

JC-00-05 Cruise Report
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Scientists from the Auke Bay Laboratory of the National Marine Fisheries Service, Alaska Fisheries Science Center, conducted a 7-d cruise aboard the NOAA ship *John N. Cobb* in the northern region of southeastern Alaska from 19 to 25 May 1999. This cruise is the first of a series of five monthly monitoring cruises scheduled to sample the inside and coastal marine waters of southeastern Alaska in 2000. This begins a fourth year of study at the same stations in southeastern Alaska to examine intra- and inter-annual variability of physical and biological conditions and their influence on the growth and survival of Pacific salmon (*Oncorhynchus* spp.) and other fish populations. Objectives for these monitoring cruises are to: 1) sample juvenile salmon (*Oncorhynchus* spp.) and other pelagic fish species with a rope trawl; and 2) monitor physical and biological oceanographic conditions at 20 stations throughout the region.

Twenty stations were scheduled for sampling during this cruise, spanning from inside waters near Juneau to 60 km offshore in the Gulf of Alaska (Figure 1; Table 1). Oceanographic measurements were planned for all 20 stations. Because of the absence of juvenile salmon in May of the prior three years of sampling, trawling was not planned during this cruise, only “shake down” hauls to ensure that the trawl gear was operational.

Oceanographic sampling:

At each station the physical and biological environment was monitored, and throughout the cruise, 2-m temperature and salinity readings were logged onboard the vessel. A SeaBird SBE-19 conductivity-temperature-depth (CTD) profiler was deployed at each station as depth permitted to 200 m or within 10 m of the bottom. Logging of 2-m temperatures and salinities was done each minute throughout the cruise with an onboard SeaBird SBE-21 thermosalinograph. Plankton was sampled with vertical hauls of conical nets and oblique hauls of a double bongo net. Vertical plankton tows were made with a 50-cm frame and 243 micron mesh net to 20 m at each station, and in Auke Bay and in coastal transects only, a 57-cm frame and a 202 micron mesh net was deployed to 200 m or within 20 m of the bottom. A Roshiga flow meter was used inside the 57-cm frame deep conical net to determine the amount of water volume sampled. Also at each station, one double oblique bongo tow was done to 200 m or within 20 m of the bottom using a 60-cm frame with 505 and 333 micron mesh nets. General Oceanics flow meters were placed inside each of the bongo nets to determine the amount of water volume sampled. A Bendix time depth recorder was used with the Bongo nets to validate the maximum deployment depth of each tow. Water samples were taken at selected stations for later examination of chlorophyll and nutrients.

Laboratory Processing:

Settled volumes of zooplankton from the 20-m vertical hauls were measured in the laboratory. Each sample of zooplankton was settled for a 24 hr period in an IMHOF 1000 ml cone to determine the settled volume for each station. This volume was partitioned into zooplankton and phytoplankton when possible and recorded to the nearest ml.

Results:

All 20 stations were oceanographically sampled during the cruise with a total of 20 ctd casts, 20 bongo tows, 20 vertical 20-m tows, 14 water samples, and 5 deep vertical (WP2) tows (Table 2).

Surface (2-m) temperatures and salinities ranged 6.6-8.7 °C and 24.4-32.0 PSU. Heavy concentrations of phytoplankton at most stations encumbered the settling process of zooplankton from the 20-m NORPAC hauls. Consequently, settled volumes of zooplankton had to be estimated at many stations, and ranged from 5-25 ml. Phytoplankton ranged from 9-110 ml at the stations, and was particularly heavy at the inshore and strait localities.

Acknowledgments:

We would like to acknowledge the command and crew of the NOAA ship *John N. Cobb* for their superb cooperation and performance for the duration of the cruise despite adverse weather conditions.

Table 1.--Localities and coordinates of stations scheduled for sampling in the marine waters of the northern region of southeastern Alaska off the NOAA ship *John N. Cobb*, 19-25 May 2000.

Locality distance	Depth	Station	Latitude	Longitude	Offshore	Inter- transect distance	
Auke Bay		ABM	58° 22.00' N	134° 40.00' W	1.5 km	-----	60 m
Taku Inlet		TKI	58° 11.19' N	134° 11.71' W	2.2 km	-----	175 m
False Point Retreat		FPR	58° 22.00' N	135° 00.00' W	1.8 km	-----	680 m
Lower Favorite Channel		LFC	58° 20.98' N	134° 43.73' W	1.5 km	-----	75 m
Upper Chatham Strait		UCA	58° 04.57' N	135° 00.08' W	3.2 km	3.2 km	400 m
		UCB	58° 06.22' N	135° 00.91' W	6.4 km	3.2 km	100 m
		UCC	58° 07.95' N	135° 01.69' W	6.4 km	3.2 km	100 m
		UCD	58° 09.64' N	135° 02.52' W	3.2 km	3.2 km	200 m
Icy Strait		ISA	58° 13.25' N	135° 31.76' W	3.2 km	3.2 km	128 m
		ISB	58° 14.22' N	135° 29.26' W	6.4 km	3.2 km	200 m
		ISC	58° 15.28' N	135° 26.65' W	6.4 km	3.2 km	200 m
		ISD	58° 16.38' N	135° 23.98' W	3.2 km	3.2 km	234 m
Cross Sound		CSA	58° 09.53' N	136° 26.96' W	3.2 km	3.2 km	300 m
		CSB	58° 10.91' N	136° 28.68' W	6.4 km	3.2 km	60 m
		CSC	58° 12.39' N	136° 30.46' W	6.4 km	3.2 km	200 m
		CSD	58° 13.84' N	136° 32.23' W	3.2 km	3.2 km	200 m
Icy Point		IPA	58° 20.12' N	137°07.16' W	6.9 km	16.8 km	160 m
		IPB	58° 12.71' N	137°16.96' W	23.4 km	16.8 km	130 m
		IPC	58° 05.28' N	137°26.75' W	40.2 km	16.8 km	150 m
		IPD	57° 53.50' N	137°42.60' W	65.0 km	24.8 km	1,300 m

Table 2.--Types of samples collected in the marine waters of the northern region of southeastern Alaska off the NOAA ship *John N. Cobb*, 19-25 May 2000.

Date	Haul#	Station	CTD	Plankton net samples			Cholorphyll & nutrients	Rope ¹ trawl
				Norpac 20-m	Bongo	WP-2		
19 May	4001	TKI	1	1	1	0	1	0
19 May	4003	LFC	1	1	1	0	1	0
19 May	4002	ABM	1	3	1	1	1	0
19 May	4004	FPR	1	1	1	0	1	0
20 May	4005	UCD	1	1	1	0	1	0
20 May	4006	UCC	1	1	1	0	0	0
20 May	4007	UCB	1	1	1	0	0	0
20 May	4008	UCA	1	1	1	0	1	0
20 May	4009	ISA	1	1	1	0	1	0
20 May	4010	ISB	1	1	1	0	0	0
20 May	4011	ISC	1	1	1	0	0	0
20 May	4012	ISD	1	1	1	0	1	0
21 May	4013	CSA	1	1	1	0	1	0
21 May	4014	CSB	1	1	1	0	0	0
21 May	4015	CSD	1	1	1	0	0	0
21 May	4016	CSC	1	1	1	0	1	0
23 May	4017	IPA	1	1	1	1	1	0
23 May	4018	IPB	1	1	1	1	1	0
23 May	4019	IPC	1	1	1	1	1	0
23 May	4020	IPD	1	1	1	1	1	0
Total			20	20	20	5	14	0

¹Only four “shake down” rope trawl hauls were made on this cruise, each with the cod-end open.

Table 3.--Two meter temperatures and salinities, and settled volumes of plankton from 20-m vertical Norpac

Date	Haul#	Station	<u>Two-meter depth</u>		Settled plankton		
			temperatures (°C)	salinities (PSU)	Zooplankton	<u>20-m Norpac hauls</u> Phytoplankton	Total
19 May	4001	TKI	7.4	24.4	~6	~29	35
19 May	4002	LFC	7.6	28.0	~10	~110	120
19 May	4003	ABM	8.2	26.7	~10	~80	90
19 May	4004	FPR	7.9	30.0	~15	~85	100
20 May	4005	UCD	7.4	30.5	10	30	40
20 May	4006	UCC	7.7	30.4	24	80	104
20 May	4007	UCB	7.5	30.4	20	75	95
20 May	4008	UCA	7.0	30.6	14	90	104
20 May	4009	ISA	6.6	31.4	~5	~22	27
20 May	4010	ISB	7.2	31.2	~7	~32	39
20 May	4011	ISC	7.0	31.0	~5	~100	105
20 May	4012	ISD	7.9	30.7	~10	~50	60
21 May	4013	CSA	7.4	31.6	17	46	63
21 May	4014	CSB	7.0	31.9	17	18	35
21 May	4015	CSC	6.9	31.9	13	9	22
21 May	4016	CSD	6.8	31.9	14	11	25
23 May	4017	IPA	8.7	31.6	25	10	35
23 May	4018	IPB	8.1	31.6	20	10	30
23 May	4019	IPC	7.8	31.7	22	9	31
23 May	4020	IPD	8.4	32.0	17	21	38

Figure 1.--Twenty stations sampled by the NOAA ship *John N. Cobb* in marine waters of the northern region of southeastern Alaska, 19-25 May 2000.