

Project #: 644

Title: Response and Intervention System for Climate Change Induced Paralytic Shellfish Poisoning in Aleut Communities

Principal Investigator(s) and Recipient Organization(s):

Victoria Gofman	Bruce Wright	Ray RaLonde
Aleut International Association	Aleutian Pribilof Islands Assoc.	Alaska Sea Grant
333 W. 4th Ave., Suite 301	201 E. 3rd Ave.	1007 W. 3rd Ave. 100
Anchorage, AK 99503	Anchorage, AK 99503	Anchorage, AK
victoriag@alaska.net	brucew@apiai.org	afrlr@uaa.alaska.edu
907-332-5388	907-222-4260	907-274-9697

Contract Period and Amount of Funding: May 1, 2006 to September 1, 2007 and \$150,000

Report Period: July 1, 2006 to January 1, 2007

Report Date: January 15, 2006

Lead Author of Report: Bruce Wright

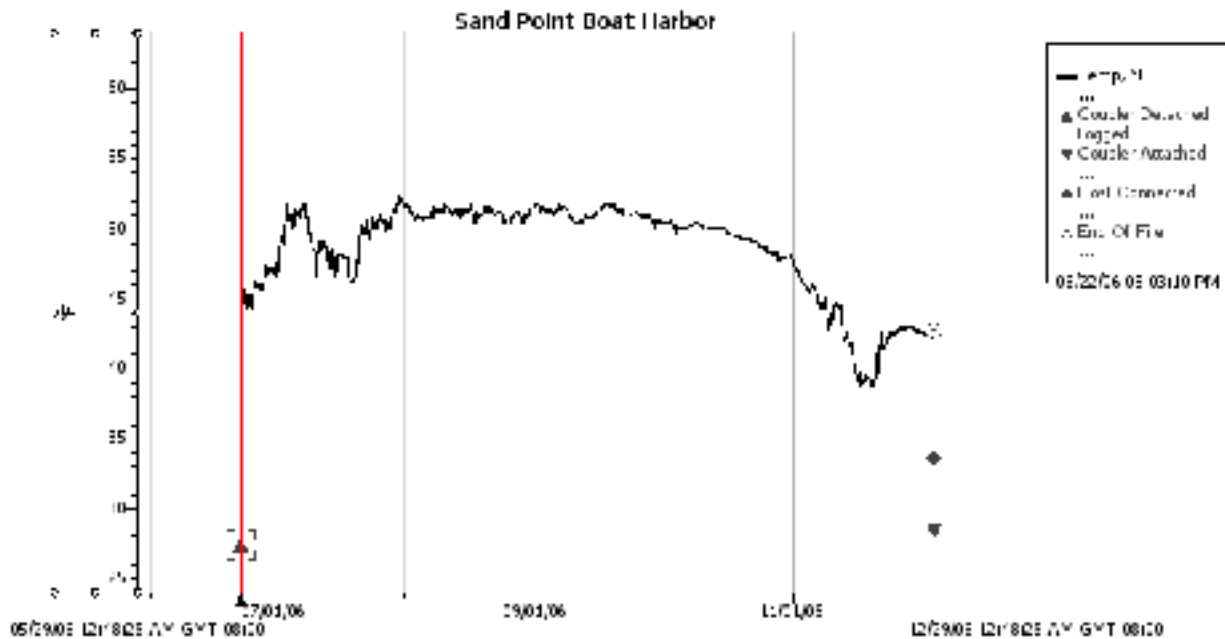
Project Summary: This project will educate local residents about paralytic shellfish poisoning (PSP) and train them to use test kits to monitor for PSP toxin. The project activities will include workshops, development of a manual on how to set up a community-based surveillance system, and public outreach materials. The proposed communities extend the length of the Aleutian Islands where little baseline data is available on PSP toxin. Since 1973, over 150 outbreaks have been reported in Alaska, with three fatalities since 1994. In an effort to reduce the risk of PSP encounters, the Alaska Science and Technology Foundation funded research to develop a rapid test kit proposed by Jellett Biotech in Nova Scotia, Canada, which was developed in 1994 and, in 2004, was approved by Food and Drug Administration, Interstate Shellfish Sanitation Program for screening shellfish, opening opportunities for communities to use a reliable, inexpensive method. The project PIs will investigate the increased risk of PSP as a result of climate change and the reliability of traditional knowledge used when harvesting clams and mussels. Methods developed to monitor occurrence and distribution of PSP toxins in connection with climate change observations will increase communities' capacities in responding to the threat of poisoning while developing the process of interlinking modern technology and traditional knowledge.

Progress Summary: The field manual was written and presentation materials and PowerPoint presentation completed and used for field training sessions. Another PowerPoint presentation with preliminary results was presented at the PICES (Pacific Marine Science Organization) conference in Japan in November 2006. Colleagues at the PICES Harmful Algal Bloom Committee meeting agreed to test the samples collected so far using a 'high-tech' procedure called high performance liquid chromatography (HPLC). The tests will be run free of charge providing a contribution to the project at an approximate amount of \$30,000 and will enhance the scientific integrity of the project. Thirty-eight samples were prepared using procedures for a blind

test and sent to the Seattle lab for HPLC analysis. We expect to publish a paper in a peer-reviewed journal presenting the findings from the HPLC effort.

The Sand Point, Unalaska and Nikolsakoye technicians have been collecting and testing bivalves in their respective regions and sending in the results. Additional samples have been sent in from Akutan and False Pass. Samples from some more remote sites were collected by the U.S. Fish and Wildlife Service National Maritime Refuge staff and sent in for testing. The PSP tests continue to generally show the presence of PSP in bivalves in the eastern Aleutian Islands at least 40 microgram/100 grams (U.S. Food and Drug Administration limits are 80 micrograms/100 grams) and the western Aleutian Islands are negative for PSP. We tested shellfish samples from Akutan, False Pass, King Cove, Sand Point, Unalaska and Nikolsakoye. The Jellett test results were positive for PSP in Akutan, False Pass, King Cove, Sand Point and Unalaska and negative for PSP in Nikolsakoye.

While in Sand Point in December 2006, Wright recovered the HOBO temperature data logger, downloaded the data and returned the data logger to the water. The temperature data graph follows and shows seasonal and storm event temperature patterns.



The PSP project PIs are preparing a proposal to the Environmental Protection Agency (EPA) to continue the PSP project for another 4 years and to expand the project to monitor additional locations, establish more frequent testing using HPLC for some communities (e.g. King Cove) and incorporation of monitoring demoic acid, another marine algal toxin found in Alaskan waters. We will continue monthly testing in Sand Point, Unalaska and Nikolskoye and periodic sampling in Akutan, Atka, False Pass, King Cove, Nelson Lagoon, Nikolski, St. George and St. Paul, and arrange for U.S. Fish and Wildlife Service to collect samples from their remote Aleutian Islands field stations. Wright is expected to travel to the Far East in spring 2007 and will arrange to receive the frozen Russian samples.



Akutan PSP test results.



Unalaska PSP expert, Anfesia Tutiakoff (left) and assistant (Unalaska museum curator) analyzing mussels for PSP while being filmed for local and state television programs. Photo by B. Wright.



Wright presenting information about PSP and the PSP project to community members in Unalaska.



Nikolskoye, Russia marine biologist and local PSP expert, Natalia Tatarenkova, analyzing mussel sample for presence of PSP. Her co-investigator, Ivan Vozhikov, is watching (left). Photo by B. Wright.



Nikolskoye, Russia PSP expert, Ivan Vozhikov, watching the PSP test strip develop. Photo by B. Wright.



Wright recovered this HOBO temperature data logger in Sand Point in December 2006. The data was downloaded and the data logger was redeployed. Photo by Dana Osterback.



Dana Osterback, the Sand Point PSP technician, is preparing a sample of butter clams for PSP analysis. Photo by B. Wright.