

**Project Title: Electronic monitoring of the spatial distribution of fishing effort and hailed catch in Southeast Alaska from the hook-and-line small boat fleet.**

Background: Electronic monitoring (EM) approach addresses a North Pacific Fisheries Council priority, under its 2013 observer program restructuring action, to provide small boats (<57.5 LOA) with a safe and effective means of meeting the expanded observer coverage requirements scheduled for implementation in 2013. These technologies are perceived as a way to improve cost-effectiveness of data collection and allow collection of fisheries data aboard vessels where deploying observers would not be safe or practicable. This fixed gear, small boat fleet has not been observed in the past, and fishing effort data has not been collected using a Vessel Monitoring System or vessel logbooks.

Scope of work: This project compliments the funded 2013 cooperative EM project, awarded to Saltwater Inc. in September, 2012 ( Contract RA133F-12-RP-0105), which deploys EM systems on hook and line vessels fishing out of the ports of Sitka, Petersburg, Homer, and Kodiak. In 2011 there were an estimated 250 vessels between 40 and 57.5 LOA fishing out of these ports. These EM systems capture digital video data of the targeted catch as well as fishing effort by recording the entire fishing event to a portable hard drive retrieved by NMFS staff for post processing.

Purpose of Study: This study is designed to provide insight on the spatial distribution of effort and hailed catch for the fixed gear, on the largely unobserved portion of the small boat fleet fishing in Southeast and central Alaska. This system will be designed to be inexpensive, reliable and be easily integrated into any vessel fishing configuration and allow for maximize coverage on a currently unobserved fleet where observer funding is limited. GPS and sensor information will be used to contrast landing receipts data and at-sea observer information to highlight potential bias. This will support development of an objective, reliable and cost effective monitoring program and inform catch estimates for this fleet.

Project Costs: The EM equipment will be a simple design incorporating off the shelf technology. The unit will consist of several sensors to determine when gear is being set and retrieved. Sensors will include hydraulic pressure sensor, drum sensor (when required) and an electrical current sensor. Sensor data (NEMA stream) and GPS information will be collected and stored by basic motherboard and hard drive components located in a secure location. Each unit provided to the vessels will include electronic logbook software for the operator to enter haul by haul estimates of discard and catch. The software will be run and data collected entirely on a simple USB stick plugged into the shipboard computer if one exists or an inexpensive laptop will be provided for this purpose. Data will be stored in text files taking little hard drive space so data will only need to be retrieved when the vessel has completed fishing at the end of the season. Each unit will have a light to indicate whether it is functioning properly. The captain will be responsible to inform staff when the unit is not working so it can be swapped for a working unit. This design setup will afford the opportunity for a double blind study where logbook estimates can be compared between vessels that have a fully functioning EM unit and those that have elogs but the black box will have no internal components. This will increase our coverage rate at little additional expense.

**Option 1 represents a 5% coverage rate of the fixed gear**

<b>Item</b>	<b>Per unit cost</b>	<b># of Units</b>	<b>Total Costs</b>
EM light	\$1,200	20	\$24,000
Labor <sup>1</sup>	\$ 810	40(hrs)	\$32,400
Staff Travel	\$1,250	2 trips	\$ 2,500
<u>Travel</u>	<u>\$ 700</u>	<u>10 (trips)</u>	<u>\$ 7,000</u>
Total			\$65,500

1/ Labor for installing, repairing and swapping units to different vessels. Based on government estimates derived in RA133F-12-RP-0105.

**Option 2 represents a 10% coverage rate**

<b>Item</b>	<b>Per unit cost</b>	<b># of Units</b>	<b>Total Costs</b>
EM light	\$1,200	40	\$48,000
Labor <sup>1</sup>	\$ 810	80	\$64,800
Staff Travel	\$1,250	3 trips	\$ 3,750
<u>Travel</u>	<u>\$ 700</u>	<u>20</u>	<u>\$ 14,000</u>
Total			\$129,750

1/ Labor for installing, repairing and swapping units to different vessels. Based on government estimates derived in RA133F-12-RP-0105.

**Option 3 represents a 15% coverage rate**

<b>Item</b>	<b>Per unit cost</b>	<b># of Units</b>	<b>Total Costs</b>
EM light	\$1,200	60	\$ 72,000
Labor <sup>1</sup>	\$ 810	100	\$ 81,000
Staff Travel	\$1,250	4 trips	\$ 5,000
<u>Travel</u>	<u>\$ 700</u>	<u>30</u>	<u>\$ 21,000</u>
Total			\$179,000

1/ Labor for installing, repairing and swapping units to different vessels. Based on government estimates derived in RA133F-12-RP-0105.