

ATTACHMENT 1

Tanner Crab
Proposed Amendment #5

AMENDMENT #5 is proposed as follows:

- Subpart I. Amend Bering Sea OY for C. opilio*
- Subpart II. Amend Bering Sea DAH/DAP to 58,815 mt. (129,630,000 lbs.)*
- Subpart III. Amend Bering Sea TALFF*
- Subpart IV. Implement provisions of the Processor Preference Amendment*

I. Data were not available to present an ABC/OY option for C. opilio Tanner crab at the time this agenda item was developed. The computerized data runs from the Northwest & Alaska Fisheries Center and the National Marine Fisheries Service office in Kodiak had not been completed prior to Friday, September 28, but are expected to be orally presented during the Council meeting.

II. The proposed amendment to increase the expected domestic annual harvest to 58,815 mt. (129,630,000 lbs.) for C. opilio is based on a report submitted by Sig Jaeger, Manager of the North Pacific Fishing Vessel Owners Association. In the report, (Attachment 1a) Jaeger states this amount is the "best realistic estimate" considering both catching and processing capability. The report was reviewed by the Advisory Panel at the August 1979 meeting and generally accepted as a valid indicator of the potential for the C. opilio domestic fishery in 1980.

III. Without an ABC/OY estimate for C. opilio in the Bering Sea, a clear statement of available surplus for foreign fishing is not possible. Therefore, a range of possibilities exists where:

1. A significant surplus may exist that will allow the foreign fishery to maintain its status quo, or
2. A limited surplus may exist which will allow a reduced/restricted foreign fishery to occur in the following manner:
 - a. An amount equal to the available surplus can be placed in reserve and released to TALFF if no U.S. fishery occurs north of 58° and if the OY south of 58° will not be exceeded, or
 - b. An initial allocation may be released and additional surplus identified in reserve for allocation to foreign fishing if no U.S. fishery occurs north of 58° N. and the OY south of 58° is not exceeded.

3. No surplus is available for foreign fishing.

No further examination of the alternatives can be provided at this time in the absence of the resource assessment.

IV. The relationship of the Processor Preference Amendment to the Tanner crab plan is not easily understood. We are not in agreement with Washington that it is even necessary to describe surplus harvesting and processing capacities and intents for a theoretical relationship to joint ventures. Additionally, there are no final regulations to use as guidance to implement the Processor Preference Amendment and even those used by the Secretary in her Gulf of Alaska amendment deviated greatly from the only ones published in the Federal Register, which are the proposed interim final regulations.

However, it appears necessary that this amendment contain an attempt at implementing the provisions of the Processor Preference Amendment. The following is an argument developed in concert with Patrick Travers (GCAK) to accomplish that:

1. There are no joint ventures proposed for this fishery.
2. We believe that the U.S. fishermen will probably harvest the entire OY for C. bairdi and C. opilio south of 58° N. longitude.
3. The capacity of U.S. processors to process this amount is clearly evident.
4. The U.S. fishermen knowing that the domestic processors are their only market, still indicated the intent to harvest the entire OY.
5. This is strong evidence that the domestic processors will process the entire U.S. catch which leads us to believe:
6. DAP = DAH.
7. Reporting Requirements.

The evidence discussed in the preceding six statements supports the conclusion that the U.S. processors will utilize any U.S. Tanner crab catch that may be harvested by U.S. fishermen in 1980. In order to assess the amount of Tanner crab that U.S. processors will use during 1981, however, it may be necessary for the Council to have access to more direct statistical information concerning U.S. processor intent for that year. Therefore, the National Marine Fisheries Service may in the regulations promulgated to implement this plan provide:

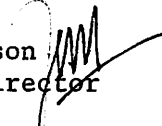
1. For a systematic compilation of all Tanner crab fish ticket data for 1980, and
2. By survey of U.S. processor capacity and intent to process Tanner crab during 1981.

Both of these should be conducted at the end of the 1980 Tanner crab fishing effort.

September 28, 1979

MEMORANDUM

To : Council Members, Scientific & Statistical Committee,
and Advisory Panel

From : Jim H. Branson 
Executive Director

Subject : Tanner Crab FMP Proposed Amendments

ACTION REQUIRED: Approval of an amendment changing Bering Sea OY (for C. opilio), DAH and TALFF and implementing certain provisions of the Processor Preference Amendment

BACKGROUND INFORMATION: In August, the Council approved an Amendment formally extending the plan and regulations thru October 31, 1980. At this meeting, it is necessary to consider substantive amendments to this plan dealing with Bering Sea OY's, DAH and TALFF and the Processor Preference Amendment.

Unfortunately, an additional series of amendments have also been identified for the plan but cannot be considered at this meeting. These are proposals that have been submitted by the Alaska Department of Fish & Game to the Alaska Board of Fisheries for consideration by the Board at their December meeting. They deal with the closing date for the Bering Sea C. opilio season, reporting Tanner crab deadloss on fish tickets, changes in the Kodiak C. bairdi OY and the Bering Sea C. bairdi OY.

Attached are the amendments to be considered at this meeting (Attachment 1) and those proposed amendments identified and submitted by the ADF&G to the Board of Fisheries (Attachment 2).

Attachments

AGENDA G-2
Attachment
1.a

FILE	ACT	INFO	ROUTE TO	INITIAL
			Exec. Dir.	<i>S</i>
			Phone: (206) 785-5383	
			Admin. Off.	
			Exec. Sec.	
			Writer/1	
			Writer/2	
July 31, 1979				Sec. Recep.
			Sec. Typist	

NORTH PACIFIC FISHING VESSEL OWNERS ASSOCIATION

BUILDING C-3, ROOM 218
FISHERMENS TERMINAL
SEATTLE, WASHINGTON 98119

Preliminary estimate of 1980 U.S. catch and process capacity
for C. Opilio tanner crab in the Bering Sea.

Summary:

- I. New processing capacity for 1980, by new plants ashore and by floaters (does not include catcher/processors), and by increased capacity of existing plants:

Low estimate only: 89,300,000 lbs.
- II. New processing capacity by c/ps (catcher/processors):

Low estimate only: 10,173,000 lbs.

C. Opilio, Total Low estimate: 99,473,000 lbs.

A. A second estimate, based on existing information, what I call the "best realistic estimate" adds up to:

- I. A. - Processing only: 111,630,000 lbs.
 - II. A. - C/P's only: 18,000,000 lbs.
- Best realistic total: 129,630,000 lbs.

Qualifications:

1. The 1979 processing capacity demonstrated by the approximately 30,000,000 lbs. of C. Opilio caught and processed is not a part of the estimate. Full catching and processing capacity was not demonstrated because of limited buying, and it is safe to assume that full capacity is higher than this year's demonstration, and such unknown existing capacity has not been presumed in this estimate. C/p's caught only a fraction of their potential, and data on this is not yet available.

2. Assuming no C. Opilio fishing in August, 1980, by either live tank boats or C/p's, and without any supplanting of a further reduced C. Bairdi catch by an earlier start on C. Opilio, A total low estimate of 100,000,000 lbs could still result.

3. A simple comparison of the combined tanner catch in 1978 (67,000,000 lbs.) compared with the combined catch in 1979 (74,000,000 lbs. prox.) shows a total combined increase of only 7,000,000 lbs. for Bering Sea. However, only 30% of the C. Opilio is of a size that overlaps with the smaller C. Bairdi product forms. The real increase in C. Opilio product (without the supplanting effect), could then be 70% of 31,000,000 lbs or 21,700,000 lbs, or truly new production.

Comment on I and I A:

Six new processing-only units are expected in 1980; upgrading of existing processing capacity for 1980 was estimated on incomplete data. Therefore not all increased capacity is accounted for and included in the estimate. Based on what is known, 915,000 lbs. per day of processing operation with a potential of 122 operating days produced the estimate of 111,630,000 lbs. of capacity for the season.

The lack of all the data may mean this is a low figure. Alternate processing opportunities, (i.e., Salmon Freezing or down time for maintenance, etc.), may erode the operating days potential. Taking a conservative stance, the total was arbitrarily discounted by 20%, leaving a net processing capacity of 89,300,000 lbs. for 1980, and leaving out existing capacity as demonstrated in 1979.

The estimated total catch of C. Opilio for 1979 will probably exceed 30,000,000 lbs., but this demonstrated capacity falls substantially short of the existing catching and processing potential, since some processors were either shut down or processing at some fraction of their full potential. The few remaining vessels fishing from June and on were also on weekly delivery limits.

Other variables are of course market acceptance of C. Opilio product as demonstrated by the coming sales period of this year's pack, either new markets or in lieu of C. Bairdi products. Further refinements in C. Opilio processing technology will certainly result from this year's extraordinary production increase to 30,000,000 lbs. from the previous season production of 1,700,000 lbs. Any further reduction of the C. Bairdi harvest range in 1980 (considered likely) would be reflected by some displacement effect of increasing demand for C. Opilio.

Barring substantial market reversals due to lack of product acceptance or recessionary economic changes, it appears that production of 89,300,000 lbs. of C. Opilio can be expected, and even an estimate of 111,630,000 lbs. might be nearer to a realistic appraisal of potential (provided this estimate along with the C/P (catcher/processor) combined catch-and-processing is not substantially in excess of the biologically allowable harvest range).

Comment on II and II A:

In early 1979 there were 5 c/p's active, but not to full capacity because of late start-up or involvement in other ventures besides crab. In 1980 it appears at this time there will be 13 c/p vessels, some utilizing their dual capacities in C. Opilio as alternates to other economic opportunities. These new c/p systems will also require operating shakedown and revision, and degrees of success will vary, perhaps considerably for some. Realization of full potential processing capacity will also be dependent on fishing success unless supplemented by joint ventures with live tank vessels. It appears that a c/p vessel may fish about 80% of the available season time; 20% of the time is lost to off-loading and running in and out. If all 13 c/p vessels were to operate on C. Opilio for 4.5 months from latter half of April (123 days) at the 80% level, this would amount to 1279 c/p days, but this is not probable. Some months during this period possibly as few as 2 to 5 c/p vessels would operate, others being involved in Salmon or Herring or downtime for repairs or modification.

Applying these discounts of other operating opportunities results in a reduced range estimate of 442 to 812 c/p days of active operation, substantially less than the full potential of 1279 c/p days.

Further, given normal expectations of CPUE, but a higher average daily pot turnover than live tank vessels, a daily catch rate can vary from 20,000 lbs to 30,000 lbs. or more.

Using these and other assumptions as noted on page 1, the low total catch estimate would be 10,173,000 lbs.; the high estimate could be 24,000,000 lbs; and a "best realistic estimate" on my part places the total poundage at around 18,000,000 lbs.

Summary:

To recapitulate, the total of all combined processing low estimate of both I and II appears to be 99,500,000 lbs. of C. Opilio, and this is a minimum potential, heavily discounted.

The combined high of both I and II could be in excess of 135,600,000 lbs. if both season and market and operating options focussed on C. Opilio.

The combined "best realistic estimate" of 129,630,000 lbs. is a reasonable estimate even if planned capacities are not fully realized, if resource availability will permit, and there is no tie up in an ex-vessel price dispute as in 1979. (Bering Sea vessels were on strike for two months in 1979, from Jan. 15 to March 14)

From fall 1979 thru summer of 1980, total increased catch (King & Tanner) can equal or exceed 60 million lbs. round, as increased production over the previous year. Roughly, this could mean an increase of product to the market of 30 million lbs., depending on proportionate product form (sections or meat). The effects of this may vary, most probably in pricing, and to some degree possibly reduced growth rate for an underutilized species such as C. Opilio, when the product supply increases by 30% or thereabouts. A variant logic is also that the cheaper product (C.

Opilio) may supplant the higher priced crab in some overlapping areas, and thereby spur production, and further stimulated if the market continues its present momentum of expansion.

Catcher vessels:

Live tank vessel fishing capacity for C. Opilio in 1980 will continue to exceed processing capacity, and only those vessels with confirmed markets will be fishing. Others will temporarily leave the fishery for other ventures, such as tendering Herring in April/May or Salmon in July, or North Bering Sea Red or Blue King crab fishing in July.

70% of the 144 vessels fishing King crab in the fall of 1977, fished for Tanner in the spring of 1978. Similar proportions will probably hold true for 1979 when the figures are finalized (1978-162 vessels on fall King crab, S.E. Bering Sea) 210 to 220 vessels will probably be fishing S.E. Bering Sea King crab in September, 1979 and implies at least 150 vessels available for both the Tanner fisheries, if enough markets are available.

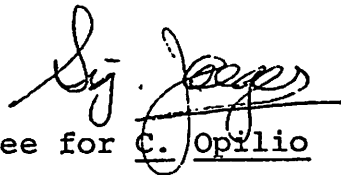
On the whole, it appears at this time that the greater pressures exist for substantially increased production, spurred by improving processing technology, market growth, fleet growth, and some ex-vessel price adjustments.

The foregoing estimate is preliminary and subject to review and comment by the subcommittee.

Sig Jaeger

AP subcommittee for C. Opilio

DAH.



A.P. subcommittee for C. Opilio DAH:

Sig Jaeger Joe Kurtz
Charles Jensen Jeffrey Stephan

ATTACHMENT 2

Tanner Crab
Alaska Board of Fisheries Proposals

The Alaska Department of Fish & Game has proposed to the Alaska Board of Fisheries that they consider amendment their State regulations to require:

1. The reporting of deadloss on Tanner crab fish tickets
2. An OY for Tanner crab in the Kodiak area of 10-25 million lbs.
(Currently 20-35 million lbs.)
3. An OY for Tanner crab, C. bairdi in the Bering Sea of 27-51 million lbs.
(Currently 89 million lbs.)
4. An earlier closing date for the Bering Sea C. opilio season
(Presently September 3).

These proposals have not been submitted by the Plan Drafting Team to the Council. Presentations by ADF&G on these proposals will be made to the Board of Fisheries in December. If a joint meeting can be scheduled with the Board in early December, the Council may wish to consider the amendments at that time.

NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

DATE: 10/4/79

I wish to testify on:

AGENDA TOPIC: Tanner crab - C. opilio

AGENDA Numbers: _____

Time required for presentation: 5 minutes

NAME: Sig. Jaeger

MAILING ADDRESS: Bldg C-3, Rm 218, Fishermen's Terminal
Seattle, 98119

DATE: 10-4-79

NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

I wish to testify on:

AGENDA TOPIC: TANNER CRAB FMP

AGENDA Numbers: Q-2

Time required for presentation: 1-2 min.

NAME: Roysh J. DeVANey

MAILING ADDRESS: 8310 BLACKBERRY ST ANCHORAGE AK 99502

Did you get
a room?

NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

DATE: _____

I wish to testify on:

AGENDA TOPIC: Tanner Crab. FMP - Amendments

AGENDA Numbers: 9-2 . _____.

Time required for presentation: _____.

NAME: Japanese Tanner Crab Ind. / Jay Hastings

MAILING ADDRESS: _____

NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

DATE: 10/4/79

I wish to testify on:

AGENDA TOPIC: Halibut FMP

AGENDA Numbers: G-4

Time required for presentation: 5 min

NAME: Dennis Hubs

MAILING ADDRESS: Box 1477 Sitka

DATE: _____

NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

I wish to testify on:

AGENDA TOPIC: G-2 Tanner Crab

AGENDA Numbers: G-2

Time required for presentation: 2 min.

NAME: Dick Pace

MAILING ADDRESS: Box 94 Redmond, wa. 98052

NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

DATE: _____

I wish to testify on:

AGENDA TOPIC: TANNER CRAB

AGENDA Numbers: G-2

Time required for presentation: _____.

NAME: RAY Lewis

MAILING ADDRESS: _____

NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

DATE: OCT. 4, 1979

I wish to testify on:

AGENDA TOPIC: CHANGE OF GULF OF ALASKA GROUNDFISH 04

AGENDA Numbers: G3 _____.

Time required for presentation: 5 MINUTES.

NAME: DAN WEBSTER

MAILING ADDRESS: C/O PACIFIC PEARL, DUTCH HARBOR, AK.

NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

DATE: _____

I wish to testify on:

AGENDA TOPIC: _____

S AMON RAN

AGENDA Numbers: _____

Time required for presentation: _____

3 minute.

NAME: _____

Scott Stefan

MAILING ADDRESS: _____

* CAPACITY

Bairdi- ① Possible start in Nov & Dec. This year. At least 2 Processors will buy.

② With lower CPUE and 200 Vessels, we would expect 26.0 by March 15, providing there is no price problems

③ Weekly capacity reduced in Re: King crab due to 3 Times as many animals being handled.

④	5.0 estimated per week	
	<u>1.0</u> catcher / processors	12-14
	6.0 per week. MINIMUM.	200,000 King crab
		= 100,000 BAN

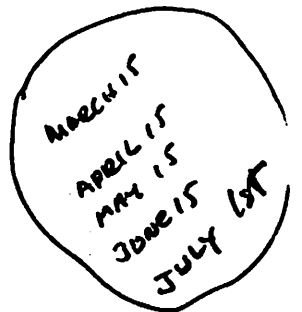
⑤ Export factor to Kodiak would be additional.

⑥ 7 million per week

$$7 \overline{) 126.000.000}^{18}$$

18 weeks = 4 1/2 MONTHS

2 months	x	3.0 per week	=	24.0
3 1/2 "	x	7.0 " "		105.0



126
24
7 18
150

2.

Month
58°

77	50-50
78	90-10
79	95-5

1979 B.S.
TANNER CRAB FISHERY
BAIRDI OPAKIO

— PRICE disagreement.

	Nov 1 to 3/11	PRICE	disagreement.	
1	3/18	1.1	—	1.1
2	25	6.2	—	6.2
3	4/1	5.2	.06	5.26
4	8	5.9	.3	6.1
5	15 *	5.2	1.4	6.4
6	22	4.4	2.1	6.5
7	29	3.8	2.2	6.0
8	5/6 *	2.4	3.0	5.4
9	13	1.6	3.6	5.2
10	20	1.7	3.1	4.8
11	27	1.8	2.9	4.7
12	6/3	—	2.3	2.3
13	10	—	2.3	2.3
14	17	—	.7	.7
15	24	—	—	—
16	30	—	—	—
20	7/1-7/30	—	1.8	1.8

42.5

78 Price
52¢
30¢

79 Price

32.2

from the desk of

ROYAL DeVANEY

222 Chairman & Council member
Pacific Coast Seafoods is planning
to start purchasing Bering Crab
November 1, 1979 and Opilio Crab
early in 1980.

Like the fishing fleet multiplying
so has the capacity of the processor
enlarged.

We now have the ability to
catch, process, and market about
100 million pounds of Tanner crab
in one season.

Since starting to harvest Opilio
Crab in 1978 the industry has gone
from about 1.7 million pounds to about
30 million pounds, live weight purchased.

In the National Marine Fisheries Service
Report 79-14 of the Eastern Bering Sea
Survey King & Tanner Crab, the Bering
Crab stock shows a decline for the
79/80 + 80/81 seasons from the 78/79
season also the survey shows a possible
decline in the Opilio Crab from what
was thought last year.

from the desk of

ROYAL DeYANEY

With this in mind we need to be able to catch and process about 100 M[#] of Tanner Crab to sustain the economy of the fleet and processors alike as long as the harvest is not detrimental Biologically to the species.

With all of this in mind I feel that it is justified ^(#1) to stop ~~the Japanese~~ ^(#2) fishing for all Tanner Crabs in the Bering Sea immediately, ~~and~~ to have a closure to the Japanese fishing now with a review in May of 1980 and if the American fleet and processors ~~are~~ unable to harvest the available stocks, then we would be willing to let them move in to harvest 1/2 of the 1979 allotment for one time only.

84 M King 78122

67 M Tanner

est. 3 M[#] per day ground

Total allowable
Foreign Fisheries

COMMENTS
ON THE
FISHERY MANAGEMENT PLAN
FOR THE
TANNER CRAB OFF ALASKA

submitted by the
Japanese Tanner Crab Industry

Sitka, Alaska
October 4-5, 1979

On behalf of the Japanese Tanner crab fishery in the eastern Bering Sea, the following comments are being submitted to the North Pacific Fishery Management Council for consideration on the proposed management regime for the 1980 fishery management plan (FMP). As a recommended management regime for the foreign fishery during 1980, the following comments support a fleet separation line at 58°N latitude and 173°W longitude and a total allowable level of foreign fishing (TALFF) north and west of this line equal to 15,000 metric tons from which no more than 2,500 mt of C. opilio only can be taken from the area south of 58°N latitude and west of 173°W longitude.

FLEET SEPARATION LINE

During 1978 and 1979, the Japanese Tanner crab fleet was restricted to the areas north of 58°N latitude and west of 173°W longitude. As a result of this restrictive measure, there has been no gear conflict between the U.S. and Japanese fleets and no competition for the fishing grounds. Since approximately 98% of the harvestable C. bairdi male population is located south of 58°N latitude, the optimum yield (OY) for this species has been efficiently reserved for U.S. fishermen. (Note: Japanese fishermen fishing south of 58°N latitude and west of 173°W longitude return all incidentally caught C. bairdi to the water.) Because this fleet separation line has been more than adequate for the past two years, a change does not appear to be necessary for the 1980 season.

The Japanese industry fully recognizes that the U.S. Tanner crab industry has been rapidly expanding in harvesting and processing capacity. However, even with the drastic decline in C. bairdi during 1979, the U.S. fleet has not yet ventured to the more remote fishing areas north of 57°30'N latitude and west of 172°W longitude. In fact, over the past two years, the U.S. fishery has expanded more to the east and this year, the fleet did not fish beyond 171°W longitude. For both species, the fishery has continued to concentrate around the Pribilof Islands and north of Unimak Island and the Alaskan Peninsula.

A number of factors seem to offer an explanation as to why this fishery pattern will probably not change during the 1980 season. Firstly, only 2% of the harvestable C. bairdi male population is found in the waters north of 53°N latitude. Since C. bairdi is the primary target species for the U.S. fishery, total effort is concentrated in the southern fishing areas from the beginning of the season. Furthermore, compared with the average size of C. bairdi taken in the U.S. fishery, those found north of 58°N latitude and west of 173°W longitude are much smaller. It would appear that the C. bairdi resource in the northern and western areas is simply unattractive to U.S. fishermen.

Secondly, the largest concentrations of C. opilio are also found in the waters south of 58°N latitude. Although C. opilio is taken incidentally in the U.S. C. bairdi fishery, a target fishery does not really begin until the C. bairdi fishery begins to phase down. However, a shift into the C. opilio fishery does not result in any drastic shift in fishing area. Although the 1979 harvest of C. opilio was over 18 times the 1973 harvest, the area of fishing did not significantly expand. Considering the probability for higher dead-loss rates in live tanks and the higher operating costs for all vessel classes to operate in these more remote areas, the higher concentrations of crabs in the southern areas are simply much more attractive and convenient for the U.S. industry.

Thirdly, during the late spring and early summer a number of more attractive fisheries begin to draw vessels away from the Tanner crab fishery. The herring fishery attracts a large number of vessels from the fishery during the first part of May. After the herring season, many crab vessels begin to prepare for the salmon season as tender vessels. Other crab vessels move north into the more lucrative blue king crab fishery near St. Mathew Island which begins around mid-July.

Upon careful analysis of the logistics of the U.S. Tanner crab fishery, it appears reasonable to conclude that even with a further increase in the industry harvesting and processing capacity, the fishery will probably not expand to the north of 58°N latitude and west of 173°W longitude. The resource south of 58°N latitude can sustain an increased U.S. fishery and large areas still remain totally unutilized in the area south and east of the fleet separation line.

ABC FOR C. OPILIO

Assessing the ABC for C. opilio requires a full analysis of three different data bases: (1) NMFS surveys; (2) Japanese surveys; and (3) the performance of the U.S. and Japanese commercial fisheries. Because surveys and the Japanese fishery have been conducted in the areas north of 58°N latitude and west of 173°W longitude for the past two years only, the data base is still incomplete. Sole reliance upon any one single data source may, therefore, result in biased figures which do not reflect the actual condition of the resource. For example, results of the 1973 NMFS survey estimated the abundance of male C. opilio crabs greater than 99 mm carapace width to be about 9,500 mt north of 58°N latitude. However, as the 1979 Japanese fishery progressed, it became apparent the abundance was much higher. It was noted by the Plan Development Team in a May, 1979 report that at the time the abundance was estimated from the 1973 survey, the Japanese fishery had already removed some 13,400 mt from the survey area indicating a population of at least 23,000 mt at the beginning of the fishery. A comparison between the 1973 and 1979 Japanese catch rates did not indicate any declining trends and suggested the level of Tanner crab abundance north of 58°N latitude and west of 173°W longitude was similar to that in 1973 and capable of supporting the 1979 fishery. Results of the fishery itself demonstrated the resource was capable of sustaining a 15,000 mt harvest.

For the past two years the Japanese have surveyed the waters north of 58°N latitude and west of 173°W longitude using both pot and trawl gear. In a report submitted during the U.S.-Japan scientific meeting held in Seattle in May, 1979, the Japanese scientists estimated the abundance of male C. opilio crabs greater than 100 mm carapace width to be 33,000 mt in the survey areas north of 58°N latitude

and west of 173°W longitude based upon a sampling gear efficiency of 0.345. Using the FMP exploitation rate of .58, the ABC was estimated at 19,000 mt. This estimate has been substantiated by the performance of the 1979 fishery.

Preliminary analysis of the data from the first phase of the 1979 Japanese survey indicates that the average resource density and abundance of male C. opilio crabs greater than 100 mm carapace width is similar to that of 1978. This year, the United States and Japan also conducted a cooperative survey to study sampling gear efficiency. The results of this survey should be helpful for a better understanding of the resource condition and should be considered for review in the assessment of the ABC.

In addition to the performance of the 1979 Japanese fishery and the preliminary analysis of the first phase of the 1979 Japanese survey, the results of the 1979 NMFS survey also indicate that the status of the resource north of 58°N latitude has remained fairly stable. The estimated number of harvestable male C. opilio crabs greater than 100 mm carapace width from the 1979 survey is very similar to the number estimated from the 1978 survey. However, it is noted that the ABC from the 1979 survey is calculated from those crabs greater than 104 mm rather than 100 mm as was done in 1978. There appears to be no scientific basis for increasing the size from which the ABC is calculated.

Based upon the performance of the Japanese fisheries north of 59°N latitude and west of 173°W longitude and the results of the U.S. and Japanese surveys conducted in these areas, it can be reasonably concluded that the resource in the area of the Japanese fishery is capable of sustaining a harvest of at least 15,000 mt and that the ABC for C. opilio is probably greater than 126 million pounds.

OY FOR C. OPILIO

In the absence of any basis for deviating from the ABC, the OY for C. opilio should be equated with the ABC.

CATCH TRENDS FOR C. OPILIO

In order to provide an estimate of the U.S. catch for C. opilio, Figures 1 and 2 project the 1980 catch for the Bering Sea based upon historical catch records for all Alaska. Figure 2 shows that even though the C. opilio catch increased significantly between 1978 and 1979, the total Bering Sea catch increased by only 8 million pounds. This appears to be an average increase for the Bering Sea when compared to previous annual increases. It is possible that with the decline in C. bairdi, C. opilio has been an acceptable substitute in the market. Therefore, it appears that the total Bering Sea catch of Tanner crab must be taken into consideration when projecting the future catch of C. opilio.

Based upon past catch records, the highest projected catch for the Bering Sea Tanner crab fishery for 1980 would be about 112 million pounds. This would be a 34 million pound increase over 1979 and the largest increase within the past 5 years. From this projected catch of 112 million pounds, it can be assumed that 27 million pounds will be C. bairdi. This would result in a C. opilio catch of 85 million pounds. Compared with the 1979 catch of C. opilio, this also represents a 52 million pound increase and would appear to be more than a reasonable estimate for the 1980 U.S. catch.

TALFF FOR C. OPILIO

With an OY of 126 million pounds and an estimated U.S. catch of 85 million pounds for C. opilio, a surplus of 41 million pounds remains. This is more than adequate to allocate 15,000 mt to TALFF.

CONCLUSION

The Japanese Tanner crab industry feels the above comments are reasonable in support of the option which retains the status quo for the 1980 Tanner crab foreign fishery. Survey results demonstrate that the C. opilio fishery is capable of sustaining a substantial increase in the U.S. catch and at the same time providing a sufficient surplus for a 15,000 mt TALFF north of 58°N latitude and west of 173°W longitude.

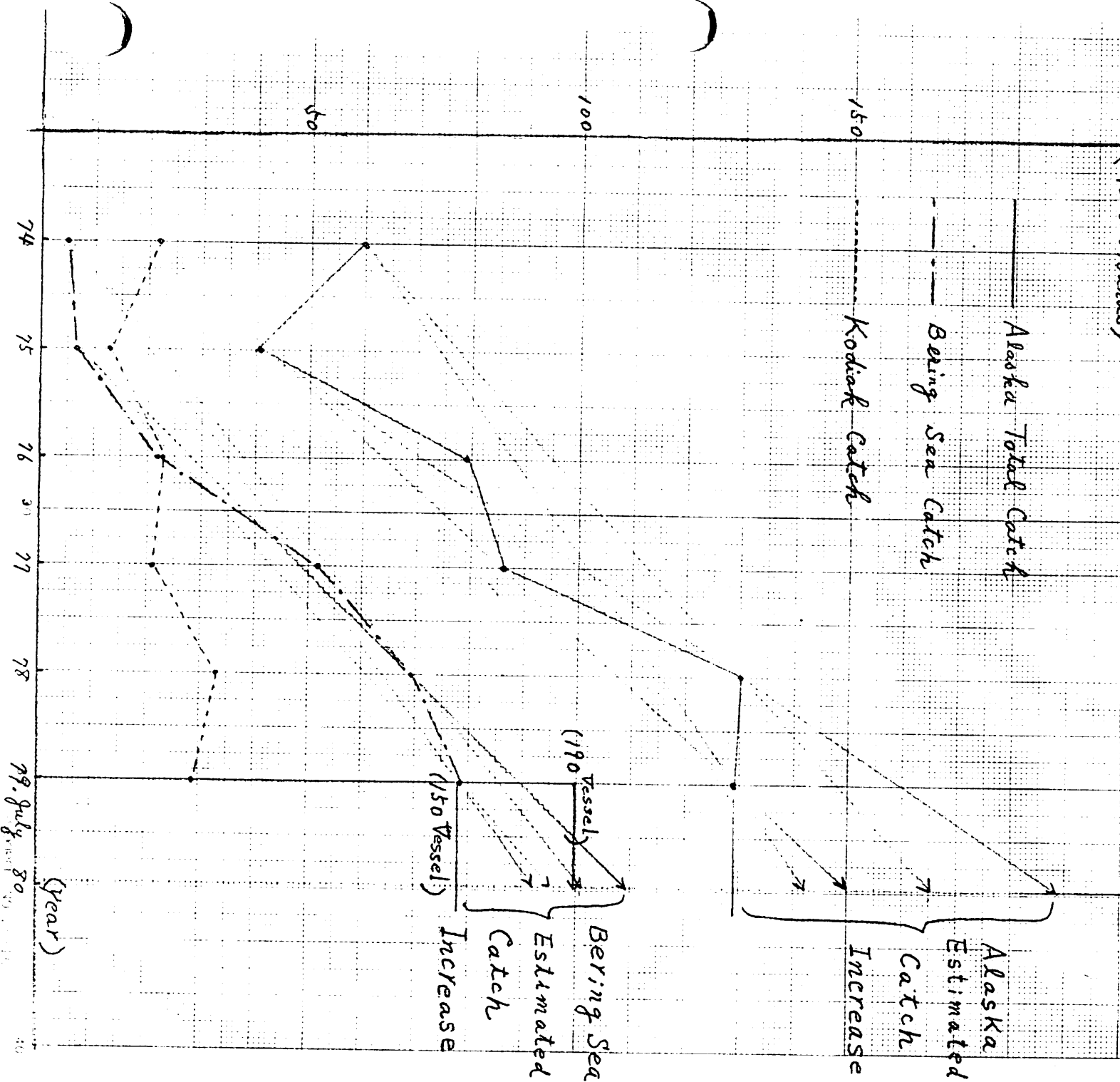
For a number of years, the Japanese mothership Tanner crab catch has provided stability to the Japanese market. Channels of distribution have been developed by the mothership fleet companies which provide the basis for expanding the market with the imported product from the U.S. During 1979 alone, imports of Tanner crab from the U.S. increased by 4,000 mt over 1978. Through these established channels of distribution, a reasonable opportunity exists for further expansion of the Japanese market during 1980 with increased imports from the United States.

Submitted on behalf of the
Japanese Tanner Crab Industry

Tsunero Takahashi
Tsuneya Kumagai
Jay D. Hastings

Estimated Catch Of 1980 year
(Tanner Crab)

200 (Million Pounds)



199 July 80 (Year)

130

No-2

Estimated Catch Of 1980 Year

100 (Million Pounds)

——— Bering Sea Catch
 - - - Bairdi Catch
 ····· Opilio Catch

(190 Vessel)

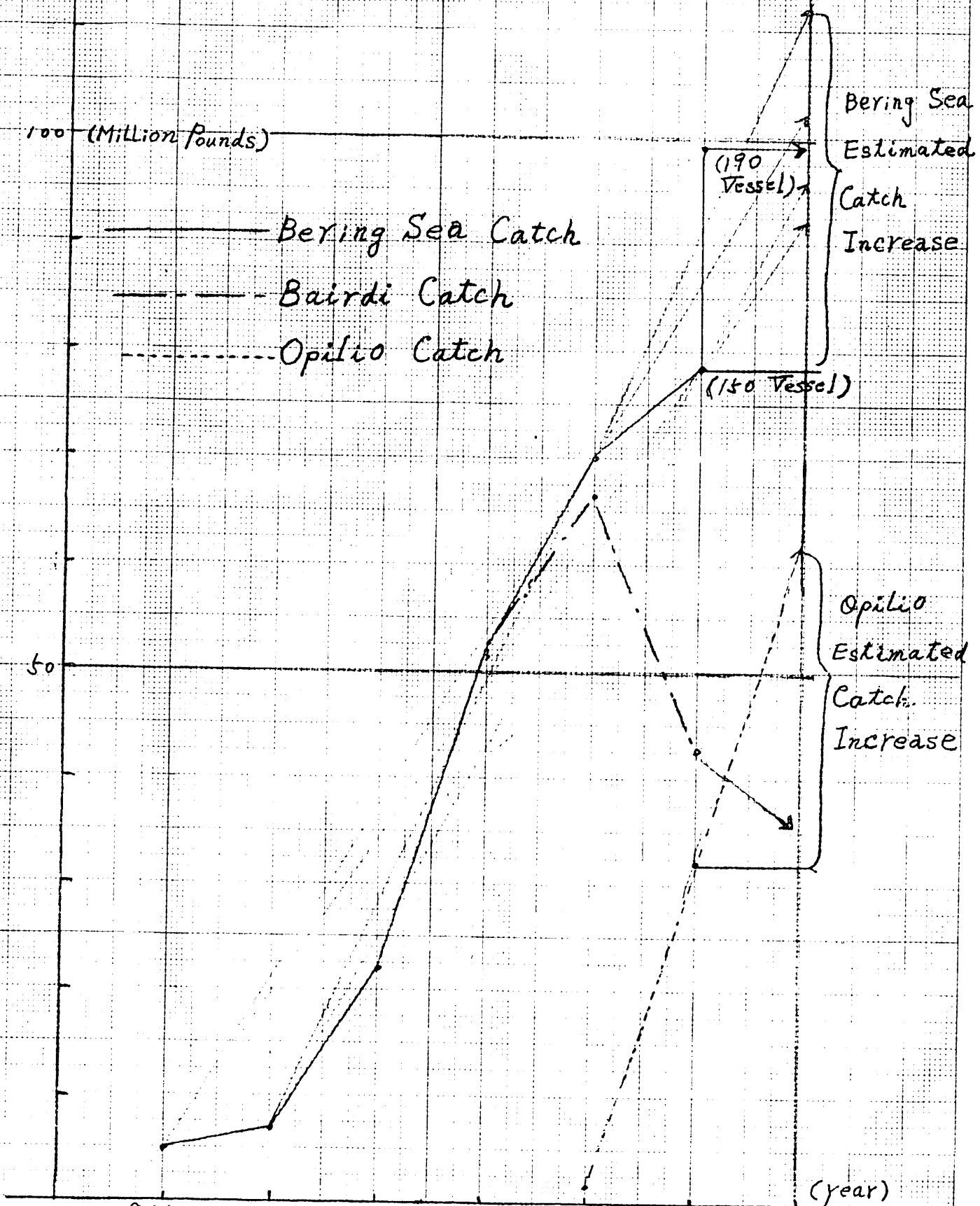
(150 Vessel)

Bering Sea
 Estimated
 Catch
 Increase

Opilio
 Estimated
 Catch
 Increase

50

1974 75 76 30 77 78 79 80 (year) 40



Jay Hastings
Oct, 4, 1979

REPORT ON FISHING CONDITIONS
OF JAPANESE TANNER CRAB IN THE EASTERN BERING SEA
in 1979 SEASON

Japanese Tanner Crab Industry

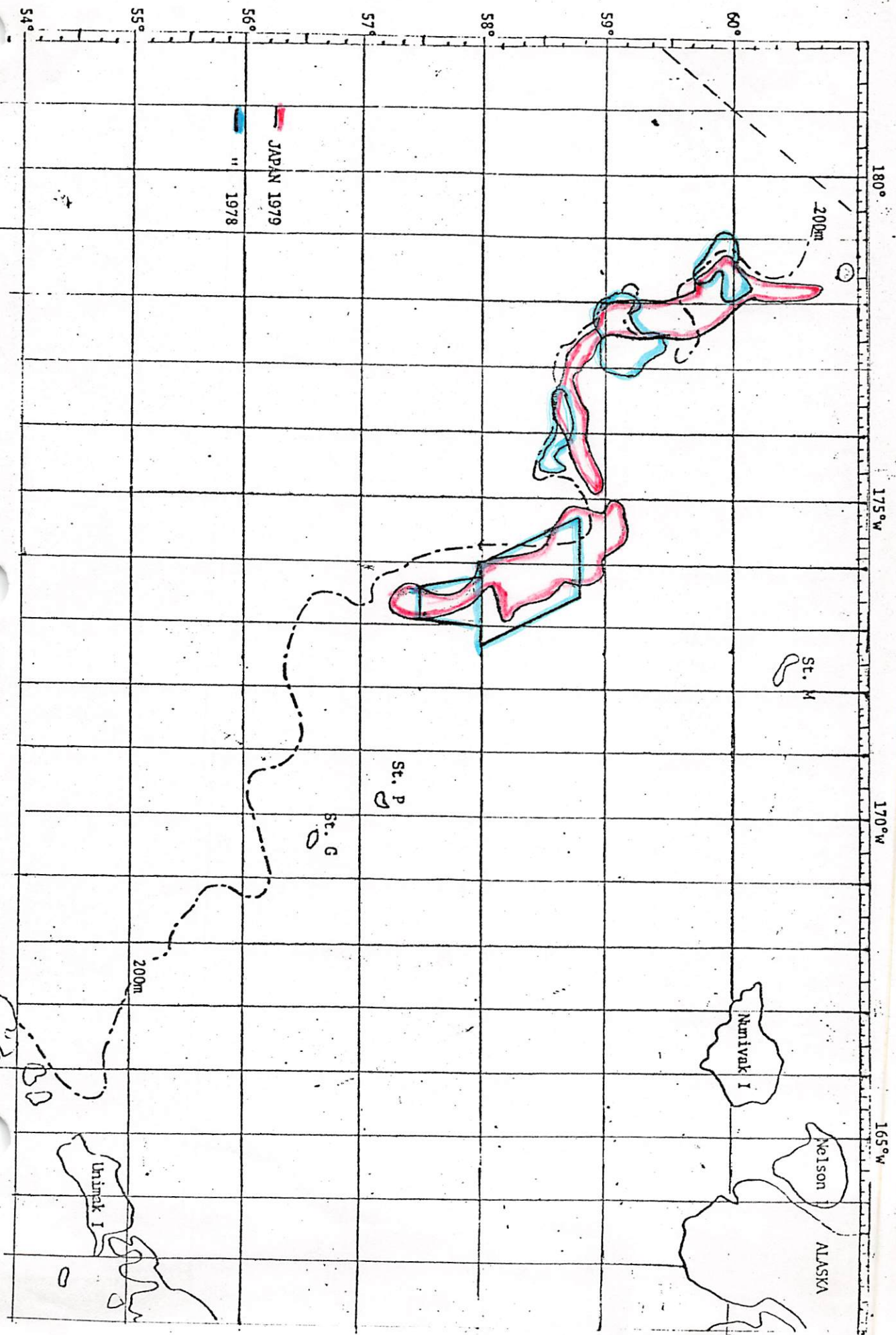
This year our fishing operation started in late February, about half a month earlier than usual years. Although the drifting ice did not flow down to the south, the weather conditions have been rather bad. The bottom temperature has been at the higher level than usual years for these two years.

CPUE trend of Japanese fishery has been very similar to 1978.

Year	Fishing Period	Day on the ground	Idle days due to bad weather	Days Pot-lifted	Catch (m.t.)	Catch /day	CPUE crab/pot
1979	2/23 ~ 8/26	195	15.5	169.5	11,727.826	69.2	14.5
1978	3/12 ~ 9/3	176	9.4	166.6	11,727.054	70.4	14.1

(Note: Affected by the raised price of oil and relevant materials, our operation on the commercial base was critical this year.

CHUB FISHING AREA OF THE EAST BERING SEA (1979 AUG. 26)



180°

175°W

170°W

165°W

200m

200m

JAPAN 1979

" 1978

St. M

St. P

St. G

Nantvak I

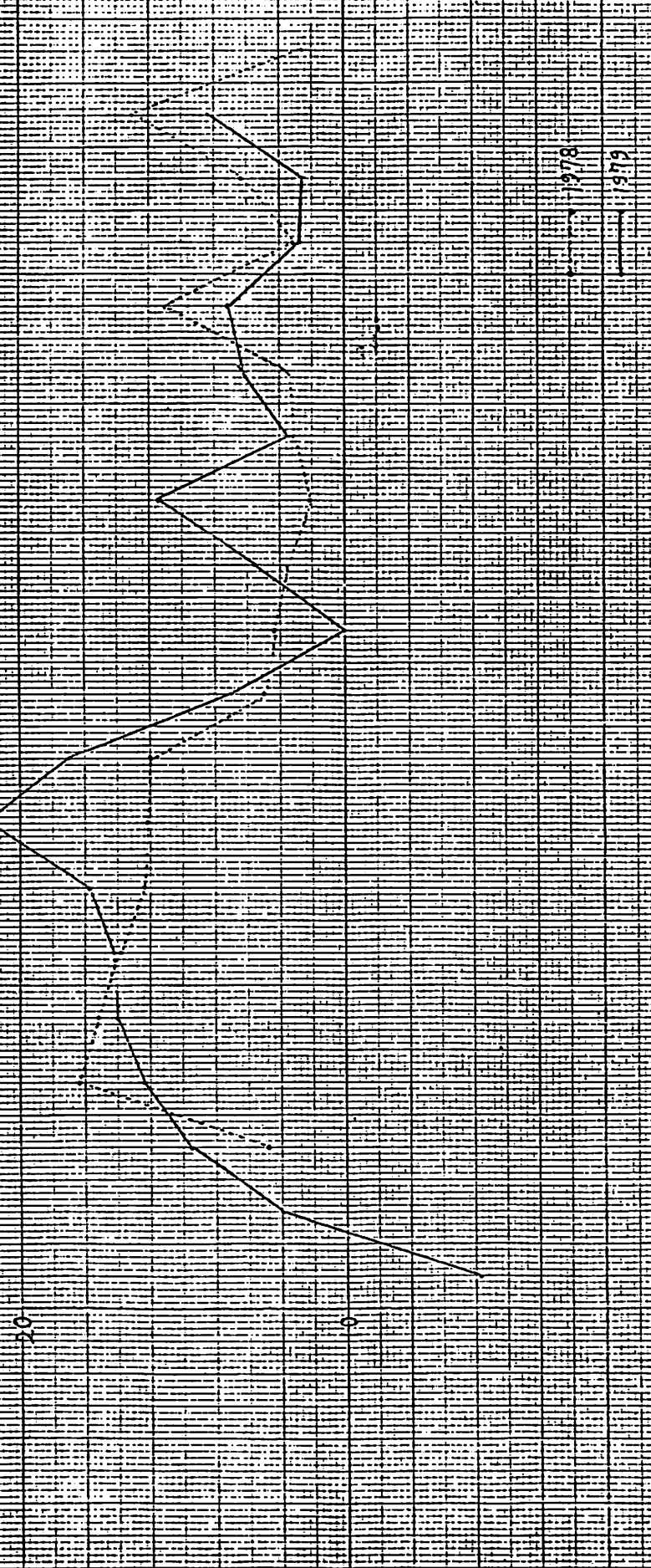
Nelson

ALASKA

Uhinak I

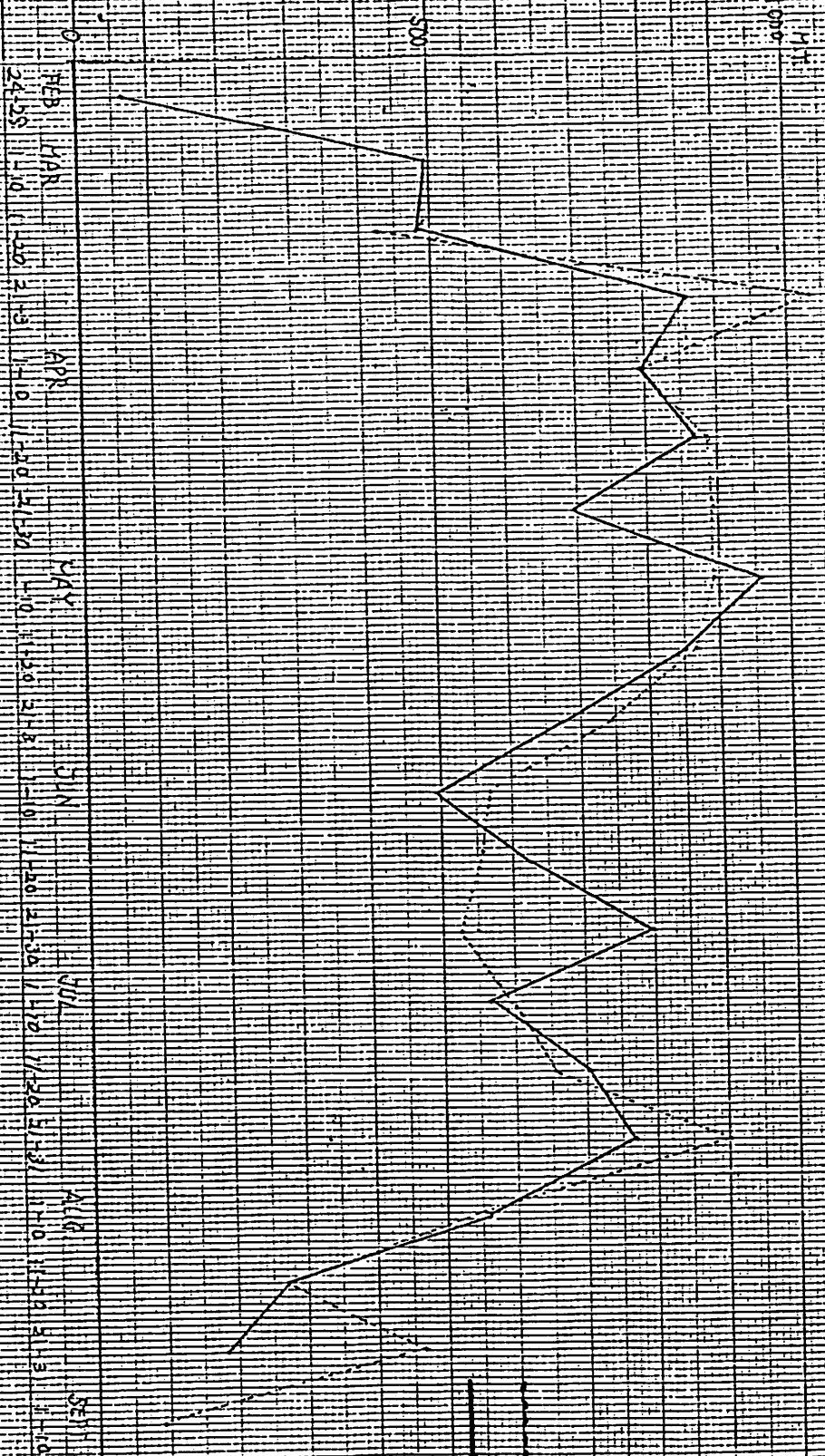
CRABBY (CRABBY POT) OF 10 DAY PERIOD

LCPU (CRABBY POT)



OCT 1978
 OCT 1979
 OCT 1980
 OCT 1981
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 OCT 2030

CATCH WEIGHT (MT) OF 10 DAY PERIOD



1977
1978

0 2 10 12 50 52

MOTHER SHIP CUBAN FISHERY CATCH DATA 1/2 X 1

	179W	178W		177W		176W		175W		174W		173W		172W															
61N Year	1978	1979	1978	1979	1978	1979	1978	1979	1978	1979	1978	1979	1978	1979															
No. of Pot Lifts		64,318																											
Catch Wt. (tons)		573.490																											
Catch Number		887,530																											
CPUE		13.8																											
<table border="1" style="width: 100%;"> <thead> <tr> <th>ALL TOTAL</th> <th>1978</th> <th>1979</th> </tr> </thead> <tbody> <tr> <td>No. of Pot Lifts</td> <td>1,119,905</td> <td>1,288,325</td> </tr> <tr> <td>Catch Wt. (tons)</td> <td>11,727.954</td> <td>11,727.826</td> </tr> <tr> <td>Catch Number</td> <td>15,839,850</td> <td>18,638,527</td> </tr> <tr> <td>CPUE</td> <td>14.1</td> <td>14.5</td> </tr> </tbody> </table>															ALL TOTAL	1978	1979	No. of Pot Lifts	1,119,905	1,288,325	Catch Wt. (tons)	11,727.954	11,727.826	Catch Number	15,839,850	18,638,527	CPUE	14.1	14.5
ALL TOTAL	1978	1979																											
No. of Pot Lifts	1,119,905	1,288,325																											
Catch Wt. (tons)	11,727.954	11,727.826																											
Catch Number	15,839,850	18,638,527																											
CPUE	14.1	14.5																											
No. of Pot Lifts	4,068	58,561																											
Catch Wt. (tons)	45.772	477.004																											
Catch Number	71,374	764,067																											
CPUE	15.5	13.0																											
60N																													
No. of Pot Lifts	17,408	17,061	8,576	5,180																									
Catch Wt. (tons)	135.586	101.713	99.496	19.358																									
Catch Number	222,525	159,649	160,325	30,283																									
CPUE	12.8	9.4	18.7	5.8																									
No. of Pot Lifts	20,864	15,405	31,872	27,517		1,222				17,203	2,432																		
Catch Wt. (tons)	211.370	120.363	270.714	209.516		4.867				128.479	8.766																		
Catch Number	338,055	194,837	461,061	334,701		7,697				216,397	12,616																		
CPUE	16.2	12.6	14.5	12.2		6.3				12.6	5.2																		
59N																													
No. of Pot Lifts				54,587	6,528	86,459	7,168	52,668	266,291	444,950	21,171	39,717																	
Catch Wt. (tons)				402.242	41.278	635.007	57.366	429.500	2,611.671	4,536.939	227.110	394.512																	
Catch Number				650,695	66,730	1,059,956	89,786	725,055	3,580,612	7,320,338	303,204	640,840																	
CPUE				11.9	10.2	12.3	12.5	13.8	13.4	16.4	14.3	16.1																	
No. of Pot Lifts									164,636	83,662	412,328	194,377	33,750	1,536															
Catch Wt. (tons)									1,811.554	873.675	4,696.671	1,600.806	350.565	8.155															
Catch Number									2,371,546	1,386,192	6,107,644	2,531,569	476,772	13,686															
CPUE									14.4	16.6	14.8	13.0	13.9	8.9															
58N																													
No. of Pot Lifts											93,654	80,882																	
Catch Wt. (tons)											889.899	758.180																	
Catch Number											1,209,972	1,080,491																	
CPUE											12.9	13.4																	
No. of Pot Lifts											28,619	43,020																	
Catch Wt. (tons)											270.136	454.020																	
Catch Number											367,628	634,544																	
CPUE											12.8																		
57N																													
	179W	178W	177W	176W	175W	174W	173W	172W																					

Table JAPANESE TANNER CHAW, HUTTEN-SHIP, CATCH DATA, 1979 (NORTH OF 58°N)

No. 1

S/11	Pulling Force	Opilio	Weight (kg)	Hybrid	Opilio	Number		Average Weight (g)				Comparison Weight				Percentage		C.P.U.E.
						Hybrid	Opilio	OP	H	III	OP	D	IV	OP	D	IV		
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	1,530	16,388	2,949	325	26,497	4,834	382	619	610	851	83.3	15.0	1.7	83.6	15.2	1.2	20.6	
17	1,792	15,008	362	118	24,986	670	157	601	540	752	96.9	2.3	0.8	96.8	2.6	0.6	17.4	
16	5,328	46,030	3,858	1,692	70,833	6,324	2,197	650	610	770	89.2	7.5	3.3	89.3	8.0	2.7	23.8	
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10days	44,670	361,237	46,880	13,304	567,421	74,565	16,927	637	629	790	85.7	11.1	3.2	86.1	11.3	2.6	14.8	
21	4,224	50,773	10,905	-	88,470	17,975	-	574	610	-	82.2	17.8	-	83.1	16.9	-	29.2	
22	3,712	40,428	2,156	-	64,423	3,171	-	628	680	-	94.9	5.1	-	95.3	4.7	-	18.2	
23	3,840	47,917	5,894	1,431	73,891	8,420	1,389	649	700	1,030	86.7	10.7	2.6	88.3	10.1	1.6	21.8	
24	3,456	36,957	2,151	1,098	59,986	2,212	1,615	616	680	680	91.9	5.3	2.8	94.0	3.5	2.5	18.5	
25	3,840	33,017	2,094	1,751	55,450	3,035	1,945	595	690	900	89.6	5.7	4.7	91.8	5.0	3.2	15.7	
26	1,664	25,414	1,810	-	47,240	3,175	-	538	570	-	93.4	6.6	-	93.7	6.3	-	30.3	
27	4,096	40,294	1,075	621	61,534	1,132	955	655	950	650	96.0	2.6	1.4	96.7	1.8	1.5	15.5	
28	3,840	36,763	2,635	952	53,890	3,711	1,533	658	710	630	91.1	6.5	2.4	91.4	6.1	2.5	15.9	
29	4,096	37,412	7,144	1,924	59,265	10,334	3,006	631	690	640	80.5	15.4	4.1	81.6	14.3	4.1	17.7	
30	3,328	35,988	3,731	811	53,890	5,861	811	668	640	1,000	88.7	9.3	2.0	89.0	9.7	1.3	18.2	
31	3,842	38,245	1,451	2,006	56,746	2,134	2,446	674	680	820	91.7	3.5	4.8	92.5	3.5	4.0	16.0	
10days	39,938	423,208	41,126	10,594	676,745	61,186	13,702	625	672	773	89.1	8.7	2.2	90.0	8.1	1.9	18.8	
Monthly	50,3981,221,206	125,472	47,588	1,945,164	192,378	64,520	628	652	738	87.6	9.0	3.4	88.3	8.7	3.0	14.6		
4 / 1	3,968	51,583	607	1,032	78,388	1,065	1,186	658	570	870	96.9	1.1	2.0	97.2	1.5	1.5	20.3	
2	2,048	29,321	2,528	897	46,003	4,013	1,150	637	630	780	89.5	7.7	2.8	89.9	7.8	2.3	25.0	
3	3,712	39,854	2,761	1,491	63,197	3,210	1,448	631	860	1,030	90.4	6.3	3.3	93.1	4.7	2.2	18.3	
4	4,224	54,238	2,911	2,995	87,323	4,621	3,523	621	630	850	90.2	4.8	5.0	91.5	4.8	3.7	22.6	
5	3,968	45,829	3,125	2,696	75,783	5,388	3,501	605	580	770	88.7	6.1	5.2	89.5	6.4	4.1	21.3	
6	3,968	38,224	1,739	1,639	57,608	2,760	1,725	664	630	950	91.9	4.2	3.9	92.8	4.4	2.8	15.6	
7	384	6,569	33	231	10,351	110	385	635	300	600	96.1	0.5	3.4	95.4	1.0	3.6	28.2	
8	4,352	67,547	-	456	112,768	-	570	599	-	800	99.3	-	0.7	99.3	-	0.5	26.0	
9	3,840	45,512	2,497	1,439	74,011	4,305	1,439	615	580	1,000	92.0	5.0	3.0	92.8	5.4	1.8	20.8	
10	4,096	34,752	4,506	1,742	60,169	7,387	1,936	578	610	900	84.8	11.0	4.2	86.6	10.6	2.8	17.0	
10days	34,560	413,429	20,707	14,618	665,601	99	16,863	621	630	867	92.1	4.6	3.3	93.0	4.6	2.4	-	

JAPANESE TANNER CRAB, MOTHER-SHIP, CATCH DATE, 1979 (NORTH OF 58°N)

No. 2

	Pulling Pots	Catch			Number			Average Weight (g)			Comparison Percentage			C.P.U.E.			
		Opilio	Bairdi	Hybrid	Opilio	Bairdi	Hybrid	OP	B	HY	OP	B	HY				
4 / 11	4,096	41,050	2,344	1,509	66,295	2,824	2,156	619	830	700	91.4	5.2	3.4	93.0	4.0	3.0	17.4
12	3,712	40,285	2,751	986	68,337	3,718	1,315	590	740	750	91.5	6.3	2.2	93.1	5.1	1.8	19.8
13	4,352	40,974	2,240	8,883	67,026	2,605	13,063	611	860	680	78.7	4.3	17.0	81.1	3.1	15.8	19.0
14	4,096	38,025	907	5,962	61,250	1,242	8,768	621	750	680	84.7	2.0	13.3	86.0	1.7	12.3	17.4
15	4,352	36,418	2,302	12,100	60,639	2,423	18,906	601	950	640	71.7	4.5	23.8	74.0	3.0	23.0	18.8
16	3,584	47,445	212	9,623	75,047	353	15,521	632	601	620	82.8	0.4	16.8	82.5	0.4	17.1	25.4
17	2,944	32,123	1,289	5,539	48,698	1,482	7,101	660	870	780	82.5	3.3	14.2	85.0	2.6	12.4	19.5
18	3,712	46,411	-	5,094	71,747	-	7,491	647	-	660	90.1	-	9.9	90.5	-	9.5	21.3
19	3,584	33,668	1,070	14,085	49,299	1,338	20,121	683	800	700	69.0	2.2	28.8	69.7	1.9	28.4	19.7
20	3,584	52,833	-	865	80,125	-	1,236	659	-	700	98.4	-	1.6	98.5	-	1.5	22.7
10days	38,016	409,232	13,115	64,646	648,463	15,985	95,678	631	820	676	84.0	2.7	13.3	85.3	2.1	12.6	20.0
21	3,584	44,827	41	8,155	64,179	82	11,486	698	500	710	84.5	0.1	15.4	84.7	0.1	15.2	21.1
22	6,923	57,246	1,850	9,740	65,330	2,291	16,190	671	808	602	83.2	2.7	14.1	82.2	2.2	15.6	15.0
23	4,068	35,558	18	5,809	54,247	16	10,614	655	1,125	547	85.9	0.1	14.0	83.6	-	16.4	15.9
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	7,274	64,762	1,149	14,276	99,840	1,870	21,338	649	614	669	80.8	1.4	17.8	81.2	1.5	17.3	16.9
26	7,471	78,614	1,307	13,850	128,952	2,209	20,082	610	592	690	83.8	1.4	14.8	85.2	1.5	13.3	20.2
27	6,524	58,318	10,959	2,992	89,944	16,003	3,551	648	685	842	80.7	15.2	4.1	82.1	14.6	3.3	16.8
28	7,079	72,264	5,903	1,737	113,630	9,064	2,479	636	651	701	90.4	7.4	2.2	90.8	7.2	2.0	17.7
29	7,322	86,270	5,168	3,774	138,039	8,362	4,245	625	604	889	90.6	5.4	4.0	91.5	5.7	2.8	20.6
30	7,283	79,785	1,883	950	130,867	3,000	1,573	610	628	604	96.6	2.2	1.2	96.6	2.2	1.2	18.6
10days	57,528	577,644	28,280	61,283	905,028	43,097	91,558	638	636	669	86.6	4.2	9.2	87.0	4.1	8.9	18.1
Monthly Total	130,104	1,400,305	62,102	140,547	2,219,092	91,941	204,099	631	675	689	87.4	3.9	8.7	88.2	3.7	8.1	19.3
5 / 1	7,920	91,127	7,888	1,479	140,188	12,309	2,034	630	641	727	90.7	7.8	1.5	90.7	8.0	1.3	19.5
2	2,518	28,240	1,950	529	46,384	3,054	921	609	639	574	91.9	6.3	1.7	92.1	6.1	1.8	20.0
3	7,319	87,948	4,413	3,032	141,522	5,903	4,166	621	748	728	92.2	4.6	3.2	93.3	3.9	2.8	20.7
4	7,669	93,218	4,928	2,786	154,050	8,739	4,221	623	564	660	92.3	4.9	2.8	92.2	5.2	2.6	21.8
5	7,534	99,255	4,821	5,087	154,380	6,836	5,872	643	705	866	90.9	4.4	4.7	92.4	4.1	3.5	22.2
6	7,632	101,337	3,171	4,265	151,142	4,828	5,442	670	657	784	93.2	2.9	3.9	93.6	3.0	3.4	21.1
7	7,685	93,634	6,011	3,134	152,653	9,710	3,537	613	619	886	91.1	5.8	3.1	92.0	5.9	2.1	21.6
8	7,711	90,659	9,519	2,719	144,545	13,683	4,074	627	607	667	88.1	9.3	2.6	88.0	9.5	2.5	21.3
9	7,652	90,683	4,044	2,494	142,696	6,733	3,916	635	601	637	93.3	4.1	2.6	93.0	4.4	2.6	20.0
10	8,252	101,361	3,991	3,960	160,414	5,249	5,354	632	760	740	92.7	3.7	3.6	93.8	3.1	3.1	20.7
10days	71,892	877,462	50,736	29,485	1,387,974	79,044	39,537	632	642	746	91.6	5.3	3.1	92.1	5.2	2.7	21.0

JAPANESE PANNER GRAD NUMBER-SHIP. CATCH DATA, 1979 (NORTH OF 58°N)

	PULLING PONS	CATCH						AVERAGE						COMPARISON PERCENTAGE						C.P.U.E
		WEIGHT (KG)		NUMBER		HYBRID		WEIGHT (G)		WEIGHT		PERCENTAGE		NUMBER						
		OPILITO	HAVIDI	HAVIDI	HYBRID	OP	B	JY	OP	B	IX	OP	B	IX						
5/11	7,531	86,115	5,210	3,358	130,640	7,379	4,344	659	706	775	91.0	5.5	3.5	91.8	5.2	3.0	18.9			
12	7,565	90,877	1,897	2,978	141,114	3,012	4,250	644	630	701	94.9	2.0	3.1	95.1	2.0	2.9	19.6			
13	7,748	105,548	2,625	1,093	167,894	3,977	1,366	617	660	800	96.5	2.4	1.0	96.9	2.2	0.9	22.4			
14	8,272	74,006	23,106	185	119,824	35,638	289	618	648	640	76.1	23.7	0.2	76.9	22.9	0.2	18.8			
15	8,323	89,987	5,139	1,643	159,686	9,284	2,228	564	554	737	93.0	5.3	1.7	93.3	5.4	1.3	20.1			
16	7,991	87,443	2,234	3,496	142,656	3,858	5,422	613	579	645	93.9	2.4	3.7	93.9	2.5	3.6	19.0			
17	8,317	81,655	3,260	1,933	139,725	6,035	3,159	584	540	612	94.0	3.8	2.2	93.8	4.1	2.1	17.9			
18	8,149	68,971	3,017	512	117,021	4,997	825	589	604	621	95.1	4.2	0.7	95.3	4.1	0.6	15.1			
19	8,417	78,633	959	2,096	129,877	1,913	3,176	605	501	660	96.3	1.1	2.6	96.2	1.4	2.4	16.0			
20	3,014	22,988	1,501	321	43,206	2,122	478	532	707	672	92.7	6.0	1.3	94.3	4.6	1.1	15.2			
Today's	75,327	784,233	48,948	17,615	1,291,643	78,215	25,537	607	626	690	92.2	5.8	2.0	92.6	5.6	1.8	18.5			
5/21	8,161	84,669	584	2,425	138,480	1,293	3,352	611	452	723	96.6	0.7	2.7	96.8	0.9	2.3	17.5			
22	8,061	58,627	2,043	1,534	101,497	3,655	2,426	578	559	632	94.2	3.3	2.5	94.4	3.4	2.2	13.3			
23	8,159	67,775	1,085	690	122,341	2,332	1,300	554	465	531	97.4	1.6	1.0	97.1	1.9	1.0	15.4			
24	8,132	59,870	6,801	2,102	90,545	10,422	3,056	661	653	688	87.1	9.9	3.0	87.0	10.0	2.9	12.8			
25	8,175	59,231	4,923	1,377	99,681	8,087	2,315	594	609	595	90.4	7.5	2.1	90.6	7.3	2.1	13.5			
26	7,675	55,171	4,771	1,700	95,589	8,469	2,146	577	563	722	89.5	7.7	2.8	90.0	8.0	2.0	13.8			
27	7,251	49,452	8,341	780	82,711	13,632	951	597	612	820	84.4	14.2	1.3	85.0	14.0	1.0	13.4			
28	6,267	38,732	12,738	2,084	57,233	19,967	2,809	677	638	724	72.3	23.8	3.9	71.5	25.0	3.5	12.8			
29	5,575	31,489	8,960	2,533	51,989	15,036	3,019	605	596	839	73.2	20.8	6.0	74.2	21.5	4.3	12.6			
30	7,844	42,607	13,316	1,783	69,640	22,133	2,827	612	602	631	73.8	23.1	3.1	73.6	23.4	3.0	12.1 ^h			
31	7,592	34,567	11,676	1,017	58,193	20,287	1,397	594	576	728	75.1	24.7	2.2	72.9	25.4	1.7	10.5			
Today's	82,892	582,130	75,238	18,025	967,901	125,313	25,598	601	600	704	86.2	11.2	2.7	86.5	11.2	2.3	13.5			
Monthly total	230,111	2,243,815	174,922	65,125	3,647,518	282,572	90,672	615	619	718	90.3	7.0	2.7	90.7	7.0	2.3	17.5			
6/1	7,768	35,662	10,552	1,965	57,355	20,240	3,412	622	521	576	74.0	21.9	4.1	70.8	25.0	4.2	10.4			
2	8,563	48,400	15,070	1,638	71,511	28,166	2,915	677	535	562	74.3	23.1	2.6	69.7	27.4	2.9	12.0			
3	8,149	38,188	8,977	933	60,766	14,375	1,779	638	624	524	79.4	18.7	1.9	79.0	18.7	2.3	8.4			
4	8,593	41,886	7,683	1,164	71,317	10,956	1,927	587	701	604	82.6	15.1	2.3	84.7	13.0	2.3	8.8			
5	8,450	28,265	16,998	1,149	45,074	25,790	1,531	627	659	750	60.9	36.6	2.5	62.3	35.6	2.1	8.6			
6	8,111	29,838	16,131	1,184	50,919	27,153	1,332	586	594	889	63.3	34.2	2.5	64.1	34.2	1.7	8.8			
7	8,649	38,513	9,711	1,772	64,619	16,390	2,672	586	592	665	77.0	19.4	3.6	77.2	19.6	3.2	8.7			
8	6,630	34,943	5,629	877	55,479	9,490	1,414	630	593	620	84.3	13.6	2.1	83.6	14.3	2.1	10.0			
9	6,716	36,079	6,718	557	54,068	11,015	931	667	610	698	83.2	15.5	1.3	81.9	16.7	1.4	8.8			
10	8,337	47,669	3,297	2,446	76,895	5,306	3,882	620	621	630	89.2	6.2	4.6	89.3	6.2	4.5	10.3			
Today's	79,966	379,441	100,766	13,685	608,003	168,881	21,795	624	597	628	76.8	20.4	2.6	76.1	21.1	2.8	10.0			

JAPANESE FANNER CRAB. MOTHER-SHIP. CATCH DATA. 1979 (NORTH OF 58°N).

	PULLING POTS	WEIGHT (KG)			CATCH			AVERAGE			COMPARISON PERCENTAGE						C.P.U.E
		OPILIO	BAIIDI	HYBRID	OPILIO	BAIIDI	HYBRID	OP	B	HY	OP	B	HY	OP	B	HY	
6/11	1,766	12,325	457	191	20,476	562	385	602	813	496	95.0	3.5	1.5	95.6	2.6	1.8	12.1
12	8,820	73,175	4,381	1,496	109,908	6,617	2,434	666	662	615	92.6	5.5	1.9	92.4	5.6	2.0	13.5
13	8,714	62,779	3,810	1,916	101,531	5,606	2,559	618	680	749	91.6	5.6	2.8	92.6	5.1	2.3	12.6
14	8,806	56,508	3,531	2,550	94,469	5,895	4,132	598	599	617	90.3	5.6	4.1	90.4	5.6	4.0	11.9
15	8,842	57,610	259	2,133	96,955	424	3,496	594	611	610	96.0	0.4	3.6	96.1	0.4	3.5	11.4
16	8,405	46,565	714	965	84,265	821	1,632	552	870	590	96.5	1.5	2.0	97.2	0.9	1.9	10.3
17	8,872	64,325	1,791	3,213	109,246	3,184	5,160	588	562	623	92.7	2.6	4.7	92.9	2.7	4.1	13.3
18	8,912	64,077	2,665	3,688	109,471	3,747	6,071	585	711	607	91.0	3.8	5.2	91.8	3.1	5.1	13.4
19	8,647	55,200	672	1,366	90,370	981	2,310	611	685	591	96.4	1.2	2.4	96.5	1.0	2.5	10.8
20	8,934	80,112	9,024	5,913	135,362	15,232	9,278	592	592	637	84.2	9.5	6.3	84.7	9.5	5.8	17.9
10days	80,718	572,674	27,304	23,429	952,051	43,069	37,457	602	634	625	91.9	4.4	3.7	92.2	4.2	3.6	12.8
total	160,684	952,115	128,070	57,114	1,560,054	211,950	59,292	610	604	626	85.2	11.5	3.3	85.2	11.6	3.2	11.4

JAPANESE TANNER CRAB MOTHER-SHIP, CATCH DATA, 1979 (NORTH OF 58°N)

	Pulling Pots	Weight (kg)				Number				Average Weight (g)				Comparison Percentage				CPLE
		Opilio	Bairdi	Hybrid	Opilio	Bairdi	Hybrid	Op	B	HY	Op	B	HY	Op	B	HY		
6/21	8,089	64,619	18,548	3,604	114,567	30,576	6,000	564	607	546	74.4	21.4	4.2	75.5	20.1	4.4	18.8	
22	8,147	66,997	14,548	3,109	114,305	21,823	5,095	586	667	610	79.1	17.2	3.7	80.9	15.5	3.6	17.3	
23	8,154	69,316	15,231	5,921	116,131	24,136	7,906	597	651	749	76.6	16.8	6.6	78.4	16.5	5.3	18.2	
24	8,871	64,477	24,804	4,697	108,153	37,171	7,576	596	667	620	68.6	26.4	5.0	70.7	24.3	5.0	17.2	
25	8,707	82,304	13,490	3,132	131,106	20,881	5,068	628	646	618	83.2	13.6	3.2	83.5	13.3	3.2	18.0	
26	8,778	53,892	22,827	6,237	89,965	35,562	7,046	599	641	885	65.0	27.5	7.5	67.9	26.8	5.3	15.1	
27	8,574	54,258	10,266	3,246	86,625	15,837	5,851	626	648	555	80.1	15.1	4.8	80.0	14.6	5.4	12.6	
28	8,715	52,780	10,798	3,166	84,322	17,300	5,151	626	624	615	79.1	16.2	4.7	79.0	16.2	4.8	12.3	
29	8,673	51,406	13,722	2,361	90,599	20,993	4,376	568	654	540	76.2	20.3	3.5	78.1	18.1	3.8	13.4	
30	6,850	38,537	15,823	3,075	64,294	27,428	5,668	599	577	543	67.1	27.3	5.4	66.0	28.2	5.8	14.2	
10 days	83,558	598,676	162,233	36,372	1,000,065	251,707	60,337	599	645	603	75.1	20.3	4.6	76.2	19.2	4.6	15.7	
Monthly Total	244,242	1,530,791	290,305	73,486	2,560,119	463,657	119,589	606	626	614	81.0	15.2	3.8	81.4	14.8	3.8	12.9	
7/1	9,433	67,296	13,359	5,761	105,105	22,927	10,538	640	592	546	77.9	15.5	6.7	75.8	16.3	7.6	14.7	
2	8,592	42,920	5,333	2,440	65,449	8,331	3,531	635	640	691	84.7	10.5	4.8	84.7	10.8	4.6	9.0	
3	5,946	48,231	3,206	1,023	75,711	5,171	1,650	637	619	620	91.9	6.1	2.0	91.7	6.3	2.0	13.9	
4	7,624	39,114	9,884	1,180	62,867	16,146	1,966	622	612	600	78.0	19.7	2.4	77.6	19.9	2.4	10.6	
5	5,862	30,257	6,525	1,174	48,020	10,435	1,928	630	624	608	79.7	17.2	3.1	79.5	17.3	3.2	10.3	
6	7,374	45,608	8,546	3,409	72,582	14,939	5,607	628	572	599	79.2	14.8	5.9	77.9	16.0	6.1	12.6	
7	7,304	54,239	3,397	561	83,928	5,618	905	646	604	619	93.2	5.8	1.0	92.8	6.2	1.0	12.4	
8	7,286	35,734	12,713	4,767	58,827	20,102	8,444	607	632	564	67.2	23.9	9.0	67.3	23.0	9.7	12.0	
9	8,836	50,805	7,491	3,235	81,889	12,622	5,568	620	593	580	82.6	12.2	5.3	81.8	12.6	5.6	11.3	
10	8,789	49,195	7,353	2,347	80,212	12,680	4,455	613	579	526	83.5	12.5	4.0	82.4	13.0	4.6	11.1	
10 days	77,046	463,399	77,807	25,886	734,590	128,989	45,052	630	603	587	81.7	13.7	4.6	80.9	14.2	4.9	11.8	
11	8,746	55,463	5,884	2,331	88,958	9,645	4,912	623	610	474	87.1	9.2	3.7	85.9	9.3	4.7	11.8	
12	8,811	45,765	8,909	1,938	73,748	14,447	3,231	620	616	599	80.8	15.7	3.4	80.7	15.8	3.5	10.4	
13	8,573	63,597	3,063	1,735	102,226	5,153	2,742	622	594	632	93.0	4.5	2.5	92.8	4.7	2.5	12.8	
14	8,806	62,486	4,525	889	99,960	7,969	1,482	625	567	599	92.0	6.7	1.3	91.4	7.3	1.4	12.4	
15	8,465	59,361	2,965	1,712	94,214	5,063	2,895	630	585	591	92.7	4.6	2.7	92.2	5.0	2.8	12.1	
16	8,715	63,216	7,120	1,078	103,295	11,634	2,171	611	611	496	88.5	10.0	1.5	88.2	9.9	1.9	13.4	
17	8,969	70,524	5,262	1,630	113,875	8,830	3,069	619	595	531	91.1	6.8	2.1	90.5	7.0	2.4	14.0	
18	8,554	64,009	5,930	1,378	104,015	9,420	2,336	615	629	589	89.8	8.3	1.9	89.8	8.1	2.0	13.5	
19	8,708	73,863	2,740	1,453	126,141	4,558	2,187	585	601	664	94.6	3.5	1.9	94.9	3.4	1.6	15.3	
20	8,785	77,109	3,748	1,081	127	6,107	1,865	602	613	579	94.1	4.6	1.3		4.5	1.4	15.5	
10 days	87,132	635,393	50,146	15,225	1,034	82,828	26,890	614	605	566	90.7	7.2	2.2		7.2	2.4	13.1	

JAPANESE TANNER CRAB POTTER-SHIP, CATCH DATA, 1979 (MONTH OF SEP.)

	Pulling Pots	Catch						Average						Comparison						CPUE
		Weight (kg)		Number		Weight (g)		Weight		Percentage		Number								
		Opilio	Bairdi	Hybrid	Opilio	Bairdi	Hybrid	OP	B	HY	OP	B	HY							
7/21	8,647	74,315	4,715	2,976	121,699	7,749	4,572	610	608	650	90.6	5.7	3.6	90.8	5.8	3.4	15.5			
22	8,636	74,631	2,925	640	122,720	4,738	1,348	608	617	474	95.4	3.7	0.8	95.3	3.7	1.0	14.9			
23	8,609	69,092	3,665	3,409	115,430	7,543	6,073	598	484	561	90.7	4.8	4.5	89.4	5.8	4.7	15.0			
24	5,862	47,436	6,156	2,100	78,513	10,144	3,624	605	606	579	85.2	11.1	3.8	85.0	11.0	3.9	15.7			
25	8,378	83,187	1,999	1,124	127,360	3,446	1,633	653	580	688	96.4	2.3	1.3	96.2	2.6	1.2	15.8			
26	8,766	67,200	3,687	1,749	113,114	6,017	3,868	594	612	452	92.5	5.1	2.4	92.0	4.9	3.1	14.0			
27	8,843	61,437	804	769	95,199	1,149	1,221	645	699	629	97.5	1.3	1.2	97.6	1.2	1.3	11.0			
28	8,608	61,599	2,079	731	99,934	2,848	1,239	616	729	589	95.6	3.2	1.1	96.1	2.7	1.2	12.1			
29	7,946	55,227	4,839	1,907	89,708	7,943	3,294	615	609	578	89.1	7.8	3.1	88.9	7.9	3.3	12.6			
30	8,602	55,181	6,135	1,988	88,389	8,869	3,115	624	691	638	87.2	9.7	3.1	88.1	8.8	3.1	11.7			
31	8,489	60,532	4,781	991	96,122	6,963	1,791	620	686	578	91.3	7.2	1.5	90.7	6.8	1.7	12.4			
10 days	91,386	709,837	41,775	18,384	1,147,924	67,409	31,778	618	619	578	92.2	5.4	2.4	92.0	5.4	2.5	13.6			
Monthly Total	225,564	1,808,629	169,728	59,495	2,916,924	279,226	105,320	620	607	575	88.8	8.3	2.9	88.4	8.5	3.1	12.9			
8/1	8,535	57,583	2,400	2,141	85,203	3,758	3,288	676	639	651	92.7	3.9	3.4	92.4	4.1	3.6	10.8			
2	8,747	63,705	3,651	2,609	99,247	6,125	2,937	642	596	888	91.1	3.2	3.7	91.6	5.7	2.7	12.4			
3	7,944	52,552	899	1,774	78,646	1,499	2,374	668	546	747	95.2	1.6	3.2	95.3	1.8	2.9	10.4			
4	8,616	63,678	4,065	1,753	99,971	5,760	4,052	637	706	433	91.6	5.8	2.5	91.1	5.2	3.7	12.7			
5	6,312	48,963	1,334	1,809	79,443	2,500	2,596	616	534	697	94.0	2.6	3.5	94.0	3.0	3.1	13.4			
6	6,937	54,887	3,260	966	77,178	5,320	1,542	711	613	626	92.9	5.5	1.6	91.8	6.3	1.8	12.1			
7	8,030	52,201	513	2,521	94,761	899	4,704	551	571	536	94.5	0.9	4.6	94.4	0.9	4.7	12.5			
8	7,737	42,979	2,751	351	76,760	5,730	842	560	480	417	93.3	6.0	0.8	92.1	6.9	1.0	10.8			
9	7,452	48,197	1,275	1,147	79,013	2,139	1,941	610	596	591	95.2	2.5	2.3	95.1	2.6	2.3	11.6			
10	8,393	37,698	1,967	609	62,165	3,364	999	606	585	610	93.6	4.9	1.5	93.4	5.1	1.5	7.9			
10 days	78,703	522,443	22,115	15,680	832,387	37,094	25,275	627	596	620	93.3	3.9	2.8	93.0	4.1	2.8	11.4			
Grand Total	1,227,397	9,996,652	949,418	325,976	15,894,307	1,508,204	487,177	628	629	669	88.7	8.4	2.9	88.8	8.4	2.7	14.6			

JAPANESE PANNER CRAB, MOTHER-SHIP, CATCH DATA, 1979 (CATCH NORTH OF 58°N)

C.P.U.E.	Pulling		Catch										C.P.U.E.			
	8/11	Pots	Opilio					Hybrid					Opilio		Number	
			Weight (kg)		Number			Weight (kg)		Number			Average			
Comparison Percentage		Weight (g)		OP		B		HY		OP		B		HY		
8.7	4,193	19,158	1,264	1,053	32,471	2,143	1,784	0.59	0.59	0.59	89.2	5.9	4.9	89.2	5.9	4.9
9.5	4,216	22,154	1,658	543	36,318	2,718	890	0.61	0.61	0.61	91.0	6.8	2.2	91.0	6.8	2.2
10.2	4,221	22,331	2,287	1,277	37,217	3,812	2,129	0.60	0.60	0.60	86.3	8.8	4.9	86.3	8.8	4.9
10.1	4,205	22,902	1,526	987	38,170	2,543	1,645	0.60	0.60	0.60	90.1	6.0	3.9	90.1	6.0	3.9
12.8	3,722	25,649	1,056	-	45,803	1,885	-	0.56	0.56	-	96.1	3.9	-	96.0	4.0	-
9.2	3,689	19,509	1,179	587	30,968	1,871	931	0.63	0.63	0.63	91.7	5.5	2.8	91.7	5.5	2.8
11.8	3,672	23,031	3,875	479	36,557	6,151	760	0.63	0.63	0.63	84.1	14.1	1.8	84.1	14.2	1.7
13.0	3,654	27,446	1,316	1,098	43,565	2,089	1,743	0.63	0.63	0.63	91.9	4.4	3.7	91.9	4.4	3.7
13.0	3,649	25,219	4,276	-	40,676	6,897	-	0.62	0.62	-	85.5	14.5	-	85.5	14.5	-
15.5	3,708	31,694	1,856	1,040	52,823	3,094	1,733	0.60	0.60	0.60	91.6	5.4	3.0	91.6	5.4	3.0
11.3	3,829	239,093	20,293	7,064	394,568	33,203	11,615	0.61	0.61	0.61	89.7	7.6	2.7	89.8	7.6	2.6
19.5	3,753	44,134	395	186	72,351	647	305	0.61	0.61	0.61	98.7	0.9	0.4	98.7	0.9	0.4
18.6	3,858	36,370	6,348	292	60,616	10,580	487	0.60	0.60	0.60	84.5	14.8	0.7	84.6	14.7	0.7
15.7	3,715	32,509	2,950	121	53,294	4,836	198	0.61	0.61	0.61	91.4	8.3	0.3	91.4	8.3	0.3
10.9	3,859	22,023	3,413	269	36,103	5,595	441	0.61	0.61	0.61	85.7	13.3	1.0	85.7	13.3	1.0
11.5	3,723	25,336	1,654	-	40,216	2,625	-	0.63	0.63	0.63	93.9	6.1	-	93.9	6.1	-
6.8	3,091	11,560	1,770	-	18,349	2,810	-	0.63	0.63	0.63	86.7	13.3	-	86.7	13.3	-
14.1	21,999	171,932	16,530	868	280,929	27,093	1,431	0.61	0.61	0.61	90.8	8.7	0.5	90.8	8.7	0.5
11.8	139,631	933,468	58,938	23,613	1,507,884	97,390	38,321	0.62	0.62	0.62	91.9	5.8	2.3	91.8	5.9	2.3
14.5	1,288,325	10,407,677	986,241	333,908	16,569,804	1,568,500	500,223	0.63	0.63	0.63	88.7	8.4	2.9	88.9	8.4	2.7
Grand Total	11,288,325	104,407,677	98,624,100	33,390,800	165,698,804	15,685,000	5,002,230	0.62	0.62	0.62	91.9	5.8	2.3	91.8	5.9	2.3

JAPANESE TANNIN CLAM MOUTH-SLIP. CATCH DATE, 1979 (SOUTH OF SPAN)

No. 1

J/TI	Pulling Date	Opello	Weight (kg)	Hybrid	Opello	Number	Hybrid	Op	Hy	Comparative Percentage		C.P.U.B.
										Weight	Number	
12	3,632	31,332	673	47,472	1,020	660	660	97.9	2.1	97.9	2.1	13.5
13	1,258	10,766	124	16,312	188	660	660	98.9	1.1	98.9	1.1	13.1
14	1,708	21,103	1,067	30,147	1,524	700	700	95.2	4.8	95.2	4.8	18.5
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
10days	6,598	63,201	1,864	93,931	2,732	673	682	97.1	2.9	97.2	2.8	14.7
21	3,890	31,584	906	45,774	1,313	690	690	97.2	2.8	97.2	2.8	12.1
22	4,335	36,965	255	56,869	393	650	649	99.3	0.7	99.3	0.7	13.2
23	4,309	37,586	1,494	52,202	2,076	720	720	96.2	3.8	96.2	3.8	12.6
24	2,818	25,684	1,331	36,175	1,902	710	710	95.0	5.0	95.0	5.0	13.5
25	4,255	41,079	911	60,411	1,339	680	680	97.8	2.2	97.8	2.2	14.5
26	2,640	23,440	90	34,471	132	680	682	99.3	0.4	99.6	0.4	13.1
27	3,146	36,973	1,152	53,584	1,670	690	690	97.0	3.0	97.0	3.0	17.6
28	3,394	29,854	1,661	44,557	2,480	670	670	94.7	5.3	94.7	5.3	13.9
29	3,857	36,553	557	52,976	807	690	690	98.5	1.5	98.5	1.5	13.9
30	4,092	37,922	918	55,767	1,331	680	679	97.6	2.4	97.6	2.4	14.0
31	3,915	37,847	273	51,145	369	740	740	99.3	0.7	99.3	0.7	13.2
10days	40,651	375,487	9,568	543,931	13,832	690	692	97.5	2.5	97.5	2.5	13.7
Monthly	47,249	438,688	11,432	637,862	16,564	688	690	97.5	2.5	97.5	2.5	13.9
4 / 1	3,611	35,395	325	47,831	439	740	740	99.1	0.9	99.1	0.9	13.4
2	2,568	26,721	424	37,111	590	720	719	98.4	1.6	98.4	1.6	14.7
3	3,976	38,102	833	55,220	1,208	690	690	97.9	2.1	97.9	2.1	14.2
4	3,929	43,502	833	60,419	1,157	720	720	98.1	1.9	98.1	1.9	15.7
5	3,813	37,231	1,234	50,313	1,667	740	740	96.8	3.2	96.8	3.2	13.6
6	3,565	35,580	935	49,416	1,299	720	720	97.4	2.6	97.4	2.6	14.2
7	3,049	32,943	77	45,755	106	720	726	99.8	0.2	99.8	0.2	15.0
8	3,753	32,583	567	43,445	733	750	751	98.3	1.7	98.3	1.7	11.8
9	3,987	30,670	-	42,597	-	720	-	100.0	-	100.0	-	10.7
10	3,814	31,964	86	47,006	126	680	683	99.7	0.3	99.7	0.3	12.4
10days	36,065	344,691	5,314	479,113	7,347	719	723	98.5	1.5	98.5	1.5	13.5

JAPANESE TANKER GRAD MONTHLY-SHIP. CATCH DATA, 1979 (SOUTH OF 38°N)

No. 2

	Pulling Pots	Opilio Opilio	Weight Balford	Hybrid	Catch		Average		Comparison				C.P.U.E.
					Opilio	Hybrid	OP	HY	Weight	Percentage	Number		
					Opilio	Hybrid	OP	HY	OP	HY	OP	HY	
4/11	3,809	31,675	-	155	43,391	212	730	731	99.5	0.5	99.5	0.5	11.4
12	3,983	36,935	-	-	49,247	-	750	-	100.0	-	100.0	-	12.4
13	4,118	44,444	-	1,216	56,980	1,558	780	780	97.3	2.7	97.3	2.7	14.2
14	4,232	45,661	-	354	61,703	479	740	740	99.2	0.8	99.2	0.8	14.7
15	4,330	45,126	-	469	63,559	659	710	712	99.0	1.0	99.0	1.0	14.8
16	4,139	40,625	-	940	56,423	1,306	720	720	97.7	2.3	97.7	2.3	13.9
17	3,781	36,322	-	238	50,447	331	720	719	99.3	0.7	99.3	0.7	13.4
18	3,247	38,566	-	109	56,714	161	680	677	99.7	0.3	99.7	0.3	17.5
19	2,684	27,148	-	162	38,237	228	710	711	99.4	0.6	99.4	0.6	14.3
20	3,314	32,325	-	-	48,977	-	660	-	100.0	-	100.0	-	14.6
10days	37,667	378,827	-	3,643	525,678	4,934	721	738	99.0	1.0	99.1	0.9	14.1
21	2,921	29,141	-	464	42,855	682	680	680	98.4	1.6	98.4	1.6	14.9
22													
23													
24													
25													
26													
27													
28													
29													
30													
10days	2,921	29,141	-	464	42,855	682	680	680	98.4	1.6	98.4	1.6	14.9
Monthly	76,653	752,659	-	9,421	1,047,646	12,963	718	727	98.8	1.2	98.8	1.2	13.8

(much of 28-30)