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ALBACORE TROLLING EXPLORATION IN THE WESTERN NORTH PACIFIC, 1977:

SUMMARY OF FINDINGS MADE BY VESSELS ON CHARTER TO THE
AMERICAN FISHERMEN'S RESEARCH FOUNDATION AND
THE PACIFIC TUNA DEVELOPMENT FOUNDATION

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Introduction

U.S. albacore jig fishing vessels conducted exploratory fishing efforts for albacore in the western North Pacific for the third consecutive year in 1977. A major objective of the survey was to evaluate the feasibility for jig fishing for albacore in the western North Pacific, especially in the vicinity of the Emperor Seamount chain near 35°N and 170°E. Secondary objectives were to gain information for use in migration studies of North Pacific albacore and the association of albacore with oceanographic features. Also, the vessels carried on fishing operations to assess and evaluate the possibilities for jig fishing for tuna and other fishes along the Hawaiian Island chain.

Two fishing vessels, Typhoon with Captain Keith Coburn and Joann Marie with Captain Bill Michael, participated in the exploratory fishing operations. One of these was chartered by the American Fishermen's Research Foundation (Joann Marie) and the other by the Pacific Tuna Development Foundation (Typhoon).

Background Information

The area where the two jig vessels conducted exploratory fishing operations in 1977 is located in a region of the western North Pacific where the Japanese pole-and-line albacore fishery has expanded to in recent years. The Japanese pole-and-line fishery generally commences in March to April and is carried on over a broad latitudinal range roughly between 25° to 40°N and within a few hundred miles of the Japanese home islands. As the season advances, the fishery moves eastward in a progressively narrowing band. The eastward extent of the fishery increased in the early 1970's to reach the vicinity of the Emperor Seamount chain where in recent years it has been concentrated during June and July over a few degrees of latitude centered near 35°N, 170°E.

In 1974 and 1975, relatively large numbers of albacore which were tagged in the eastern Pacific as part of the cooperative NMFS/AFRF albacore tagging program were recovered in the Japanese pole-and-line fishery in the vicinity of the Emperor Seamount, mostly in the month of June. In 1976, the Japanese pole-and-line fishery did not extend to the Emperor Seamount region until October-November and a relatively large number of albacore tagged off the U.S. were recovered there at that time.

Three U.S. jig vessels fished in the western North Pacific in 1975 with encouraging results. They made their best catches in the vicinity of the Emperor Seamount in early May. However, they ended their fishing operations in the western Pacific by the end of May, prior to the time that the Japanese pole-and-line fishery had extended to the Emperor Seamount.

In 1976, two jig vessels conducted exploratory fishing in the western Pacific. Daily catches of albacore were generally low, with the exception of a few days when catches in excess of 200 fish were made. The best catches were made in mid-May west of the Emperor Seamount chain and in the third week of June in the vicinity of the Emperor Seamount. These vessels concluded operations in the western Pacific at the end of June, prior to the time that the Japanese pole-and-line fishery developed in the region of the Emperor Seamount.

1977 Survey Operations

The vessels conducted exploratory fishing using standard commercial fishing methods. They also cooperated with the NOAA/NMFS Southwest Fisheries Center in keeping detailed daily fishing logs, making daily oceanographic observations (including surface and subsurface temperature measurements), making marine weather observations, conducting albacore tagging operations, and collecting specimens for biological and chemical analyses.

Cruise Track

The vessels sailed from San Diego, California on April 3, 1977 and refueled and reprovisioned in Honolulu during late April. They departed from Honolulu on April 21 to conduct exploratory fishing operations along the Hawaiian Island chain and then to Midway Island for refueling. After leaving Midway they conducted fishing operations in the western Pacific during early May to early August, refueling three additional times at Midway Island. The vessels returned to Honolulu on August 21 to unload their catch.

The cruise tracks followed by the vessels after leaving San Diego and during their fishing operations are shown in Figure 1. Between the U.S. west coast and Midway Island daily positions for each of the fishing vessels are represented by symbols. The area west of Midway Island where the vessels operated during May to August is shown by stippling. They fished as far west as about 155°E and operated mostly in the area between 30° to 42°N and 175°W to 160°E.

Fish Catches

Summaries of catches made by the Typhoon and Joann Marie during the mid-Pacific AFRF/PTDF charter operations are given in Tables 1 and 2, respectively. Figures 2 and 3 show the total daily albacore catches for Typhoon and Joann Marie taken during the charter operations by time periods.

Albacore Catches

The vessels caught approximately 180,000 pounds of albacore. Best catches were made in mid-May near 34°N, 167°E, early July near 38°N, 177°E, and late July - early August near 41°N, 175°E. Virtually no catches of albacore were made between the Hawaiian Islands and 174°E, and only small catches were made on a few days while fishing/travelling from the west coast to the Hawaiian Islands.

After leaving Midway Island in early May, the first substantial catch of albacore was made on May 10 when one of the boats caught 208 fish, near 34°N, 167°E. Each boat caught over 250 fish on May 11, but catches dropped to less than 10 fish each on May 12 as the vessels

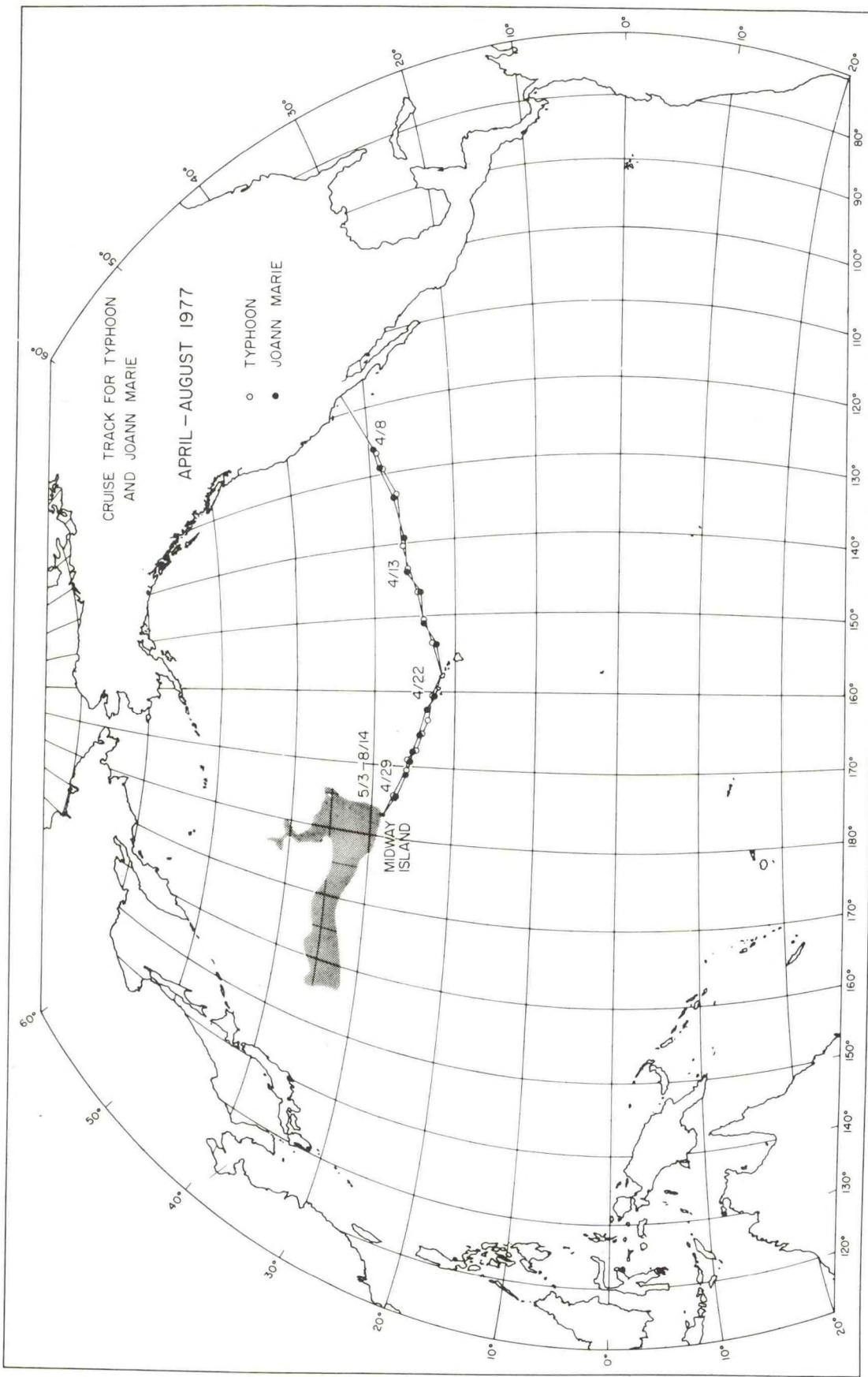


Figure 1. Cruise track for Typhoon and Joann Marie for 1977 exploratory albacore fishing in western Pacific.

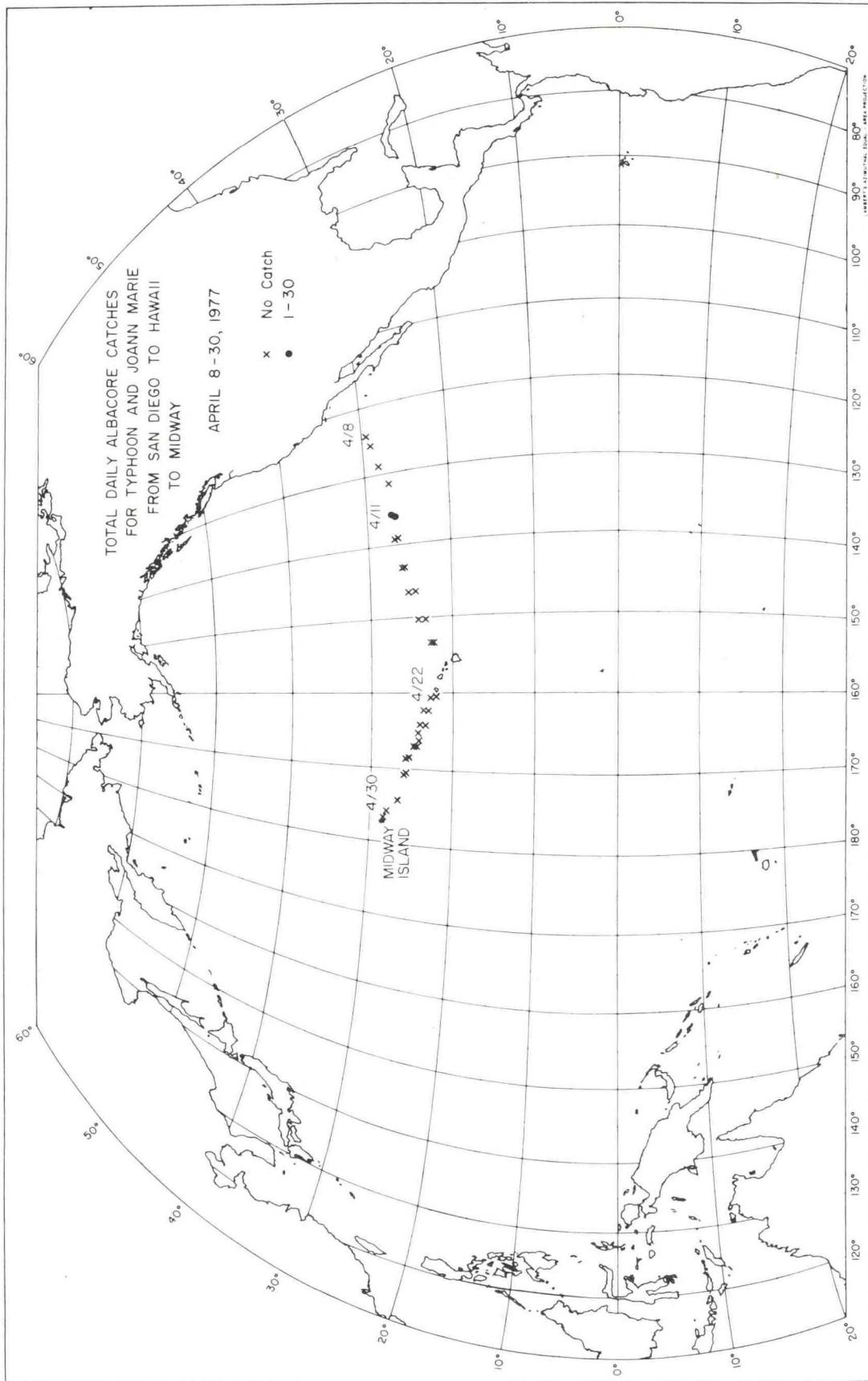
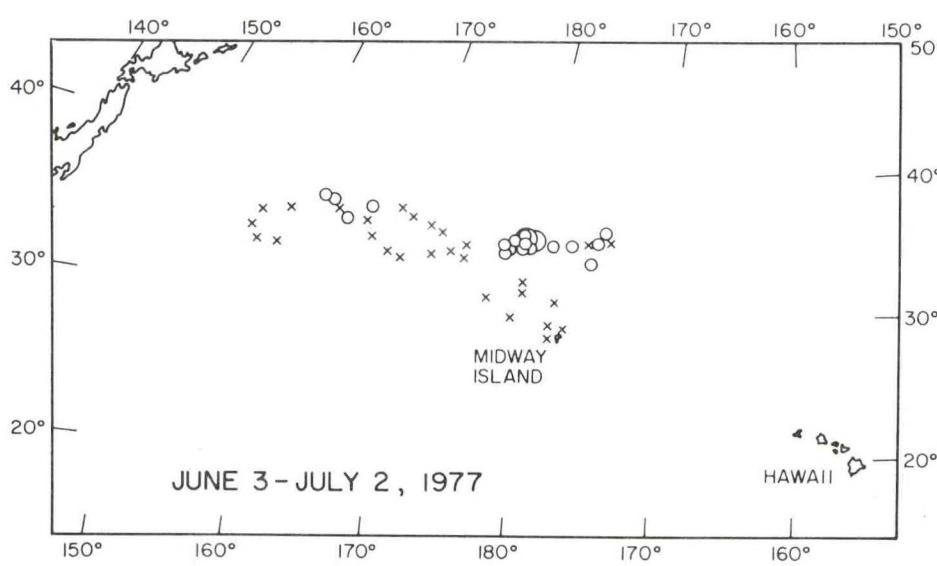
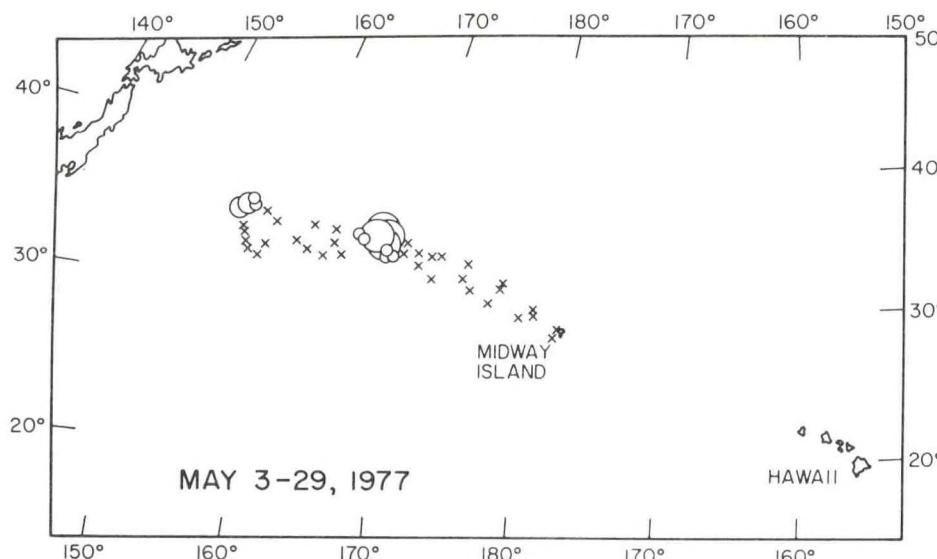


Figure 2. Total daily albacore catches made by Typhoon and Joann Marie from San Diego to Hawaii to Midway Island during April 1977.



FISH CAUGHT BY
TYPHOON AND
JOANN MARIE

No. OF ALBACORE

- ✗ No Catch
- 1-30
- 31-150
- 151-300
- 301-500
- > 500

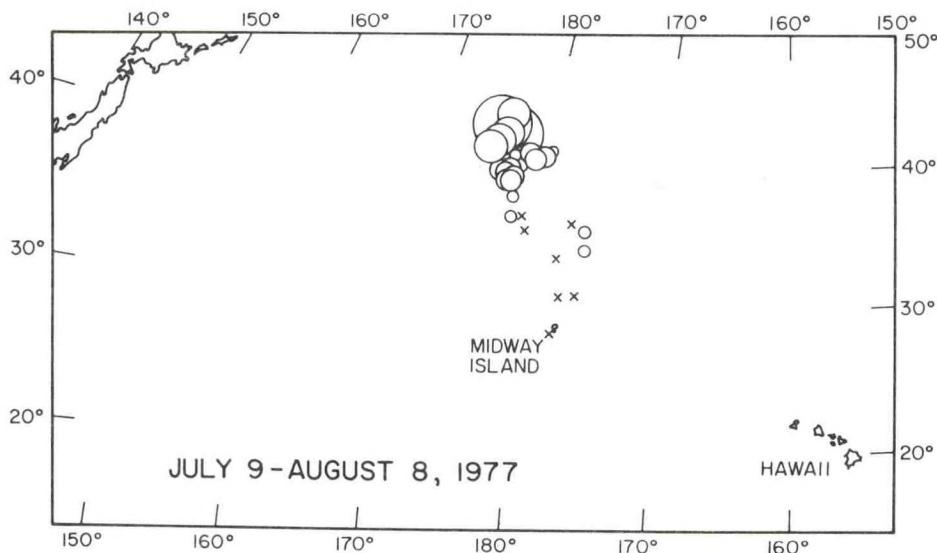


Figure 3. Total daily albacore catches made by Typhoon and Joann Marie in western North Pacific by time periods.

moved westward. No albacore catches were made during the following 5 days when high winds and rough seas were encountered. The vessels caught 122 and 70 fish, on May 18 near 35°N , 155°E , but catches dropped to 9 and 18, on May 19 and 0 to 2 between May 20 and May 25. On May 26, one of the vessels became disabled and was towed back to Midway Island by the other, arriving at Midway Island on May 30 where the disabled vessel remained until June 11. The other vessel returned to sea on June 3 and by June 19 had worked westward to about 35°N , 156°E . During this time, albacore were caught on only 2 days, 4 and 5 fish. The vessel then worked back toward the east making a small number of catches of fewer than 10 fish per day before returning to Midway for refueling on July 3. The boat which had been disabled sailed from Midway Island on June 11 and worked the area between 33° to 35°N and 175° to 179°W until returning to Midway on July 2 for refueling. During this period, some albacore were caught on most days with the highest catch being 61 fish.

Both vessels sailed from Midway on July 8 and worked northward between longitudes 175° and 179°W , making catches of 0 to 5 fish per day through July 14. Very good catches were made by both vessels, 239 and 147, respectively, mostly on 30-pound fish on July 15 near 38°N , 177°E . The vessels continued to make catches of about 100 to 250 fish per day near this location until July 20 when catches made by each vessel dropped to below 10 fish. The boats then began working northward along 179°E and on July 23 made catches of 94 and 100, near 40°N . They continued to fish in this general area for a few days making consistent catches of 25 to 75 fish per day, and then began working westward at about latitude 41°N . On July 28, one of the

vessels made a catch of 290 fish near 41°N, 171°E, and the other 70 fish near 41°N, 179°E. The former vessel continued to make good catches and the latter boat moved to join it on July 30 and caught 219 fish. Both boats continued to fish between 41° to 42°N, and 175° to 176°E making consistently high scores of 200 to 400+ fish per day with a daily high by one boat of 701 fish. By August 9, both vessels were filled to capacity and they began running to Midway Island to refuel before departing to Honolulu to unload.

Yellowfin and Skipjack Catches

Approximately 2,000 pounds of yellowfin and skipjack tunas were caught by the two vessels. Most catches of yellowfin and skipjack were made in the vicinity of islands in the Hawaiian Island chain. The best single daily catch of skipjack was 47 fish ranging from 2 to 20 pounds, made near 23°N, 162°W on April 23. The best catches of yellowfin were made at 23°N, 164°W where the vessels caught 17 and 18 fish, respectively, ranging from 15 to 40 pounds. This is almost the same location where the two jig vessels operating in 1976 made their best combined catches of yellowfin (51 fish ranging 12 to 80 pounds.).

Other Fish Catches

In addition to tunas, at times catches of dolphinfish, amberjacks, wahoo and other fishes were made in the vicinity of the Hawaiian Island chain.

Table 1. Preliminary summary of catches by Typhoon, 1977.

Date	Latitude and Longitude	Albacore No.	Size	Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-surface temp. °F
4/8	29°18'N 125°36'W	-	-	-	-	-	Good	-	61-61.8
4/9	28°16'N 128°57'W	-	-	-	-	-	Rough; wind 20 kts N	-	61.7-62
4/10	27°25'N 131°46'W	-	-	-	-	1	Good	8# Dolphinfish	61.8-63.5
4/11	26°57'N 136°04'W	3	10#	-	5	-	Good	-	65.1-65.8
4/12	26°27'N 139°47'W	-	-	-	2	4	Good	8# Dolphinfish	65.5-66.5
4/13	25°44'N 143°19'W	-	-	-	-	2	Wind 28 kts NE	8# Dolphinfish	68-68.7
4/14	24°43'N 146°41'W	-	-	-	-	10	Good; wind 13-15 kts NE	5-10# Dolphinfish	69-2-70
4/15	23°32'N 150°37'W	-	-	-	-	1	Wind 13-15 kts NE	12# Dolphinfish	70.5-72
4/16	22°40'N 153°45'W	-	-	-	-	-	Good; wind 20-25 kts E; rough going other direction	-	72-76.7
								HAWAII	
4/22	22°13'N 160°28'W	-	-	4	-	2		4# Kawakawa	
4/23	23°05'N 162°33'W	-	-	30-35#	10	3	Good	20 & 45# Wahoo, 12# Dolphinfish	74.5
				6-8#	6#				

Typhoon 1977 Catches (continued)

Date	Latitude and Longitude	Albacore No.	Albacore Size	Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-surface temp. °F
4/24	23°26'N 164°16'W	-	-	15-35#	-	24	Good	Uluia, Barracuda, Dolphinfish	74.5
4/25	23°47'N 165°08'W	-	-	2 20#	2# 4#	9	Good	Uluia, Barracuda, Wahoo; off Necker Island	74.5
4/26	24°21'N 167°19'W	-	-	-	6 10-12#	4	Good; wind 10 kts NE	Uluia, Bonito	75.0
4/27	25°16'N 168°45'W	-	-	3 12-15#	2 10#	53	Wind 10 kts NE	Kawakawa, Uluia, Wahoo, Barracuda; catch made in Gardner Pinnacles area	74.5
4/28	25°35'N 170°53'W	-	-	11 6#	-	-	Wind 10 kts NE; sea calm	-	74-75
4/29	26°57'N 174°38'W	-	-	-	-	-	Wind 10-12 kts NNE	-	73.5
4/30	27°54'N 176°48'W	-	-	-	-	-	Wind 10 kts ENE	-	70.3-73
5/3	28°23'N 177°41'W	-	-	-	-	7	-	MIDWAY ISLAND	-
5/4	29°41'N 179°52'W	-	-	-	-	-	Wind 6 kts SSE	-	69.6
5/5	31°25'N 177°31'E	-	-	-	-	-	Wind 18 kts NE	-	66.5-69
5/6	32°33'N 174°47'E	-	-	-	-	2	Wind 12-15 kts E	15# Dolphinfish	65.4-65.8
5/7	32°42'N 171°56'E	-	-	-	-	-	Wind 10-12 kts SSE	-	61.7-63

Typhoon Catches 1977 (continued)

Date	Latitude and Longitude	Albacore		Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-surface temp. °F
		No.	Size						
5/8	32°43'N 170°25'E	-	-	-	-	-	Wind 10-12 kts SSE	-	62.4-62.5
5/9	33°50'N 167°58'E	7	25-30#	-	-	-	Wind 15 kts SSE	-	63-66.2
5/10	34°17'N 167°13'E	222	10-30# 14# Ave.	-	-	-	Wind 25 kts NE	-	65.5-66.4
5/11	34°18'N 166°44'E	240	10-35# 14# Ave.	-	-	-	Wind 10-12 kts NE	-	63.2-64.9
5/12	34°00'N 165°30'E	3	12#	-	-	-	Wind 10-12 kts E	-	64-64.5
5/13	33°41'N 163°30'E	-	-	-	-	-	Wind 60 kts Rough	-	63-63.8
5/14	33°25'N 160°05'E	-	-	-	-	-	Wind 30 kts Rough	No fishing	60-61.7
5/15	32°28'N 157°41'E	-	-	-	-	-	Wind 15 kts W	-	62.2-63
5/16	32°39'N 156°17'E	-	-	-	-	-	Wind 12 kts SE	-	63-66.8
5/17	33°56'N 155°35'E	-	-	-	-	-	Wind 8 kts SW; swell SW	-	63.6-65.2
5/18	35°11'N 155°15'E	122	6-20# 10# Ave.	-	-	-	Good; sea calm	-	64.1-68.5
5/19	35°30'N 155°36'E	9	12-14# 12# Ave.	-	-	-	Good; wind 10-12 kts SW	Working to S.E.	66.3-66.8
5/20	34°06'N 158°17'E	-	-	-	-	-	Wind 10 kts SW; good	-	62.3-66.3

Typhoon Catches 1977 (continued)

Date	Latitude and Longitude	Albacore		Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-surface temp. °F
		No.	Size						
5/21	32°55'N 161°26'E	-	-	-	-	1	-	10# Dolphinfish	64.2- 64.7
5/22	32°35'N 164°33'E	-	-	-	3#	-	-	-	63.8- 66.2
5/23	33°21'N 166°07'E	-	-	-	-	1	Good; wind 12 kts SW	12# Dolphinfish	66.8- 67.3
5/24	34°05'N 167°30'E	2	3#	-	-	-	Wind 15 kts W	-	65.5- 66.7
5/25	33°42'N 169°26'E	-	-	-	-	-	Wind 12 kts N	-	65.8- 66.5
5/26	32°12'N 172°15'E	-	-	-	-	-	Wind 10-12 kts NE	-	64-65
5/27	31°15'N 175°03'E	-	-	-	-	-	Wind 10-12 kts ENE	15# Dolphinfish	68.4- 69.8
5/28	30°29'N 177°11'E	-	-	-	-	-	Wind 20 kts ESE	-	70.8- 72.9
5/29	29°29'N 179°39'E	-	-	-	-	-	-	-	71-73.1
5/30								MIDWAY ISLAND	
6/3	28°21'N 177°51'W	-	-	5	4 3-8#	-	-	Kure Island Area	-
6/4	29°58'N 179°35'E	-	-	-	-	2	-	Dolphinfish	73.0
6/5	31°39'N 176°48'E	-	-	-	-	1	Good; calm	20# Dolphinfish	71.3-73
6/6	33°20'N 174°50'E	-	-	-	-	-	Rain; sea moderate to calm	-	65.5- 66.5

Typhoon Catches 1977 (continued)

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Date	Latitude and Longitude	A'bacore No.	Size	Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-surface temp. °F
6/7	33°50'N 173°43'E	-	-	-	-	-	Overcast; sea light	-	64.2
6/8	33°33'N 171°45'E	-	-	-	-	-	Sloppy; wind 20 kts SW	-	64-64.5
6/9	33°10'N 169°43'E	-	-	-	-	-	Good; occasional rain	-	63-63.2
6/10	33°34'N 168°20'E	-	-	-	-	-	Calm; sun-shine	-	63-64
6/11	34°43'N 166°59'E	-	-	-	-	-	Rain; overcast; wind 10-12 kts SW	1/2# Ocean Sunfish	63.3-64
6/12	35°23'N 166°11'E	-	-	-	-	-	Good	-	63.5-65
6/13	35°32'N 164°42'E	-	-	-	-	-	Rain; fog; wind 10-12 kts E	-	65-65.3
6/14	35°58'N 163°29'E	-	-	-	-	-	Overcast; sea moderate; wind 12-15 kts SW	-	64.2-65
6/15	36°38'N 163°00'E	4	7#	-	-	-	Choppy; overcast; wind 15 kts NW	-	65-65.3
6/16	36°42'N 162°06'E	5	8-10#	-	-	-	Sea moderate; wind 10 kts NW	-	65-65.3

Typhoon Catches 1977 (continued)

Date	Latitude and Longitude	Albacore No.	Size	Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea- surface temp. °F
6/17	36°05'N 159°33'E	-	-	-	-	-	Wind 25 kts ESE	-	62.5-63
6/18	35°18'N 157°23'E	-	-	-	-	-	Rainy; Sloppy	-	65-65.2
6/19	35°40'N 156°31'E	-	-	-	-	-	Sloppy; wind 30 kts SSW	-	67.4- 68.5
6/20	33°38'N 157°26'E	-	-	-	-	-	Wind 12-15 kts SW	-	66.4- 69.5
6/21	33°39'N 159°01'E	-	-	-	-	-	-	20# Dolphinfish	69.8-70
6/22	35°19'N 162°13'E	-	-	-	-	-	-	-	69-70
6/23	35°44'N 164°12'E	8	6-8#	-	-	-	Sloppy; wind 30 kts E	-	66.3-67
6/24	35°54'N 166°05'E	1	2#	-	-	-	Rain	-	64.2- 64.6
6/25	36°03'N 168°12'E	-	-	-	-	-	Rough; wind 20 kts NE	-	65.6-67
6/26	35°48'N 169°49'E	-	-	-	-	-	Rough; wind 20 kts NE	-	65.3- 65.6
6/27	35°36'N 171°05'E	-	-	-	-	-	Rough; wind 20-30 kts NE	-	64-64.6
6/28	35°09'N 172°27'E	-	-	-	-	-	Good	-	63.3-64

Typhoon Catches 1977 (continued)

Date	Latitude and Longitude	Albacore		Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-surface temp. °F
	No.	Size							
6/29	34°45'N 174°41'E	-	-	-	-	-	Rough; wind 35 kts S	-	64-65.9
6/30	34°19'N 177°48'E	1	4#	12#	4 4-8#	-	Good; wind 10 kts W; big lump	-	63.6- 66.5
7/1	32°00'N 179°42'E	-	-	-	-	-	Good	-	64.8- 73.2
7/2	29°15'N 178°19'W	-	-	-	-	-	-	-	72-79.5
7/9	31°03'N 176°10'W	-	-	-	-	2	-	-	MIDWAY ISLAND
7/10	34°00'N 175°11'W	4	31#	-	-	-	-	20# Dolphinfish	78.9
7/11	35°29'N 175°26'W	3	8#	-	23 8-10#	1	Good	15# Dolphinfish	73.2- 77.2
7/12	35°57'N 177°01'W	-	-	-	-	1	Wind 10-12 kts NE	20# Dolphinfish	68.3
7/13	36°15'N 178°54'E	-	-	-	-	-	Overcast; sea calm	-	65.9- 67.6
7/14	37°30'N 177°59'E	3	1-5# 2-31#	-	-	-	Fog in a.m. sea moderate; wind 10-12 kts S	-	64.2- 66.6
7/15	38°21'N 177°25'E	147	30#	-	-	-	Fog	-	64.5- 64.6
7/16	38°28'N 177°04'E	129	30#	-	-	-	-	-	63.6-64

Typhoon Catches 1977 (continued)

Date	Latitude and Longitude	Albacore		Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-surface temp.°F
		No.	Size						
7/17	38°34'N 177°00'E	138	10-35# 25# Ave.	-	-	-	Good; light sea	-	63.2
7/18	38°47'N 177°03'E	245	8-30# 18# Ave.	-	-	-	Good	-	63.8
7/19	38°49'N 177°04'E	94	6-30# 15# Ave.	-	-	-	Fog; light sea; wind SE	-	65.0
7/20	39°12'N 177°39'E	7	6-14# 10# Ave.	-	-	-	Fog; sea light	-	66.0
7/21	39°20'N 177°41'E	-	-	-	-	-	Good; fog most of day	-	63.3-
7/22	39°25'N 177°44'E	-	-	-	-	-	-	-	63.9
7/23	40°05'N 179°21'E	92	6-35# 25# Ave.	-	-	-	-	-	65.2-
7/24	40°26'N 179°50'E	35	6-35# 14# Ave.	-	-	-	Fog; calm	-	66.5
7/25	40°49'N 179°59'W	29	6-30# 14# Ave.	-	-	-	Good; calm; patchy fog	-	65.8-67
7/26	40°47'N 179°13'E	22	18# Ave.	-	-	-	Good; sea calm	11 fish large; 11 fish small	67.3-
7/27	40°39'N 177°34'E	10	12# Ave.	-	-	-	Good	-	67.7
7/28	40°45'N 175°00'E	290	8-35# 25# Ave.	-	-	-	Patchy fog	-	66.2-
7/29	40°54'N 175°07'E	96	8-35# 18# Ave.	-	-	-	-	-	66.8-69.3

Typhoon Catches 1977 (continued)

Date	Latitude and Longitude	Albacore No.	Yellowfin Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-Surface temp. °F
7/30	41°09'N 175°09'E	230	6-35# 14# Ave.	-	-	Good	-	68-69.8
7/31	41°17'N 175°14'E	384	6-35# 19# Ave.	-	-	-	-	68-69
8/1	41°17'N 175°14'E	210	8-35# 25# Ave.	-	-	-	-	69.0
8/2	41°18'N 175°23'E	437	6-35# 20# Ave.	-	-	-	-	68.9
8/3	41°22'N 175°29'E	77	6-35# 12# Ave.	-	-	-	-	70.0
8/4	41°40'N 174°32'E	265	6-35# 14# Ave.	-	-	Good; wind 10 kts SW	-	69.8
8/5	41°52'N 175°43'E	569	6-35# 19# Ave.	-	-	Good	-	69.9
8/6	42°13'N 175°54'E	262	6-30# 16# Ave.	-	-	-	-	68.5
8/7	42°38'N 175°58'E	408	6-35# 18# Ave.	-	-	-	-	69.2
8/8	42°47'N 176°06'E	273	8-35# 18# Ave.	-	-	-	-	69.0
8/13						RUNNING TO MIDWAY		

Table 2. Preliminary summary of catches by Joann Marie, 1977.

Date	Latitude and Longitude	Albacore		Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-surface temp. °F
		No.	Size						
4/7	-	-	-	-	-	-	-	NO POSITION REPORTED	58.5
4/8	29°43'N 124°35'W	-	-	-	-	-	Calm	-	60-61.2
4/9	-	-	-	-	-	-	Very rough	No fishing position reported	62.5-63.3
4/10	-	-	-	-	-	-	Rough	No fishing position reported	63-65
4/11	27°09'N 136°11'W	1	38-40#	-	4 5-6#	-	Rough following sea; 15 kts.	-	65.5-67
4/12	26°34'N 139°42'W	-	-	-	1 13#	2	Rough following sea; 15 kts	Dolphinfish	66.9-67.8
4/13	25°42'N 143°24'W	-	-	-	-	4	Big following sea; 18 kts	Dolphinfish	68.2-69.2
4/14	24°42'N 146°47'W	-	-	-	1 3#	2	Big following sea	Dolphinfish	69.9-71.0
4/15	24°08'N 150°13'W	-	-	-	1 2-3#	1	Warm; following sea; wind decreasing	Large dolphinfish	72.1-72.3
4/16	22°54'N 153°37'W	-	-	-	-	-	-	Warm; following sea; 18 kts	72.4-72.8

Joann Marie Catches, 1977 (continued)

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Date	Latitude and Longitude	Albacore		Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-surface temp. °F
		No.	Size						
4/22	22°22'N 160°31'W	-	-	-	-	-	Rough in trough	-	-
4/23	23°07'N 162°27'W	-	-	8# & 30#	47 2-20#	1	Very good; 60# wahoo	73.9	
4/24	23°27'N 164°14'W	-	-	18 20-40# 30# Ave.	3 3-6#	47	Very good; Kawakawa, Uluia, Barracuda	74.0	
4/25	23°47'N 166°08'W	-	-	1 25#	-	25	Very good; Kawakawa, Uluia, Barracuda, Dolphinfish	75.0	
4/26	24°25'N 167°22'W	-	-	-	-	42	Good; wind 8 kts E	75.3	
4/27	25°14'N 168°45'W	-	-	2 10-15#	-	34	Good; wind 5 kts	74.5	
4/28	25°42'N 170°46'W	-	-	2 30#	1 3#	2	Calm	-	Kawakawa, Barracuda
4/29	27°53'N 176°45'W	-	-	-	-	1	-	NO REPORT	73.7
4/30	28°27'N 177°43'W	-	-	-	-	-	Dolphinfish	MIDWAY ISLAND	
5/3	28°27'N 177°43'W	-	-	-	-	3	Wind 10-12 kts NE	73.0	
5/4	29°59'N 179°56'W	-	-	-	1 4#	-	Calm	-	67.0
5/5	31°42'N 177°40'E	-	-	-	-	-	Wind 15 kts N	-	66.3-67.0

Joann Marie Catches, 1977 (continued)

Date	Latitude and Longitude	Albacore		Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-Surface temp. °F
		No.	Size						
5/6	32°16'N 174°37'E	-	-	-	-	-	Lumpy; Wind 18 kts E		62.8- 67.5
5/7	32°47'N 171°57'E	-	-	-	-	-	-		61.7- 64.5
5/8	32°44'N 170°32'E	-	-	-	-	-	Wind 8-10 kts SE		65.0- 66.5
5/9	33°45'N 168°00'E	4	30#	-	-	-	Wind 12 kts S; low clouds; patchy fog; drizzle		66-67
5/10	34°19'N 167°13'E	208	12-35# 15# Ave.	-	-	-	Sloppy; wind 35 kts N		66-66.7
5/11	34°21'N 166°44'E	260	12-35# 15# Ave.	-	-	-	Wind 12-15 kts NNE; sunny; weather moderating		63-64
5/12	32°36'N 165°10'E	7	10-12#	-	-	-	-		62.8- 64
5/13	33°43'N 162°42'E	-	-	-	-	-	Real rough; Wind 50-70 kts E		62-65
5/14	33°40'N 160°20'E	-	-	-	-	-	-	Very sloopy	59.0

Joann Marie Catches, 1977 (continued)

Date	Latitude and Longitude	Albacore No.	Albacore Size	Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-surface temp. °F
5/15	32°36'N 157°31'E	-	-	-	-	-	Wind 12 kts W; much im- proved weather	-	61.8- 62.7
5/16	32°47'N 156°12'E	-	-	-	-	-	-	-	63.3-65
5/17	34°03'N 155°30'E	-	-	-	-	-	-	-	63-65.8
5/18	35°08'N 155°05'E	70	6-20#	-	-	-	-	-	64.8- 66.2
5/19	35°29'N 155°40'E	18	8-15# 10# Ave.	-	-	-	Wind 10 kts SW; sunny	-	66.6
5/20	35°16'N 158°15'E	-	-	-	-	-	Wind 10-12 kts S; sunny	-	62.8- 64.2
5/21	34°56'N 161°26'E	-	-	-	-	1	Sticky; Wind 25 kts SW: partly cloudy	22# Bluefin	64.0
5/22	34°46'N 163°22'E	-	-	-	-	-	-	-	63.7- 65.4
5/23	34°26'N 165°29'E	1	5#	-	-	-	-	-	63.8- 65.6
5/24	-	-	-	-	-	-	-	-	64.4
5/25	33°08'N 169°25'E	-	-	-	-	-	Calm	-	64.5- 66.2
								NO FISHING; BREAKDOWN	

Joann Marie Catches, 1977 (continued)

Date	Latitude and Longitude	Albacore		Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea- surface temp. °F
		No.	Size						
5/26	32°12'N 172°15'E	-	-	-	-	-	Wind 10 kts N	Under tow	65-67.2
5/27	31°15'N 175°03'E	-	-	-	-	4	Wind 10-12 kts ENE	Under tow; 10-18# Dolphinfish	66.4- 69.9
5/28	30°29'N 177°11'E	-	-	-	3 3-4#	1	Wind 20 kts ESE	Under tow; 12# Dolphinfish	70.2-72
5/29	-	-	-	-	-	-	-	NO REPORT MIDWAY ISLAND	-
5/30	28°52'N 177°17'W	-	-	-	-	2	-	6# Kawakawa; 20# Dolphinfish	71.6- 75.5
6/12	31°09'N 176°37'W	-	-	-	-	-	Wind 15-18 kts SW; clear	-	-
6/13	33°35'N 175°18'W	2	25# & 35#	-	14 4-8#	1	Calm; cloudy	15# Dolphinfish	65.5- 71.9
6/14	34°51'N 175°02'W	4	25-30#	-	-	-	-	-	65.2
6/15	35°25'N 174°39'W	1	10#	-	-	-	-	-	65.2- 65.3
6/16	35°15'N 174°37'W	-	-	-	-	-	Wind 10-12 kts SW	-	65.6-68
6/17	35°00'N 175°30'W	-	-	-	2#	-	Wind 15-18 kts SW	-	66.5- 67.1
6/18	34°58'N 177°08'W	-	-	-	7 7-8#	-	Wind 18-20 kts SW; sloppy	-	65.4-66
6/19	34°51'N 178°51'W	5	1 -33# 4 - 4#	-	12 7-8#	1	Wind 15 kts N; sloppy	12# Dolphinfish	64.8- 68.4
6/20	-	9	6 -33# 3 - 6#	-	5 6#	2	-	4-5# Rainbow Runner 4-5# Unknown Bass-like fish	-

Joann Marie Catches, 1977 (continued)

Date	Latitude and Longitude	Albacore No.	Size	Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea- surface temp. °F
6/21	34°36'N 179°40'E	27	8-10#	-	-	1	Wind 18-20 kts W	15# Dolphinfish	65.5-66
6/22	34°25'N 179°12'E	-	-	2 10#	9 3-6#	1	Wind 18 kts SW	15# Dolphinfish	65.2- 65.7
6/23	34°45'N 179°38'E	14	4-6#	-	2 6#	-	Gale	Drifting	66.1- 66.6
6/24	34°52'N 179°54'W	46	7-10#	-	3 4-5#	-	-	-	65-66.2
6/25	34°50'N 179°43'W	61	8-35# 8-9# ave	-	16 2-22#	-	Wind 30 kts S; rain	-	65.7
6/26	34°51'N 179°55'W	9	5-7#	-	2 2#	-	Good	-	64.3-66
6/27	35°03'N 179°47'W	-	-	-	6 1-7#	1	Wind 30-35 kts NE; large seas 12 ft.	10# Dolphinfish	63.8- 66.4
6/28	35°09'N 179°00'E	5	4-6#	-	-	-	Wind 18 kts NNE; 8-10 ft seas	-	61.9-64
6/29	34°55'N 177°32'E	10	2-37#	-	-	-	Wind 20 kts E; 8-10 ft. seas	-	-
6/30	34°13'N 177°49'E	1	6.5#	-	3 6-7#	-	Wind 30-35 kts SW	-	62.6- 64.8
7/1	31°52'N 179°43'E	-	-	-	-	4	Big Lump	-	64.5- 65.4
7/2	-	-	-	-	-	-	15# Dolphinfish	MIDWAY ISLAND	68.5- 73.1
7/9	28°26'N 177°23'W	-	-	3 8-12#	1 8#	2	-	7# Kawakawa	-

Joann Marie Catches, 1977 (continued)

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Date	Latitude and Longitude	Albacore		Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-surface temp. °F
		No.	Size						
7/10	30°55'N 177°17'W	-	-	-	-	-	-	-	76.8
7/11	33°33'N 177°33'W	-	-	-	-	4	Wind 18 kts NE	15# Dolphinfish	74-75.3
7/12	35°21'N 179°22'E	-	-	-	5 2-3#	-	Wind 15 kts NE	-	67.7- 71.1
7/13	35°52'N 178°20'E	5	5#	-	-	-	Wind 8-10 kts E;	-	63.8- 66.2
7/14	36°53'N 177°29'E	-	-	-	-	-	Wind 12 kts SW; patchy fog	-	65-66.5
7/15	38°07'N 177°15'E	239	30-40#	-	-	-	Wind 12 kts SW; deep fog	-	64.2- 65.9
7/16	38°24'N 176°33'E	151	30-40#	-	-	-	-	-	-
7/17	38°39'N 177°02'E	227	10-38# 25# Ave.	-	-	-	Good	-	64.1
7/18	38°46'N 177°04'E	181	10-30# 18# Ave.	-	-	-	Very good	-	63.9
7/19	38°47'N 177°04'E	32	13# Ave.	-	-	-	-	-	64.2
7/20	39°16'N 177°46'E	6	8-35#	-	-	-	Wind 10 kts SE; fog	-	64.2
7/21	39°32'N 177°58'E	5	5-7#	-	-	-	-	-	63.3
7/22	39°24'N 177°13'E	-	-	-	-	1	Calm and foggy	6# Rainbow runner	64.2

Joann Marie Catches, 1977 (continued)

Date	Latitude and Longitude	Albacore No.	Size	Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea-Surface temp. °F
7/23	40°04'N 179°17'E	100	6-37#	-	-	-	Wind 8-10 kts; fog; calm	-	65.5-67
7/24	40°30'N 179°47'E	13	5-34#	-	-	-	Flat and foggy	-	69.0
7/25	40°46'N 179°59'E	75	5-34#	-	-	-	Calm and foggy	-	67-68.5
7/26	40°50'N 179°42'E	25	6-38#	-	-	-	-	-	67.5-69.2
7/27	40°48'N 179°41'E	81	6-32#	-	-	10	-	10-15# Rainbow runners	67-69
7/28	40°55'N 179°49'E	70	6-26#	-	-	1	Good	5# Rainbow runner	66.3-68.5
7/29	40°57'N 176°21'E	8	6-22#	-	-	6	Calm; breeze SE	6-12# Rainbow runners	68-69.2
7/30	41°10'N 175°08'E	219	18# Ave.	-	-	-	-	-	69.3-70.5
7/31	41°16'N 175°14'E	355	20-25 Ave.	-	-	-	-	-	69.0
8/1	41°19'N 175°09'E	250	25-30# Ave.	-	-	-	-	-	70.0
8/2	41°16'N 175°16'E	319	20-25# Ave.	-	-	-	Good	-	-
8/3	41°21'N 175°11'E	73	14# Ave.	-	-	-	-	-	70.6
8/4	41°39'N 175°30'E	251	15# Ave.	-	-	-	-	-	70.8

Joann Marie Catches, 1977 (continued)

Date	Latitude and Longitude	Albacore No.	Size	Yellowfin No. Size	Skipjack No. Size	Other fish	Weather	Remarks	Sea- surface temp. °F
8/5	41°55'N 175°48'E	701	16# Ave.	-	-	-	Good	-	-
8/6	42°15'N 175°55'E	277	14# Ave.	-	-	-	Calm	-	69.2
8/7	42°35'N 175°57'E	358	15# Ave.	-	-	-	Fine	-	70.0
8/8	42°45'N 176°01'E	444	14# Ave.	-	-	-	-	-	
8/9								RUNNING TO MIDWAY	