

Semiannual Progress Report, July 2003

Project #: R0204

Title: NPAFC Salmon Tagging

Principal Investigator and Recipient Organization:

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North Pacific Anadromous Fish Commission
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Award Period and Amount of Funding: July 1, 2002 to October 31, 2003: \$190,800

Report Period: January 1, 2003 – June 30, 2003

Report Date: July 15, 2003

Lead Author of Report:

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Project Summary: The goal of the proposed research is to understand the distribution patterns, habitat utilization, and movements of Bering Sea salmon stocks, including western Alaska sockeye, chum, and chinook salmon, through an at-sea tagging program of immature and maturing fish. The proposed work directly addresses the priority of the North Pacific Research Board (NPRB) to study factors affecting western Alaska salmon stock dynamics, mortality, and migration. The NPAFC is planning and coordinating an international cooperative research program, the Bering-Aleutian Salmon International Survey (BASIS), to study the stock dynamics of salmon in the Bering Sea and Aleutian Island ecosystems. The NPRB funding is being used to tag and release salmon caught during salmon research vessel cruises in the Bering Sea and Gulf of Alaska. Several types of tags, ranging from simple numbered plastic discs to complex electronic tags that record sea temperature, depth, and daily position estimates will be used. A tag recovery reward program will provide incentive to fishermen and processors to return tags. The BASIS working group of NPAFC will coordinate, implement, and report on the results of the tagging research. The proposed work will complement ecosystem research and monitoring activities of the North Pacific Marine Science Organization (PICES) and Global Ocean Ecosystem Dynamics (GLOBEC), as well as the electronic tagging

research activities of the Pacific Ocean Salmon Tracking (POST) program of the Census of Marine Life.

Progress Summary:

The North Pacific Anadromous Fish Commission (NPAFC) was notified of approval of the proposal in February 2002, but a Memorandum of Understanding (MoU) between NPRB and NPAFC was not signed until January 29, 2003, and an advance payment for immediate purchase of tags (\$187,525.57 in Canadian funds or \$128,901.27 in US dollars) was not transferred to NPAFC until April 15, 2003. The original funding request was allocated as follows:

Tag type	Maker	Model	No.	Price	Total cost
Geolocation	Lotek	LTD-2400	40	\$1,695	\$ 67,800
Temperature-Depth	Lotek	LTD_1100-300	200	260	52,000
iButton	AlphaMach	ER-1002	200	20	4,000
disk tag	Floy Tag		1,000	2	2,000

Action for 2002:

Because of the delay in the signing of the MoU, no tags were ordered for 2002.

Action for 2003:

The BASIS Working Group (Jack Helle, Chairman) met in Seattle, Washington, on May 30, 2003, and discussed the status of NPRB-funded salmon tagging research (NPAFC 2003). Project funds were used to support travel by Dr. Olga Temnykh, TINRO-Center, Vladivostok, to participate in this meeting. The trawl used by the TINRO-Center for BASIS research cannot collect viable samples of salmon for tagging; however, the potential use of a closed aquarium connected to the trawl cod-end to sample live fish for tagging will be investigated. The research trawl used by Japan for BASIS research aboard the *Kaiyo maru* also cannot collect viable samples of salmon for tagging. Japan is testing the use of hook-and-line gear to live-capture salmon for salmon tagging during the 2003 *Kaiyo maru* survey. The United States lost its funding for a vessel to participate in offshore BASIS research in 2003. To date, Canada has not committed any research vessel time to BASIS.

Because of the delay in transfer of funds, we requested that NPRB shift the time frame for the project by one year (to the 2003 and 2004 field seasons). We proposed that all of the tags be ordered in 2003 (because of price savings when larger numbers of tags are ordered), with half of the tags to be delivered by May 2003 for the 2003 season, and the remaining half to be delivered in spring 2004. Because of the delay in transfer of funds, it was not possible to order tags until April 15, 2003, very close to the start of the field season. We proposed that tags be provided to all BASIS research vessels that capture salmon suitable for tagging. Only one (Japanese) salmon research vessel (the *Wakatake maru*) will capture substantial numbers of immature and adult salmon for tagging, with some fish also caught by the *Kaiyo maru*. The *Wakatake maru* departed Hakodate on June 5. Although all manufacturers attempted to meet our deadline, Lotek was unable to provide any geolocation or temperature-depth tags before June 1. AlphaMach was able

to supply 110 iButton tags before June 1. Subsequent delivery was taken of 20 temperature-depth tags from Lotek in June, and 91 iButton tags from AlphaMach and 1,000 disk tags from Floy Tag in July. Because it was not possible to receive tags before the *Wakatake maru* field season, a further delay of the tagging program will be necessary.

For 2003, tags have been allocated as follows:

Data Tag Allocations for 2003:

	<u>Wakatake</u>	<u>Kaiyo</u>	<u>Other</u>	<u>Total</u>
Geolocation	0	0		0
Temperature-Depth	0	20		20
iButton	110	91		201
Total DST	110	111		221

By the completion of its research season (July 13), the *Wakatake maru* had tagged 834 salmonids in the central North Pacific Ocean and Bering Sea. This total included 695 salmonids tagged with disk tags only, 110 salmon tagged with iButtons and disk tags, and 39 salmon tagged with temperature-depth tags and disk tags. The disk tags were provided by the Japan Fisheries Agency and NOAA Fisheries, and the temperature-depth tags remained from NOAA Fisheries and University of Washington tagging operations in 2002.

	<u>Sockeye</u>	<u>Chum</u>	<u>Pink</u>	<u>Coho</u>	<u>Chinook</u>	<u>Steelhead</u>	<u>Total</u>
Disk only	5	126	520	11	10	4	695
Temperature-Depth	18	10			1		29
iButton	3	30	59		18		110
Total tags	26	166	579	11	29	4	834

Tagging aboard the *Kaiyo maru* will be carried out between August 2 and August 17. We will attempt to deploy up to 20 temperature-depth tags and up to 91 iButton tags.

The NPAFC developed a web page to advertise for the return of high seas salmon tags (<http://www.npafc.org/>, see "Fish Tag Recovery Program"). Japanese and Russian language versions of the tag reward poster will also be posted on this website.

Action for 2004 and 2005:

Because of the delay in transfer of funds, we request that NPRB extend the time frame for the project to the 2004 and 2005 field seasons. The proposed delivery and allocation of data tags for those seasons will be as follows:

Data Tag Allocations for 2004-5:

	<u>2004</u>	<u>2005</u>	<u>Total</u>
Geolocation	20	20	40
Temperature-Depth	100	80	180

Total DST	120	100	220
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References

North Pacific Anadromous Fish Commission (NPAFC). 2003. Report of the Bering-Aleutian Salmon International Survey (BASIS) Working Group Meeting. NPAFC Doc. 691, Vancouver, B.C.