subsistence; 62,500 commercial).

Escapements of chinook salmon to Kuskokwim area rivers have been declining since 1981 (Table 5). Escapement levels of chinook salmon in the Kuskokwim River have been less than desired levels since 1982, with levels during the period 1983 - 1986 being 52%, 43%, 35%, and 33% of desired goal, respectively.

In response to the low escapement in recent years and a poor 1986 return, no directed fishing was allowed for chinook salmon in the Kuskokwim River during 1986. The commercial harvest of chinook included only subsistence and incidental catches in fisheries directed at chum and sockeye salmon. During 1986, the Goodnews Bay chinook fishery was closed for most of the season, with most of the commercial harvests of chinook incidental to directed harvest of chum and sockeye salmon.

Yukon River

The Yukon River commercial king salmon fishery dates back to 1918. Since 1961 commercial catches in Alaska have ranged from 63,800 to 158,000 fish, with the recent 5 year average being 127,500 fish. In addition to the Alaska catch, the catches of chinook in the commercial fishery at Dawson (Yukon Territory) have ranged from 3,000 to 13,000 fish and averaged 7,800 fish (Table 3). The catches in the Canadian fishery have increased sharply since the early 70's (Table 3).

Commercial fishing effort has increased sharply since 1961 until the mid-70's when entry to the fishery became regulated. Yukon River chinook salmon returns generally declined during the early 70's. However, returns since then have been increasing. Restrictions placed on the Alaskan fishery during the 70's coupled with increasing returns have resulted in improved (in qualitative terms) escapements compared to the 1963 - 1969.

Since 1972, escapements to the lower and middle Yukon River spawning grounds, have been very stable (Table 6). Recently however, escapements to the upper Yukon area spawning grounds have been decreasing.

In the Yukon River, the Department is concerned most about the escapement levels for the upriver stocks of chinook salmon. Because these stocks are at the end of the gauntlet of fisheries, beginning with high seas drift net fisheries and ending with the Canadian fishery, these stocks have been harvested at a rate that cannot be sustained. Because of this concern and low upriver escapements beginning in 1982, the lower Yukon River fisheries were severely restricted in 1986. As a result of these restrictions the 1986 catches were reduced by approximately 40 thousand fish from the 1985 level. Escapements to the lower river stocks were above goals in 1986, and near the goal for the midriver stocks. Escapements for the upriver stocks in 1986 were above the 1985 level but much lower than desired, in spite of severe restrictions of the 1986 lower river fishery.

CONCLUSIONS

Because of low chinook salmon escapements that have occurred for several years in many Western Alaska River systems, the outlook is for continued lower returns of chinook salmon in the near future. In particular, the State of Alaska faces critical problems with the conservation of stocks of chinook salmon that spawn in the Kuskokwim River drainage and the upriver areas of the Yukon.

Table 1. Commercial, subsistence, and total catch of Western Alaska (includian Canadian catches of upper Yukon chinook stocks), 1960 - 1986

Year	Commercial Catch	Subsistence Catch	Total Catch
1960	199,784	25,956	225,740
1961	246,578	62,198	308,776
1962	217,085	35,652	252,737
1963	210,402	74,002	284,404
1964	263,203	54,684	317,887
1965	265,254	55,966	321,220
1966	209,448	71,988	281,436
1967	286,124	84,875	370,999
1968	261,148	57,022	318,170
1969	289,285	66,216	355,501
1970	293,395	93,947	387,342
1971	286,419	79,118	365,537
1972	225,827	72,085	297,912
1973	179,452	75,537	254,989
1974	183,391	63,217	246,608
1975	129,150	75,690	204,840
1976	245,044	88,334	333,378
1977	300,798	85,551	386,349
1978	382,549	79,512	462,061
1979	428,615	102,788	531,403
1980	331,202	129,770	460,972
1981	510,176	115,546	625,722
1982	507,909	111,272	619,181
1983	493,113	119,307	612,420
1984	339,391	121,342	460,733
1985	403,356	108,063	511,419
1986	267,873	114,984	382,857
Average 1960 - 1985	295,696	81,140	376,836

Table 2. Subsistence harvest of Western Alaska chinook salmon (including Canadian harvests of upper Yukon chinook) by area and year, 1920 - 1986.

Year	Yukon River		Kuskokwim	Bristol Bay	Total Western Alaska
	Alaska	Canada			
1920	20,000	---	---	---	20,000
1921	---	---	---	---	---
1922	15,000	---	---	---	15,000
1923	17,500	---	---	---	17,500
1924	---	---	14,700	---	14,700
1925	15,000	---	10,800	---	25,800
1926	20,500	---	---	---	20,500
1927	---	---	---	---	---
1928	---	---	---	---	---
1929	---	---	---	---	---
1930	---	---	---	---	---
1931	26,693	---	---	---	26,693
1932	23,160	---	---	---	23,160
1933	19,900	---	6,290	---	26,190
1934	---	---	20,800	---	20,800
1935	20,400	---	22,930	---	43,330
1936	22,750	---	33,500	---	56,250
1937	5,528	---	---	---	5,528
1938	19,244	---	10,153	---	29,397
1939	18,050	---	14,000	---	32,050
1940	14,400	---	8,000	---	22,400
1941	17,703	---	8,000	---	25,703
1942	---	---	6,400	---	6,400
1943	---	---	6,400	---	6,400
1944	---	---	---	---	---
1945	---	---	---	---	---
1946	---	---	---	---	---
1947	---	---	---	---	---
1948	---	---	---	---	---
1949	---	---	---	---	---
1950	---	---	---	---	---
1951	---	---	---	---	---
1952	---	---	---	---	---
1953	---	---	---	---	---
1954	---	---	---	---	---
1955	---	---	---	---	---
1956	---	---	---	---	---
1957	---	---	---	---	---

Table 2. (Cont.) Subsistence harvest of Western Alaska chinook salmon (including Canadian harvests of upper Yukon chinook) by area and year, 1920 - 1986.

Year	Yukon River		Kuskokwim	Bristol Bay	Total Western Alaska
	Alaska	Canada			
1958	11,890	8,000	---	---	19,890
1959	---	5,957	---	---	5,957
1960	---	5,595	20,361	---	25,956
1961	21,488	9,800	30,910	---	62,198
1962	11,110	9,900	14,642	---	35,652
1963	24,862	7,794	37,246	4,100	74,002
1964	16,231	4,200	30,853	3,400	54,684
1965	16,608	3,113	31,143	5,100	55,966
1966	11,572	2,510	53,606	4,300	71,988
1967	16,488	2,963	61,224	4,200	84,875
1968	12,106	2,830	34,986	7,100	57,022
1969	14,000	984	43,732	7,500	66,216
1970	13,874	2,052	71,376	6,645	93,947
1971	25,684	3,269	45,465	4,700	79,118
1972	20,258	3,960	43,335	4,532	72,085
1973	24,317	2,323	41,697	7,200	75,537
1974	19,964	3,823	29,590	9,840	63,217
1975	13,045	3,000	51,045	8,600	75,690
1976	17,806	1,525	60,603	8,400	88,334
1977	17,581	2,807	58,163	7,000	85,551
1978	30,297	2,906	38,209	8,100	79,512
1979	31,005	4,200	57,283	10,300	102,788
1980	42,724	13,046	59,900	14,100	129,770
1981	29,690	9,216	63,640	13,000	115,546
1982	28,158	8,268	61,146	13,700	111,272
1983	49,478	5,625	50,704	13,500	119,307
1984	42,428	6,610	61,004	11,300	121,342
1985	39,771	6,428	52,189	9,675	108,063
1986	45,282	9,267	45,718	14,747	114,984

Table 3. Commercial harvest of Western Alaska chinook salmon (including Canadian catches of upper Yukon chinook) by area and year, 1893 - 1986.

Year	Kotzebue	Norton Sound	Yukon River Alaska	Yukon River Canada	Kuskokwim	Bristol Bay	North Alaska Pens.	Total Western Alaska
1893						44,000		44,000
1894						10,500		10,500
1895						19,925		19,925
1896						17,301		17,301
1897						19,897		19,897
1898						19,260		19,260
1899						38,259		38,259
1900						58,307		58,307
1901						106,047		106,047
1902						109,089		109,089
1903						86,506		86,506
1904						97,953		97,953
1905						116,855		116,855
1906						143,194	1,530	144,724
1907						137,677	1,725	139,402
1908						90,009	600	90,609
1909						130,489	1,500	131,989
1910						101,755		101,755
1911						113,163		113,163
1912						97,728	940	98,668
1913					7,800	74,249	600	82,649
1914						100,964	8,090	109,054
1915						148,028	13,953	161,981
1916					949	105,124	44,244	150,317
1917					7,878	91,145	20,006	119,029
1918			12,239		3,055	87,048	9,679	112,021
1919			104,822		4,836	201,954	19,632	331,244
1920			58,467		34,853	127,350	19,001	239,671
1921			69,646		9,854	91,982	12,474	183,956
1922			16,825		8,944	74,020	10,431	110,220
1923			13,393		7,254	67,013	9,075	96,735
1924			27,375		19,253	71,663	10,493	128,784
1925					1,664	97,448	10,550	109,662
1926						74,604	23,925	98,529
1927						83,846	16,495	100,341
1928						66,075	4,604	70,679
1929						150,663	4,067	154,730
1930					7,515	105,428	3,846	116,789