

**Information on Pacific salmon tagging activities during TINRO-center
research survey for BASIS program in the western Bering Sea during
summer period of 2005**

by

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Abstract

The present document summarizes information on Pacific salmon tagging activities during TINRO-center research survey for BASIS program in the western Bering Sea during June-July 2005. Standard tagging procedures were applied. Fish were caught by midwater rope trawl and immediately placed in large tank with flowing water to allow them to recover. Fork length was measured and scales were carefully sampled. Tagging was done with FRI disk tags. Biological parameters of tagged salmon individuals are provided in the tables included. Technical characteristics of respective trawl stations are given in the present document.

Introduction

Salmon tagging is an important component of plan for BASIS program. As a participant of BASIS program TINRO-center has tagged 21 chum salmon individuals and 6 sockeye salmon individuals during the research survey for BASIS program in the western Bering Sea in summer period of 2005. The present document summarizes results of these tagging activities.

Tagging methods, protocols and data

Pacific salmon tagging activities aboard the RV "TINRO" were carried out to implement the plan of BASIS program. Traditional tagging methods were employed. The recommendations on Pacific salmon tagging, as well as, FRI (Fisheries Research Institute of University of Washington, Seattle, USA) disk tags and accompanying equipment were kindly provided by Dr. Katherine Myers of University of Washington. According to recommendations tags were attached fairly high up on the side of the fish, just anterior to the dorsal fin. No anesthetic was applied. All salmon were using a hexagonal mesh midwater rope trawl, model PT 80/396. The RV "TINRO" is a 62.2 x 13.8 m stern trawler of 2,508 t with a cruising speed of 12.96 knots, a main engine horsepower of 2364 (1182 hp x 2), and a warp diameter of 32 mm. The trawl is 130 m long with hexagonal mesh in the wings and body, a headrope length of 80 m, and a 10-mm mesh liner in the codend. Trawl bridles consisted of two 100-m main trawl bridles connected to a single point behind each door, and four 50-m split bridles connected to four points on each side of the trawl. Bridles were attached to two conical V-shaped trawl doors (area - 6 square meters, weight - 1300 kg). A hydrodynamic plate (area - 6 square meters, height - 0.6 m, length - 10 m) and floats were used on the headrope to keep it at the surface. Two 400-kg weights were attached to the footrope bridles directly in front of the footrope, and a 120-kg chain was used to allocate the weight along the footrope and to increase the vertical spread of the trawl.

After the fish were caught by trawl, they were immediately placed in large tank (approximately 10 cubic meters) with flowing water to allow them to recover. Only well preserved and well recovered individuals were chosen for tagging. Fish were kept in water while being tagged. A dark cloth was usually used to cover the Pacific salmon eyes in order to keep them calm. After the fish were tagged, they were usually released back in the sea immediately. In some cases tagged salmon individuals were kept in a recovery tank for a short time.

Disk tags were attached using cinch straps. The cinch strap goes through the hole in the middle of the disk tag. The tag slides to the lock end of the strap. The cinch strap goes into a canula. A canula is a hollow metal tube about 150 mm long and 3 mm in diameter, with a sharp solid point. The canula is pushed through the dorsal muscle of the fish, just anterior to the dorsal fin. The canula is then pulled out the opposite side of the fish, leaving the cinch strap going through the fish. The cinch strap is then bent over the top of the fish's back, and the point of the cinch strap is pulled through the locking end of

the strap until the beads go through the lock. The strap should not be tight against the back, so that there is some room for the fish to grow.

Along with the tagging procedures, scale from the "preferred" body area were collected. Fork length of were also measured (the length was taken from the tip of the snout to the fork of the tail). No weight data was collected, as the fish would be out of water too long and would have more trauma. At least one scale was collected per fish from the preferred body area (between the posterior of the dorsal fin and the anterior of the anal fin, 2 or 3 rows above the lateral line). The table below provides biological parameters of tagged salmon individuals as well as technical characteristics of respective trawl stations.

Biological parameters of tagged Pacific salmon individuals and technical characteristics of respective trawl stations.

Species	Haul (station) number	Tag number	Fork length, cm	Date of trawling (dd.mm.yy)	Time of beginning of trawling (hh:mm)	Time of end of trawling (hh:mm)	Longitude of beginning of trawling (decimal degees)	Latitude of beginning of trawling (decimal degees)	Longitude of end of trawling (decimal degees)	Latitude of end of trawling (decimal degees)	Speed of trawling (nautic miles)	Length of warps (m)	SST (degrees Celsius)
O. keta	3	MM 1272	540	17.06.05	1 714	1 814	164,81	53,93	164,74	53,87	4,5	255,0	6,3
O. keta	11	MM 1258	570	20.06.05	1 333	1 433	164,62	55,10	164,51	55,06	4,4	253,0	6,1
O. keta	41	MM 1270	530	02.07.05	1 901	2 001	171,44	54,80	171,57	54,80	4,5	267,0	6,8
O. keta	47	MM 1282	500	05.07.05	440	540	173,02	57,98	173,08	58,04	4,4	264,0	6,3
O. keta	49	MM 273	530	05.07.05	1 608	1 708	175,18	57,16	175,09	57,22	4,4	268,0	6,6
O. keta	49	MM 227	485	05.07.05	1 608	1 708	175,18	57,16	175,09	57,22	4,4	268,0	6,6
O. keta	49	MM 288	530	05.07.05	1 608	1 708	175,18	57,16	175,09	57,22	4,4	268,0	6,6
O. keta	49	MM 295	540	05.07.05	1 608	1 708	175,18	57,16	175,09	57,22	4,4	268,0	6,6
O. keta	49	MM 262	512	05.07.05	1 608	1 708	175,18	57,16	175,09	57,22	4,4	268,0	6,6
O. keta	51	MM 216	550	06.07.05	754	854	175,19	58,36	175,33	58,34	4,7	255,0	7,1
O. keta	52	MM 245	576	06.07.05	1 539	1 639	174,06	59,04	173,96	58,98	4,7	270,0	7,7
O. keta	52	MM 221	540	06.07.05	1 539	1 639	174,06	59,04	173,96	58,98	4,7	270,0	7,7
O. keta	52	MM 243	560	06.07.05	1 539	1 639	174,06	59,04	173,96	58,98	4,7	270,0	7,7
O. keta	58	MM 279	600	09.07.05	2 140	2 240	176,38	59,27	176,24	59,27	4,4	256,0	8,2
O. keta	58	MM 217	530	09.07.05	2 140	2 240	176,38	59,27	176,24	59,27	4,4	256,0	8,2
O. keta	58	MM 266	525	09.07.05	2 140	2 240	176,38	59,27	176,24	59,27	4,4	256,0	8,2
O. keta	62	MM 289	500	11.07.05	1 504	1 604	177,18	60,23	177,04	60,20	4,4	274,0	8,6
O. keta	62	MM 278	480	11.07.05	1 504	1 604	177,18	60,23	177,04	60,20	4,4	274,0	8,6
O. keta	69	MM 13	560	13.07.05	2 106	2 206	177,85	61,28	177,77	61,22	4,3	252,0	8,4
O. keta	71	MM 254	630	14.07.05	1 346	1 446	180,29	60,31	180,19	60,25	4,6	260,0	7,9
O. keta	71	MM 271	520	14.07.05	1 346	1 446	180,29	60,31	180,19	60,25	4,6	260,0	7,9
O. nerka	11	MM 1267	610	20.06.05	1 333	1 433	164,62	55,10	164,51	55,06	4,4	253,0	6,1
O. nerka	11	MM 1241	520	20.06.05	1 333	1 433	164,62	55,10	164,51	55,06	4,4	253,0	6,1
O. nerka	41	MM 1218	475	02.07.05	1 901	2 001	171,44	54,80	171,57	54,80	4,5	267,0	6,8
O. nerka	41	MM 1216	365	02.07.05	1 901	2 001	171,44	54,80	171,57	54,80	4,5	267,0	6,8
O. nerka	43	MM 1280	480	03.07.05	1 444	1 544	171,22	56,19	171,32	56,24	4,4	268,0	6,7
O. nerka	43	MM 1210	490	03.07.05	1 444	1 544	171,22	56,19	171,32	56,24	4,4	268,0	6,7