

OREGON DEPARTMENT OF FISH AND WILDLIFE

Report of Cruise 78-6, Pre-season Albacore

Vessel: *New Dawn*, chartered fishing vessel

Date: July 5-15, 1978

Objectives: To search for oceanographic conditions favorable for albacore, *Thunnus alalunga*, to fish for albacore, and to report the results of the cruise to the fishermen.

Methods: Departure was made at noon on July 5, 1978 from Astoria. A pre-determined trackline was followed as accurately as possible for 9 days (Figure 1). The cruise terminated on July 14, 1978 in Astoria. The trackline that was followed included 35 stations where surface temperatures were taken, and XBT probes were dropped to measure sub-surface temperature profiles (Table 1). Weather conditions were recorded each morning. Between stations, 12 tuna jigs were trolled at speeds of 6 to 8 knots except on July 9, weather conditions allowed only 6 jigs to be trolled. Daily radio broadcasts were made to distribute the catch and weather information to the fishermen. An excursion trip was made out to the Jackson Seamount, and an XBT was dropped at 42° 34' N and 127° 53' W.

Results: A total of 78 albacore were caught. Every fish was measured and they ranged from 61.2 to 81.3 cm, with the average length being 66.1 cm. Surface temperatures for all 35 stations ranged between 58.5° F and 62.4° F. The average sea-surface temperature was found to be 60.2° F. All of the fish were caught in water with a temperature of 59.5° F and above. Figure 2 shows the distribution of fish caught in sea-surface temperatures encountered during the cruise. The fish were found to be scattered in areas with favorable sea-surface temperatures, and a thermocline with sufficient depth to provide living space.

Discussion: During the 1976 Pre-season Albacore Cruise a total of 44 albacore were caught. Of these fish 30 were caught in sea-surface temperatures which ranged between 60.2° F and 60.6° F. The average sea-surface temperature for this cruise was 59.9° F. During the 1977 Pre-season Albacore Cruise no albacore were caught. The sea-surface temperatures for this cruise ranged between 57.6° F and 60.5° F, with an average of 59.2° F. Of the 78 fish caught during this cruise, 93.6% were caught in sea-surface temperatures ranging between 60.0° F and 61.5° F (Figure 2). The 44 albacore caught in 1976 were all caught inside this range. The lack of higher sea-surface temperatures during the 1977 cruise may be a partial explanation for the lack of catch. In summary, 95.9% of the albacore were caught in sea-surface temperatures ranging between 60.0° F and 61.5° F during the pre-season albacore cruises for 1976-78. All catches were made in sea-surface temperatures between 59.5° F and 63.0° F which is within the normal temperature range for the species.

Personnel: Bernie Bjork, Skipper
Danial Henry, Crewman
Mark Saelens, Biological Aide

Mark Saelens
Marine Region
July, 1978

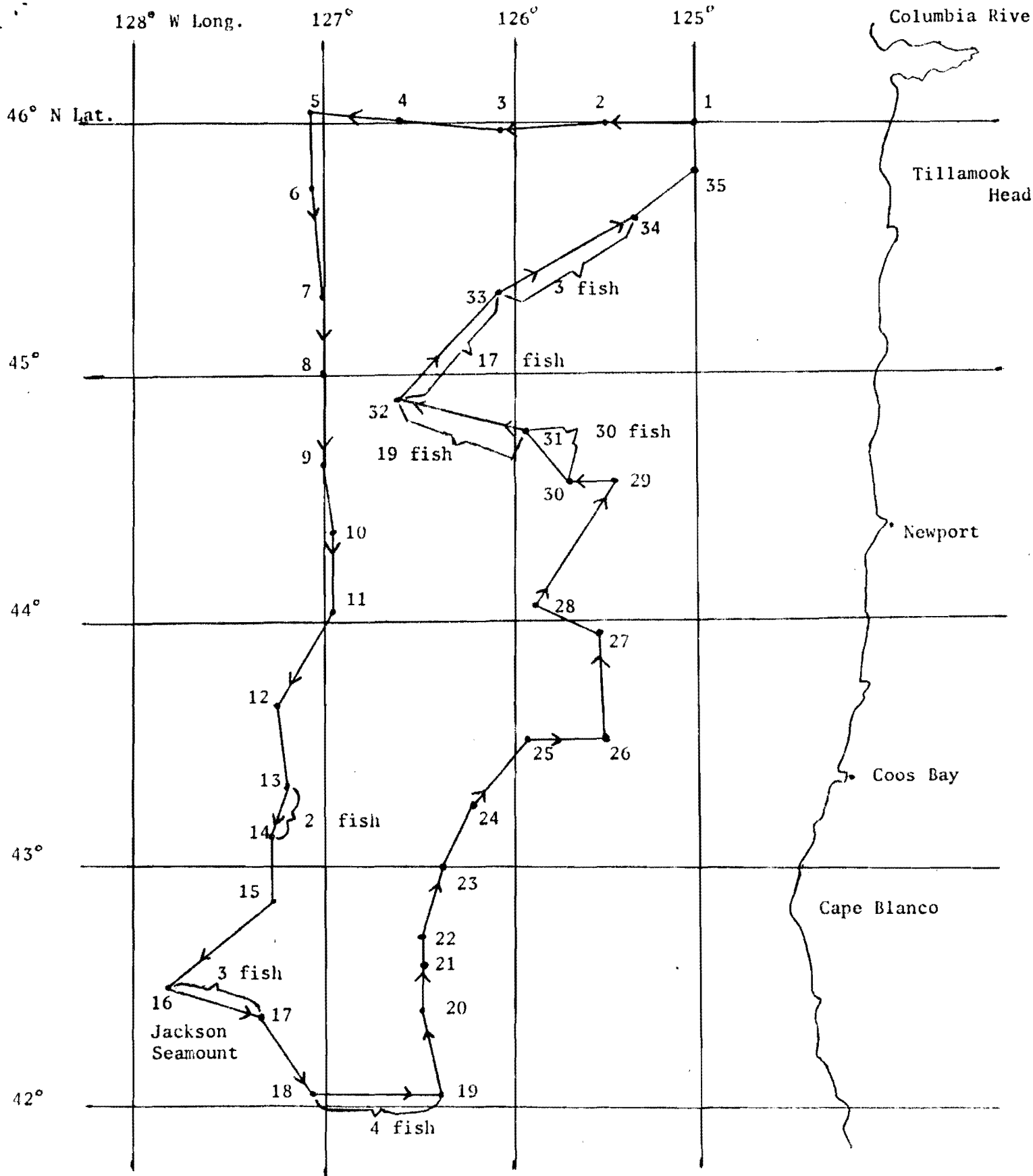


Figure 1. Cruise Trackline, sampling stations, and locations where tuna, *Thunnus alalunga*, were caught during the 1978 pre-season cruise.

Table 1. Catch Data and Oceanographic Conditions during 1978 Pre-season Albacore Cruise.

XBT Station	Location	Sea-surface Temp. (°F)	Depth of 58°F Isotherm	Location of Fish Caught	Sea-surface Temp. (°F) at Catch Location	No. of Fish Caught
1	110-3316 111-3344	62.0	-	-	-	0
2	110-3235 111-3218	61.0	75	-	-	0
3	110-3202 111-3116	59.5	85	-	-	0
4	110-3137 111-2953	61.0	105	-	-	0
5	110-3174 111-2832	58.5	130	-	-	0
6	110-3021 111-2903	58.5	50	-	-	0
7	110-2792 111-2980	58.9	115	-	-	0
8	110-2611 111-3020	58.5	130	-	-	0
9	110-2385 111-3038	60.4	60	-	-	0
10	110-2243 111-3060	59.5	105	-	-	0
11	110-2050 111-3080	58.5	120	-	-	0
12	110-1900 111-3078	59.5	70	-	-	0
13	110-1784 111-3077	59.0	145	-	-	0
				110-1750 111-3075	59.5	2

Table 1. Continued.

XBT Station	Location	Sea-surface Temp. (°F)	Depth of 53°F Isotherm	Location of Fish Caught	Sea-surface Temp. (°F) at Catch Location	No. of Fish Caught
14	1L0-1695 1L1-3068	59.2	120	-	-	0
15	1L0-1616 1L1-3056	61.3	100	-	-	0
16	1L0-1550 1L1-3046	62.5	85	-	-	0
				1L0-1423 1L1-3088	60.0	3
17	1L0-1445 1L1-3080	60.2	140	-	-	0
18	1L0-1311 1L1-3181	59.9	105	-	-	0
				42° 03' N 126° 25' W	60.5	4
19	1L0-1254 1L1-3161	60.0	115	-	-	0
20	1L0-1279 1L1-3171	60.4	130	-	-	0
21	1L0-1316 1H6-1498	60.5	135	-	-	0
22	1L0-1333 1H6-1459	60.2	115	-	-	0
23	1L0-1448 1H6-1314	61.1	75	-	-	0
24	1L0-1530 1L1-3199	60.8	90	-	-	0
25	1L0-1606 1L1-3222	60.5	95	-	-	0

Table 1. Continued.

XBT Station	Location	Sea-surface Temp. (°F)	Depth of 58°F Isotherm	Location of Fish Caught	Sea-surface Temp. (°F) at Catch Location	No. of Fish Caught
26	1L0-1628 1L1-3271	59.0	80	-	-	0
27	1L0-1837 1L1-3265	60.8	105	-	-	0
28	1L0-1990 1L1-3234	60.1	50	-	-	0
29	1L0-2275 1L1-3151	59.6	70	-	-	0
30	1L0-2338 1L1-3100	60.2	120	1L0-2338 1L1-3100	60.2	10
				44° 35' N 126° 50' W	61.5	3
				1L0-2916 1L1-3057	61.5	1
				1L0-2455 to 2461 1L1-3033 to 3030	60.0	16
31	1L0-2461 1L1-3030	61.0	85	-	-	0
				1L0-2452 1L1-3039	61.0	19
32	1L0-2533 1L1-3080	61.3	120	-	-	0
				1L0-2613 to 2714 1L1-3085 to 3118	61.5	17
33	1L0-2799 1L1-3158	62.4	70	-	-	0
				1L0-2923 1L1-3229	63.0	3

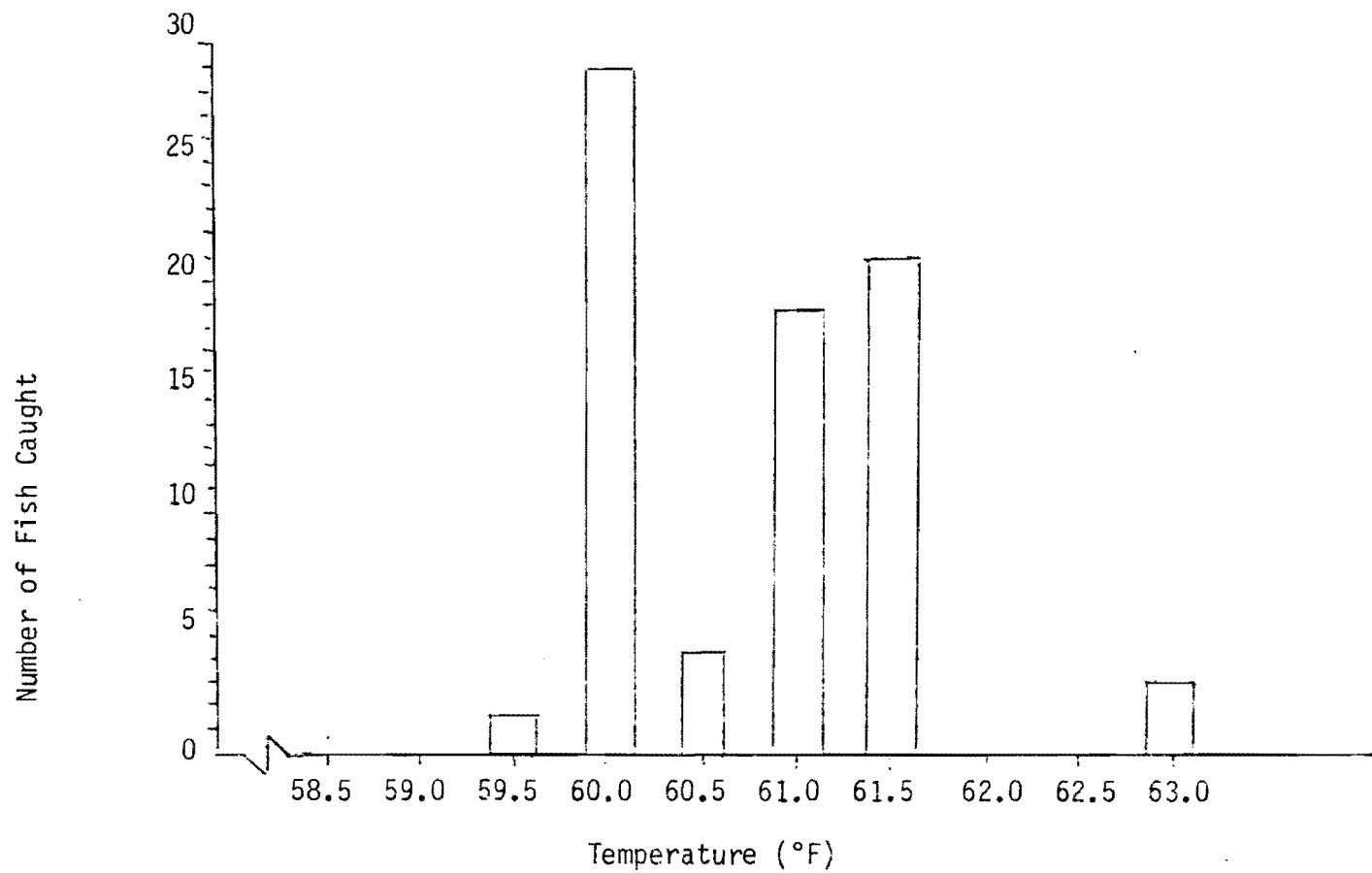


Figure 2. Sea-surface Temperature vs. Number of albacore, *Thunnus alalunga*, Caught during 1978 Pre-season Cruise.