

**Project Title: Southeast Alaska, Arrowtooth Flounder Pilot Tagging Project \$99.7K**

NMFS Alaska Fisheries Science Center

**MSRA, Section 318, priority addressed:**

Collecting data to improve, supplement, or enhance stock assessments, including the use of fishing vessels or acoustic or other marine technology (Section 318(c)(i))

**Collaboration:**

To develop a collaborative research pilot project with Alaska's recreational charter fleet.

**Investigators:**

United Anglers of Alaska<sup>1</sup>: Richard Yamada

NMFS Alaska Fisheries Science Center: Ingrid Spies

**Background:**

Pacific halibut (*Hippoglossus stenolepis*) is among the most important fishery resources in Alaska supporting valuable commercial, sport, and subsistence fisheries throughout the Gulf of Alaska (GOA). Troubling indicators of declining biological productivity over the past two decades, including downward trends in halibut spawning stock biomass and size-at-age, have led to increased restrictions for commercial and sport fisheries. One of the prevailing hypotheses to explain observed declines in size-at age of halibut is competition for food resources with an increasing population of predatory arrowtooth flounder (*Atheresthes stomias*). In the early 1990s, arrowtooth surpassed walleye pollock as the dominant groundfish species in the GOA. The nearly 8-fold increase in arrowtooth biomass over the past 30 years has led to concern about their impact as both predator and competitor (Figure 1).

Anecdotal reports from charter operators throughout Southeast Alaska claim that many of their favorite halibut spots have now been over run by arrowtooth flounder. In some arrowtooth hot spots, the ratio can be as high as ten arrowtooth caught and released before one halibut is landed. This has had a negative impact on the quality of a charter client's fishing experience.

Because arrowtooth flounder is ranked very low in its economic importance in Alaska's commercial fisheries, due to an enzyme that breaks down the meat to mush when it is cooked, very little research has been funded on the migration patterns and stock assessment of this species in Southeast Alaska. The bulk of the data that exists comes from bottom trawl surveys conducted by NMFS (National Marine Fisheries Service) and the IPHC (International Pacific Halibut Commission) in the Western GOA.

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<sup>1</sup> United Anglers of Alaska is an IRS 501c3 Non---Profit Corporation and functions as the charitable and educational arm of the Alaska Charter Association, a statewide association of charter boat operators.

## Inter---Specific Density---Dependent Effects of Arrowtooth Flounder on Pacific Halibut

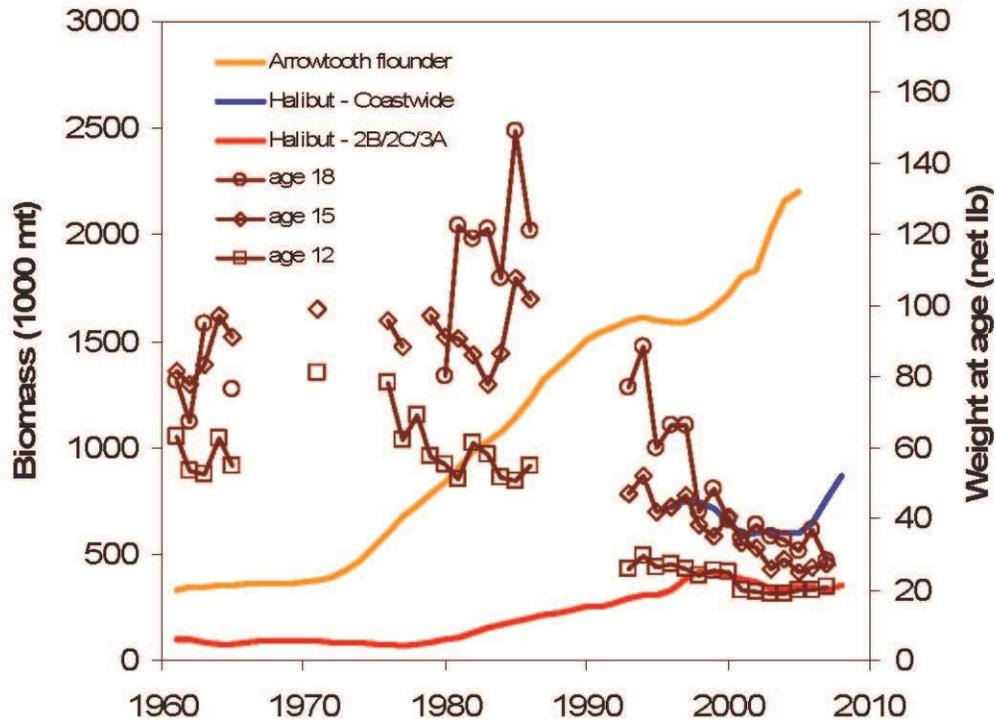


Figure 1. Source: IPHC Hare and Clark 2008

### Methodology:

The charter fleet in Southeast Alaska provides a unique and cost effective platform from which to begin gathering baseline data information on arrowtooth flounder abundance and migratory patterns in a near coastal range. This proposal's primary objective would be to initiate a *mark and recapture* project, using coded dart tags, on arrowtooth flounder. CPUE (Catch Per Unit Effort) will also be recorded during tagging trips to provide a baseline for future biomass estimates. A Fish Resource Permit will be obtained from the Alaska Department of Fish and Game prior to the start of the project (see Appendix 1). Trained charter captains would administer the tags. Opportunistic tagging events would occur during sport halibut trips where arrowtooth flounder are caught as bycatch and released. As a pilot project, tagging will be done in a limited geographical area (Juneau area, Northern Chatham Straits and Eastern Icy Straits) with known locations of arrowtooth flounder and halibut. A NMFS Science Center research scientist will assist in developing tagging protocols and provide analysis of mark and recapture data. This would be the first step towards a better understanding of the spatial, temporal, and migration patterns of arrowtooth flounder as a potential contributor to the reduced size-at-age of Pacific halibut.

A second objective of this proposal would be to develop an electronic means of reporting *mark and recapture* data. Charter captains are very busy on their vessels taking care of their clients and have very little time for paper recordkeeping. An Apple mini-pad will be used to record and uplink data to a web-based server for access by Project Director and Project Analyst.

Dart tags will be labeled with a reward for tag returns as well as a contact website address and toll free number. An extensive public outreach effort will be made through a website, email campaign, newspapers, posters and radio talk shows to disseminate information on this NMFS cooperative research project and where to return tags. As an incentive for participation and returning captured tags, a specially designed project T-shirt will be produced.

The tagging project organization will continue to support a data collection and reporting program for a minimum of three years after the grant period. All data will comply with the NMFS Data and Information Management Policy and will be entered and published in the NMFS Data Catalog and Metadata Repository.

**National Applicability:**

This will be a demonstration of private sector collaboration with NMFS scientists on a fisheries concern; potential causes for Pacific halibut reduced size-at-age, which is of national and international importance. The project will also demonstrate the capability of the recreational fishery to provide access to absent near-shore fisheries data without the bycatch concerns of other customary methods, mainly bottom trawling.

**Qualifications of Investigators:**

**Richard Yamada** has been involved in Alaska's recreational fishery for over 30 years. He has served as Project Director in two prior grant projects, the CATCH (Catch Accountability Through Compensated Halibut) Project, a National Fish and Wildlife Foundation grant and the HARM (Halibut Angler Release Mortality) Reduction Project, a Bycatch Reduction Engineering Program grant. Please see attached Resume.

**Dr. Ingrid Spies** is a research fishery biologist at the Alaska Fisheries Science Center and has worked on Alaskan groundfish-related projects since 1992. She is currently the stock assessment scientist working on arrowtooth flounder in the GOA. Please see attached Curriculum Vitae.

## Project Budget

	Hours	Expense	In---Kind
Contractual			
Richard Yamada/Project Director	620	55,800	
Finsight / App Developer	180	20,700	
Supplies		5,395	
Outreach		4,222	
Travel		600	
Total Direct Charges		86,717	
Indirect Charges (15%)		13,008	
Total		<b>\$99,725</b>	
Leveraged Resources (324 Charter Trips)	@\$1,500/trip		\$486,000

## Budget Narrative

### Contractual:

Richard Yamada as Project Director will provide project management, field training, website administration, outreach coordination, media production, and project reports. He will be a sub-contractor of United Anglers of Alaska. Finsight will be a sub-contractor of United Anglers of Alaska to develop an Apple App for tablet application, develop database and server interfaces, and make modifications to software based on field tests and feedback.

### Supplies:

Mini-iPads will be used to record and uplink data to a web-based server. Floy dart tags will be used to mark released fish. Standardized rulers will be used to measure lengths of released fish.

### Outreach:

A website will be developed for the project, along with an online server to collect project tag data. Project posters providing information on the project will be produced and distributed to Southeast Alaska coastal communities. A reward T-shirt will be designed and used to encourage recreational angler participation in the project as well as for incentives to return tags to the project.

### Travel:

Project Director will travel to Seattle for training on flatfish tagging protocol.

### Leveraged Resources:

Nine charter vessels making an estimated 324 halibut trips will be involved.

# Appendix 1. SAMPLE Fish Resource Permit Application



A **FISH RESOURCE PERMIT** is required to take, possess, hold alive, or tag FISH AND THEIR EGGS (except goldfish and decorative tropical fish) FOR SCIENTIFIC OR EDUCATIONAL PURPOSES.

Richard Yamada	United Anglers of Alaska	
<i>(Name of Applicant) (Organization or School)</i>		
PO Box 210064, Auke Bay, AK 99821		
<i>(type in complete mailing address including City, State, and Zip Code)</i>		
(907) 723-0008	775-402-7595	richard@finfishalaska.com
<i>(your Telephone Number)</i>	<i>(Fax Number)</i>	<i>(Email Address)</i>
 <i>(type in the name and address of the organization with which you are under contract)</i>		

I am making application to capture fish of the following species, life stage, and number for the specified disposition (disposition examples: identify and release, measure and release, genetic sample and release, tag and release, sacrifice, transport live, hold alive, etc.):

*Note: If additional space is necessary, attach a separate file to provide a table formatted as required.*

Species Common Name	Species Scientific Name	Life Stage	Number	Disposition*
Arrowtooth Flounder	Atheresthes stomias	Adult	500+	Tag and Release

\*If capturing at multiple sample locations give details of species, life stage, number, and disposition in your study plan.

I understand permits are only valid for dates within a calendar year; I am requesting this permit for the following period: (a new application is required each year)

2015	May 1	September 30
<b>Year:</b> (20 )	<b>From:</b> (month and day)	<b>To:</b> (month and day)

I wish to obtain the above fish [finfish, shellfish, amphibians] by means of:

<b>Sport Fishing method and means.</b>
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(Specify gear type(s): minnow traps, hoop traps, fyke nets, gillnets, dip nets, spat collectors, etc.)

from the following location(s):

<b>Northern Chatham Straits and Eastern Icy Straits</b>
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(Specify location(s), i.e., X River at latitude/longitude, or ESE of Pt. Barrow, or on Kodiak Island, etc.)