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SEAMOUNT FISHERY, FOREIGN VESSEL OBSERVER REPORT
ASO MARU (May 27-July 10, 1979)

By

George C. Evering, Jr.
Southwest Fisheries Center Honolulu Laboratory
National Marine Fisheries Service, NOAA
Honolulu, HI 96812

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The Aso Maru was designated to the Mid-Pacific Seamount Fishery by the Nippon Suisan Company from May to September 1979. There were nine eligible seamounts suitable for trawling.

Vessel Statistics

Permit number:	JA-78-0388A
Length:	95.11 m
Gross tonnage:	3,608.29
Engine type:	Diesel
Hull number:	100883
Year commissioned:	1964
Owner:	Nippon Suisan Kaisha
Home port:	Tobata, Japan
Vessel type:	Freezer-factory. Independent stern trawler
Net tonnage:	1,968.81
Width:	16 m
Draft:	6.6 m
Horsepower:	3,900
Registration number:	TOEN-701
Radio call sign:	JMVD



Personnel

Captain:	Mr. Tamura
Number of officers:	9
Number of crew:	35
Galley and steward:	8
Deck:	27
Processing:	18
Total ship complement:	55
Experience in seamount fishery:	
Captain	5 seasons
Chief Officer	2 seasons
2d Officer	1 season

Trawl Gear

See attachment 1 for dimensions. The net was modified by replacing three of the six center bobbins with larger cylindrical bobbins composed of hard rubber or fiber, and by extending the ground gear along the tow leg by adding bobbins. Both alterations supposedly reduce "hangups."

Area of Operation

<u>Seamounts</u>	<u>Latitude</u>	<u>Longitude</u>
Kinmei	35°00'N	171°45'E
Milwaukee seamount group:		
Yuryaku	32°40'N	172°15'E
Kanmu	32°10'N	173°00'E
Colahan	31°15'N	176°00'E
Fishery conservation zone:		
Northwest Hancock	30°15'-16'N	178°42'-44'E
Southeast Hancock	29°43'-49'N	179°02'-06'E
K Bank	29°40'N	179°20'E

TRAWL RESULTS

Target Species

Common names:	Armorhead, boarfish, tsubodai
Scientific name:	<u>Pentaceros richardsoni</u>
Species code:	080
Common names:	Alfonsin, kinmedai
Scientific name:	<u>Beryx splendens</u>
Species code:	081

The trawl set was always commenced before contact with the seamount. Trawling was on or just a few meters above the bottom. However, the net was not hauled inboard and the cod end inspected after each pass. It was considered lost fishing time to bring in a nearly empty cod end when the fish-finders indicated little in the way of commercial concentrations. Usually only the doors were brought to the gallows for the turn, and after the turn the warp paid out again immediately. The catch would probably be well less than 1 metric ton (MT). Thus, using the duration of the haul to compute catch per unit effort (CPUE) could prove to give erroneous results for either of two reasons: (1) One haul comprises several passes and includes the time of bringing the doors to the gallows and completing a 180° turn and (2) the catch could not be estimated per pass because the cod end could not be inspected.

The net was fished (kept in the water; not bottom time) for an average of 18.6 min per haul on K Bank. Hauls on southeast Hancock averaged 134.3 min and on northwest Hancock 98.2 min.

Outside the fishery conservation zone on D Bank (30°22'N, 177° 35'E) the trawl was towed 10.7 min per haul. On Colahan the average was 94.4 min per haul. On the Milwaukee Seamounts F(A) Bank (southern Hanmu) hauls averaged 83.4 min, F(B) (northern Kanmu) 61.3 min per haul, and F(C) (Yuryaku) 70 min per haul. Kinmei had an average haul of 75.7 min.

Of a total of 561.7 MT caught between May 29 and July 10, 1979, 177.0 MT or 32% were composed of armorhead. Alfonsin totaled 304.2 MT or 54% of the catch. Other species comprised 80.4 MT or 14% of the total. Thirty-seven percent of the catch was taken within the fishery conservation zone. Fifty-six percent or 24 days of the total fishing days of my stay were spent within the fishery conservation zone.

The largest single catch within the fishery conservation zone was 8.2 MT. Of 138 hauls in the fishery conservation zone, 41 produced catches greater than or equal to 2 MT. There were 12 zero catch hauls.

In the fishery conservation zone 96% of the armorhead and 91% of the alfonsin were caught between 1800 and 0600. The first 12 days of fishing produced 90.2 MT or 66% of the total armorhead. This period also yielded 9.1 MT of alfonsin or 37%. After an 18-day cooling off period the other 34% of armorhead and 63% of alfonsin were taken in 12 days.

The largest catch outside the fishery conservation zone was 21 MT of almost exclusively juvenile alfonsin. There were 29 zero catch hauls outside and 40 hauls were greater than 2 MT. A total of 140 hauls were made.

Of the 41 total zero catch hauls at least 25 are known positively to have been caused by a net hangup, terminating the haul.

SAMPLING RESULTS

1. Armorhead

There are two distinct types of armorheads, fat and lean. These may have an ecological impact and are therefore recorded separately.

a. Hancock Seamounts

The catch composition average was 95% for lean (100 fat types and 1,913 lean types).

Lean type

Number measured, sexed, and weighed: 1,001
 Sex ratio: Male 443 (44%)
 Female 558 (56%)
 Average length: 294 mm Range: 253-340 mm
 Average weight: 0.31 kg

Fat type

Number measured, sexed, and weighed: 43
 Sex ratio: Male 21 (48%)
 Female 22 (52%)
 Average length: 310 mm Range: 270-329 mm
 Average weight: 1.53 kg

b. K Bank

Lean type

Number measured, sexed, and weighed: 25
 Sex ratio: Male 11 (44%)
 Female 14 (56%)
 Average length: 293 mm Range: 276-308 mm
 Average weight: 0.39 kg

Fat type

Number measured: 10
 Sex ratio: Male 8
 Female 2
 Average length: 290 mm Range: 263-314 mm
 Average weight: 0.53 kg

2. Alfonsin (Beryx splendens)

Alfonsin made up an important part of the total catch this season. However, 92% of the total weight was taken outside the fishery

conservation zone. The other species of alfonsin, Beryx decadactylus, made up well less than 1% of the total catch of alfonsin outside the fishery conservation zone. Outside the fishery conservation zone the Aso Maru was selectively fishing for schools of juvenile alfonsin during the dark hours. A very rough estimate would be that 20% of the alfonsin harvested was sent to the meal factory due to the great damage sustained to them by the long hauls.

a. Hancock Seamounts

Number measured, sexed, and weighed: 645
 Sex ratio: Male 344 (54%)
 Female 301 (46%)
 Average length: 234 mm Range: 143-401 mm

The range of weight is too wide (<0.1->1 kg) and the individual weight too variable to yield a reliable figure by averaging. However, the average weight of juvenile alfonsin <200 mm is 0.13 kg.

b. K Bank

Number measured, sexed, and weighed: 39
 Sex ratio: Male 16 (41%)
 Female 23 (59%)
 Average length: 208 mm Range: 198-356 mm

3. Other commercial species

Outside the fishery conservation zone were commercial concentrations of Helicolenus avius, Epigonus atherinoides, Zenopsis nebulosa, Erythrocles schlegelii, and Arionma lurida. Within the fishery conservation zone only E. schlegelii was harvested in large enough quantities to be considered more than an incidental species.

4. Coral

Approximately 37 kg of black coral, Antipathes species, was uprooted outside the fishery conservation zone. Only 1 kg was from within the zone.

SHIPBOARD PRODUCTS (Hancock Seamounts and K Bank)

1. Armorhead

Armorhead were frozen after machine heading and gutting. The recovery ratio is estimated to be about 50% of the total weight. Only the head and viscera were designated as meal--never flesh.

2. Alfonsin

A considerable amount of alfonsin less than 200 mm were sent to the meal factory because the duration of the tow damaged the fish badly. The larger fish were usually machine headed and gutted; recovery ratio was 40%.

3. Other species

Zenopsis nebulosa, Ocyrius japonicus, Promethichthys prometheus, Priacanthus boops, squalids, and carcharhinids were filleted with core and frozen. Erythrocles schlegelii, Helicolenus avius, and Epigonus atherinoides were frozen whole. Large Sebastes species and serranids were headed, gutted, and frozen.

4. Other products

The daily reduction could not be figured because of "carryover" in raw product from the previous day. Raw product reduction was approximately 225 MT (whole fish, viscera, and heads) which yielded about 45 MT of meal and 20 kl of oil.

ITINERARY

- May 26, 1979 - 1050, departed Honolulu, Hawaii
- 1415, arrived Midway
- May 27, 1979 - Embarked Aso Maru
- May 29, 1979 - Began sampling
- July 10, 1979 - Sampling ended
- 1000, debarked Aso Maru
- 1500, arrived Honolulu.

RECORDS

A daily Scientists Log, Daily Trawl Haul Form, Size-Frequency Log, and Species Composition From Basket Samples records were kept.

PERSONNEL

George C. Evering, Jr., Observer, National Marine Fisheries Service,
 Southwest Fisheries Center, Honolulu Laboratory

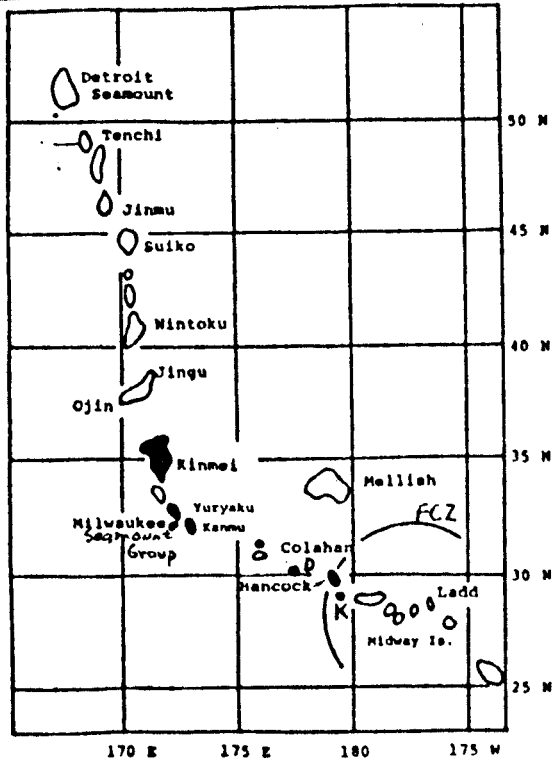


Figure 1.--Important seamounts in North Pacific Ocean.

Table 1.--Trawl catch by species and area (in metric tons).

<u>Species</u>	<u>Fishery conservation zone</u>	<u>Outside</u>
Armorhead	135.5	41.5
Alfonsin	24.7	279.5
Others (listed below)	45.2	33.2
<u>Erythrocles schlegelii</u>		<u>Benthodesmus tenuis</u>
<u>Antigonia eos</u>		Brotulidae sp.
<u>Chlorophthalmus oblongus</u>		<u>Notacanthus seppinis</u>
<u>Ariomma lurida</u>		<u>Peristedion engyceros</u>
<u>Macroramphosus gracilus</u>		<u>Brembradium roseum</u>
<u>Polymixia japonica</u>		<u>Coelorynchus gladius</u>
<u>Priacanthus boops</u>		<u>Alopias superciliosus</u>
<u>Grammatonotus laysanus</u>		<u>Eumegistus illustris</u>
<u>Decapterus russelli</u>		Sebastes spp.
<u>Collybus drachme</u>		<u>Draconetta hawaiiensis</u>
<u>Scomber japonicus</u>		<u>Alopias pelagicus</u>
<u>Chascanopsetta prorigera</u>		<u>Hoplichthys platophrys</u>
<u>Parabothus coarctatus</u>		<u>Sternoptyx diaphana</u>
<u>Promethichthys prometheus</u>		<u>Ectreposebastes imus</u>
<u>Ruvettus pretiosus</u>		<u>Chauliodus sloani</u>
<u>Etmopterus villosus</u>		Serranidae sp.
<u>Squalus fernandinus</u>		<u>Parapercis schauinslandi</u>
<u>Squalus blainevillei</u>		<u>Aphareus rutilans</u>
<u>Lotella maximowiczi</u>		<u>Decapterus pinnulatus</u>
<u>Zenopsis nebulosa</u>		<u>Diaphos adenomus</u>
<u>Laemonema rhodochir</u>		<u>Physiculus grinelli</u>
<u>Epigonus atherinoides</u>		<u>Pseudanthias kellogi</u>
Argentinidae sp.		<u>Carcharhinus obscurus</u>
<u>Beryx decadactylus</u>		<u>Carcharhinus amblyrynchus</u>
<u>Helicolenus avius</u>		<u>Ariosoma bowersi</u>
<u>Microstomus</u> sp.		Gonostomatidae spp.
Callionymidae sp.		<u>Carcharhinus falciformis</u>
<u>Rynchocymba nystromi</u>		Congridae spp.
<u>Hydrolagus colliei</u>		Carcharhinidae spp.
Myctophidae sp.		<u>Carcharhinus galapagensis</u>
<u>Echinorhinus cookei</u>		<u>Urotrygon daviesi</u>
<u>Dalatias licha</u>		<u>Dasyatis latus</u>
<u>Etmopterus lucifer</u>		<u>Naucrates ductor</u>
<u>Isurus paucus</u>		<u>Etelis carbunculus</u>
<u>Isurus oxyrinchus</u>		<u>Odontaspis ferox</u>
<u>Alopias vulpinus</u>		<u>Trachurops crumenophthalmus</u>
<u>Pseudotriakis acrages</u>		Antennariidae spp.
<u>Lophiomus miacanthus</u>		
<u>Ocyrius japonicus</u>		
Synodontid sp.		

Note: Checklist incomplete pending further species identification.

Area	No. hauls	Total minutes (trawl in water)	Armorhead		Alfonsin		Others		All species	
			Total catch (kg)	Kg/min	Total catch (kg)	Kg/min	Total catch (kg)	Kg/min	Total catch (kg)	Kg/min
K Bank	12	223	927	4.16	6,816	30.56	274	1.23	8,017	35.95
Southeast Hancock	69	9,570	66,953	6.99	10,712	1.12	2,120	0.22	98,866	10.33
Northwest Hancock	57	5,595	67,632	12.08	7,198	1.29	23,690	4.23	98,520	17.59
D Bank	15	160	3,218	20.11	5,204	32.53	664	4.15	9,086	56.79
Colahan	31	2,925	27,667	9.46	38,548	13.18	6,456	2.21	72,671	24.84
Kanmu F(A)	16	1,335	3,088	2.31	76,420	57.24	6,962	5.21	86,470	64.77
Kanmu F(B)	32	1,960	5,898	3.01	70,984	36.22	4,866	2.48	81,748	41.71
Yuryaku F(C)	18	1,260	960	0.76	73,253	58.14	980	0.78	75,193	59.68
Kinmei	28	2,120	695	0.33	15,097	7.12	13,330	6.29	29,122	13.74

ASO-MARU

Attachment #1 NET DIMENSIONS AND CHARACTERISTICS

Type of Vessel STERN TRAWLER

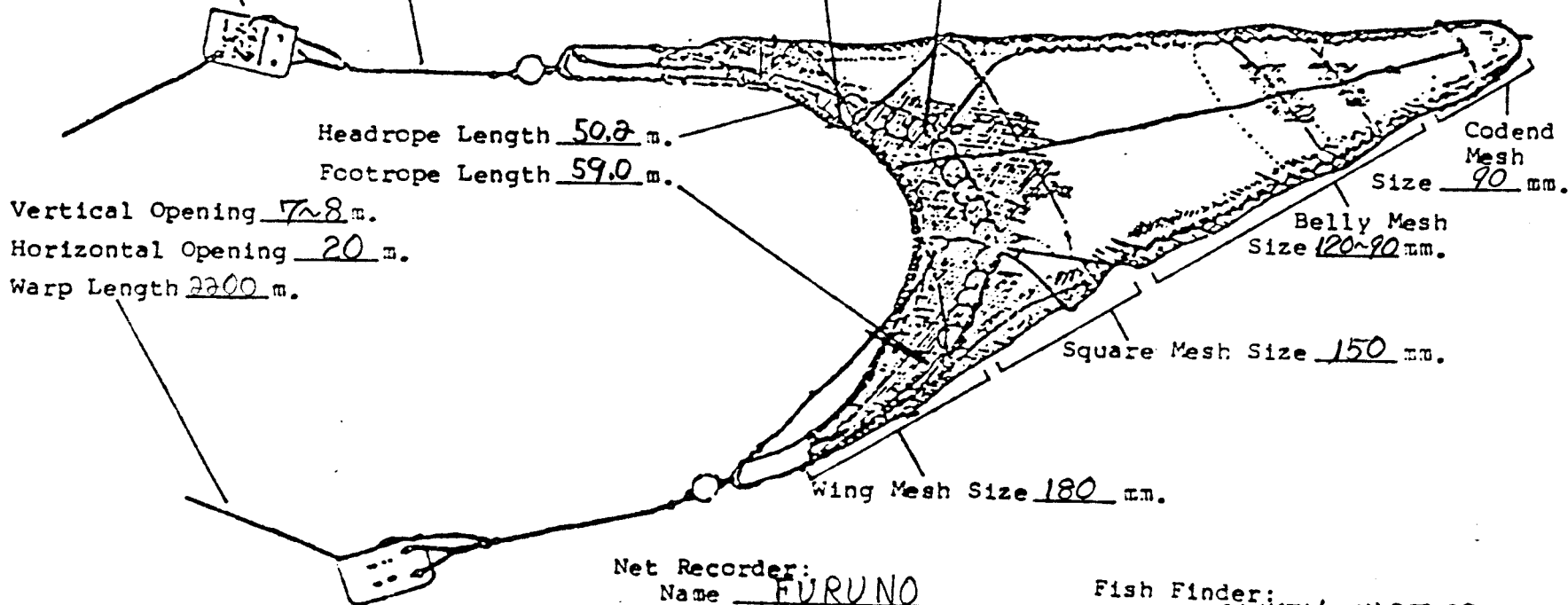
Observation Period 05/27/79-7/10/79

Trawl Doors: Shape Square
Type Vertical steel
Dimensions 2.2 m. x 4.4 m.
Weight 3000 kg.

Dandyline Length 120 m.

Floats: Number 46
Size 360 mm
Material Sycorac
Shape Ball

Bobbins: Number 34 Bobbins
Size 530 mm + 500 mm
Material Iron + Rubber.
Shape Ball + cylinder



Headrope Length 50.8 m.

Footrope Length 59.0 m.

Vertical Opening 7~8 m.

Horizontal Opening 20 m.

Warp Length 2200 m.

Codend Mesh
Size 90 mm.

Belly Mesh
Size 120-90 mm.

Square Mesh Size 150 mm.

Wing Mesh Size 180 mm.

Net Recorder:

Name FURUNO
Model Number FNR 50
Frequency 50 KHZ

Fish Finder:

Name SANKEN-WIDE 320
Model Number WSY2-16 NO 50070
Frequency 17.2 KHZ / 50.4 KHZ.
Paper Type - Wet Dry
Speed of Advance 1.5 m / 1 minute