

**Southeast Outside District Rockfish:**  
***Hook-and-Line Techniques for Harvest of  
Underutilized Stocks***

**Prepared for:**

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## Background

A number of rockfish species available for harvest in the Southeast Outside (SEO) District of the Eastern Gulf of Alaska have not been effectively targeted by commercial fishing operations since a 1998 prohibition on the use of trawl gear. For example, in 2003, approximately 1,600 mt of Pacific Ocean perch (POP), 4,000 mt of the Other Slope Rockfish complex (OSR), and 800 mt of the Pelagic Shelf Rockfish (PSR) complex remained unharvested. In order to investigate the feasibility of harvesting the underutilized rockfish species with vessels and gear common to the SE Alaska fishing community, Alaska Longline Fishermen's Association (ALFA) applied to the Alaska Fisheries Development Foundation (AFDF) in early 2002 for grant funds to develop fishing techniques using hook and line gear. AFDF's Board approved the proposal and ALFA signed a contract for Phase One of the project in the fall of 2003 with the following objectives:

- 1) Research, develop, and build two or more different types of semi-pelagic longline or troll gear for underutilized rockfish species that is compatible with commonly used Southeast Alaska fishing vessels and their fishing practices.
- 2) Test and document the fishing characteristics, bycatch and operational costs associated with each gear type
- 3) Analyze information gathered and prepare a report of the findings.
- 4) Distribute report to Southeast Alaska fishermen, processors, communities and appropriate State and Federal agencies.

Phase two of the project, documenting the economic feasibility of a commercial fishing trip targeting these species if a suitable gear was developed under phase one, would be carried out under a separate contract.

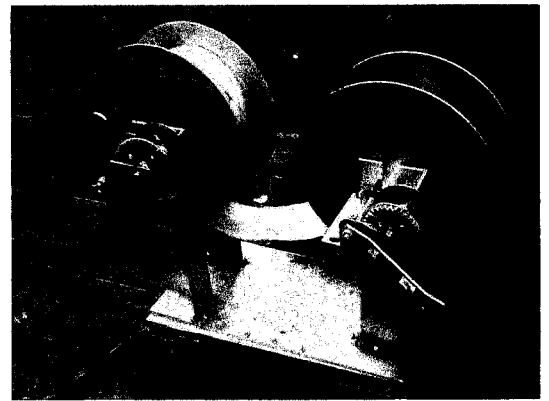
After researching several approaches to hook and line fishing for pelagic rockfish, ALFA assembled a steering committee comprised of local fishermen and fishery managers. The steering committee met in February 2004 and identified three types of gear for testing: shrimp fly troll gear, vertical longlines, and off-bottom longlines adapted from the method used in the Azores.

### Shrimp fly troll gear

Shrimp fly troll gear has been used to commercially fish for several rockfish species in California and Oregon.



Monofilament longlines with up to 200 artificial lures called “shrimp flies” are attached to a troll wire and slowly trolled through a shoal of fish. After each pass, the longline is brought to the surface using a troll gurdie and hauled onboard using a small drum. The fish are removed and the gear is overhauled before being set again.



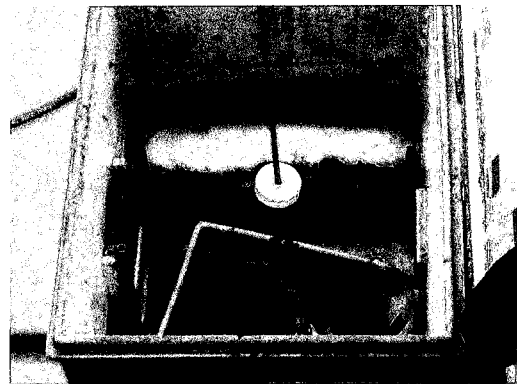
To test the shrimp fly troll gear type, ALFA built several 50 hook monofilament longlines and the necessary deck equipment. The F/V Joseph, a 42' rockfish jig boat and salmon power troller, was selected via competitive bid to test the gear. Due to concerns about potential bycatch of species already fully utilized, observer coverage during the charters was necessary. In a cooperative effort that helped support the project, NMFS supplied a Cadre observer to document the fishing characteristics of the gear and to gain insight on issues associated with deployment of observers on small vessels.

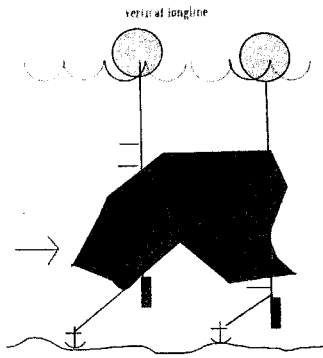
The initial charter period began May 1st and lasted until May 15th. During this time, the F/V Joseph made 4 trips totaling 10 days of charter time. The first one-day trip was spent targeting black rockfish, a State managed near-shore pelagic species, to learn how to fish the gear. A fishing technique of trolling up to a school, then taking the boat out of gear or turning hard proved to be the most effective strategy. Commercial promise for the gear was indicated when tows achieved a catch rate of up to 24 fish on the 50 hook gear set up. No bycatch was observed during these initial tests and many refinements for gear deployment and retrieval were identified and subsequently adopted.

After gear modification, a second one-day trip was undertaken to test the modified gear, equipment, and handling techniques. The modifications greatly improved the efficiency of handling the gear with several tows showing promising catch rates.

The third trip was a multi-day charter to test the gear in deeper water. Based on survey and fishery data, the F/V Joseph ran down to Cape Ommaney to look for shoals of POP and OSR in depths of approximately 100 fathoms. Shoals of these fish were difficult to locate and the currents generated by large tides compromised the gear's effectiveness. Although many tows had no catch, one had promising amounts of Dusky rockfish (PSR complex) and several had promising amounts of Silvergrey rockfish (OSR complex).

The final trip of the charter period was dedicated to documenting the geometry of the gear in the water, and to target on the area where promising hauls of Silvergrey rockfish had been made. After investigating gear characteristics at different speeds and depths, a shoal of rockfish was located with productive tows consistently made yielding an afternoon catch of over 3,000 lbs of Silvergrey rockfish.



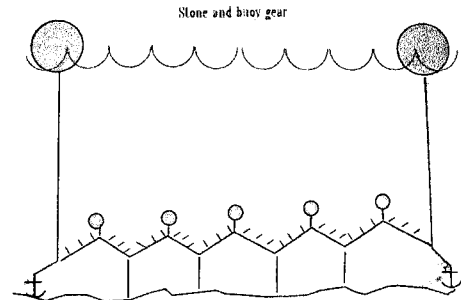


### Vertical longline and off-bottom longline gear:

As corroborated by NMFS personnel participating in the project steering committee activities, POP are most commonly found in water depths of 100 fathoms or more with the shoals of fish positioning themselves slightly off bottom. The steering committee recommended testing two types of longline gear designed to fish off-bottom. The first type was a vertical longline anchored to the bottom with hooks suspended in the water column. The second was a modification of the stone and buoy gear used in the Azores where a longline is set horizontally with alternating weights and floats to keep the groundline

suspended in the water column near the bottom. The steering committee recommended that artificial lures similar to the shrimp flies be tested to minimize bycatch of halibut and sablefish.

ALFA constructed seven 100 hook skates of the longline gear using a floating poly-propylene groundline with monofilament gangions attaching the shrimp flies. Specialized equipment for setting and retrieval of the shrimp fly gear as well as equipment for traditional baited longline gear with circle hooks was constructed and assembled for the test fishing.



The F/V Casino, a 47' longline vessel, was chartered via competitive bid to test both the vertical and off-bottom longline gear. NMFS supplied a second Cadre observer to document the fishing characteristics of the gear and to gain insight on issues associated with deployment of observers on small longline vessels.

The initial charter period began May 1st and lasted until May 15th. The F/V Casino made one trip totaling 4 charter days during this period. On the first day, the F/V Casino accompanied the F/V Joseph to Cape Ommaney and made two sets with the vertical longline gear and one set with the off-bottom gear. All sets used the artificial shrimp fly lures. Data loggers were attached to the off-bottom gear to determine the geometry of the gear and how far off-bottom it actually fished. No fish were caught on any of the sets. Upon retrieval, the data loggers showed that strong tidal currents had held the gear on the bottom and prevented it from fishing higher in the water column as intended for the project.

The next two days of the charter were spent targeting the PSR complex species in shallower water with less current. Six pairs of side-by-side vertical longline sets were made to compare the artificial lures to baited hooks. The off-bottom gear was again deployed with data loggers and additional floats to test its performance and geometry. While the vertical longlines with baited hooks were effective in catching PSR species, they also caught several fully utilized

species such as yelloweye rockfish and lingcod. The vertical longlines with artificial lures did not catch any fish. Although the off-bottom longline achieved the desired configuration, it was deployed with the artificial lures and did not catch any fish.

A vertical longline with bait and an off-bottom longline with both bait and artificial lures were also set overnight to determine if the diurnal migration of POP made them more susceptible to hook and line gear at night. Although the data loggers indicated the off-bottom gear performed as intended, no fish were caught. The vertical longline performed poorly catching only rougheye and shortraker rockfish, both fully utilized species.

The final day of the trip was spent fishing in close proximity to F/V Joseph in deeper water targeting OSR and POP. An off-bottom and a vertical longline, both using bait, were set on a shoal of rockfish while the F/V Joseph used the shrimp fly troll gear on the same shoal. The longline gear proved ineffective on the deep water rockfish and the baited hooks resulted in the first and only halibut and sablefish bycatch of the charters. Further test fishing of the vertical longline and off-bottom longline gear was suspended as the artificial lures appeared to be ineffective when fished in an immobile configuration while it was believed that baited hooks were likely to result in high bycatch rates for species that are currently fully utilized.

In contrast to the fixed longline type gear, the shrimp fly troll gear showed commercial promise with several tows with high CPUE's of silvergrey rockfish targeting the same shoal and showed commercial promise.

## **Markets**

Although Sitka Sound Seafood's (SSS) and Seafood Producers Cooperative (SPC) were both given bid packages, SPC was the only processor to submit a bid. Consequently, all rockfish harvested during the project charters were sold to SPC in spite of the modest \$0.15 per pound delivery price. Sale of the fish caught during the charters provided AFDF with \$745.35 of programmatic income for the project. In assessing the market potential for the species targeted by this project, it should be noted that existing markets for hook and line caught Black rockfish in the State of Alaska managed directed fishery are 30 to 40 cents/lbs ex-vessel for a round, bled, iced product while yellowtail, dusky and silvergrey rockfish bring approximately 25 to 30 cents/lbs when landed as bycatch during directed halibut fishing. A third processor, AQE, began buying fish in Sitka this summer and has expressed an interest in bidding on the cost recovery of future rockfish charters. This additional competition and the experience gained in the first charters with delivery amounts should result in a higher ex-vessel price for the rockfish caught in future charters.

## **Discussion**

To date, ALFA has researched, developed and tested three types of hook and line gear with the potential to target under utilized species of rockfish in Southeast. Of the three gear types, the shrimp fly troll gear appears to have the most potential for developing a commercial fishery. Consistently high CPUE's were observed for both black and silvergrey rockfish (OSR complex) using the shrimp fly gear while dusky and yellowtail rockfish (PSR complex) also

appear to be exploitable using shrimp fly gear. **It should also be noted that the shrimp fly gear was deployed more than 70 times in water depth ranging from 10 to 140 fathoms without catching a single halibut or sablefish!** Surprisingly, POP, one of the primary target species of the project, was not caught in quantity using any of the three gear types. The Captains of both the F/V Joseph and the F/V Casino believe that POP shoals were not seen during the three days spent testing the gear in deep water, and that further testing may yield better results with POP.

The focus of first charter period was to identify gear with commercial potential and to develop equipment, fishing strategies, and handling techniques that can effectively target underutilized rockfish species of the SEO district. Additional charter time is needed to further refine fishing techniques that can yield consistently high CPUE's and in order to gather more information for a fuller analysis of the shrimp fly gear's commercial potential. Several modifications to the shrimp fly gear handling equipment have also been identified. The modifications, designed to make the gear more durable and improve efficiency in setting and hauling, can be tested during any future charters.

The Exempted Fishing Permit required for undertaking this project was issued by the NMFS Region Office to AFDF for April 15, 2004 to April 15 2005 with an option for a one year extension to allow additional gear testing. However, since AFDF is not continuing this project beyond the December 31<sup>st</sup>, 2004 specified program completion date, additional work on the project will need to be undertaken without AFDF involvement. In order to allow ALFA to proceed with EFP sanctioned gear tests in the spring of 2005, a request to transfer EFP authority from AFDF to ALFA has been made to NMFS. ALFA's would like to request this extension to allow for a second charter period to further document the performance of the shrimp fly gear. No additional funds would be needed from AFDF with charter costs covered through unused monies from the suspended longline gear charter and supplemented by programmatic income from sale of the fish.

While this report, summarizing the project, is deemed sufficient for AFDF's needs, a final Phase I report to the NPFMC and NMFS as required by the EFP will become ALFA's responsibility as long as NMFS can enact the EFP transfer. The additional information from spring gear test charters will allow for a more detailed picture of the commercial potential for a shrimp fly troll fishery on the underutilized SE rockfish stocks. ALFA's final project report, can be distributed to "SE Alaska fishermen, processors, communities, and appropriate State and Federal agencies", subsequent to the spring 2005 charters and when sufficient information has been gathered.

**Steering Committee Membership:**

Dan Falvey, Project leader

Eric Jordan, Sitka troller

Joe Donohue, Juneau longliner

Dick Curran, Sitka longliner

Kent Barkhau, Sitka troll/longline

Linda Behnken, ALFA Director, troller, longliner

Tory O'Connell, ADF&G—SE groundfish manager

Mike Sigler, NMFS Auk Bay lab

Dana Hanselman, NMFS Auk Bay Lab

Chip Treinen, AFDF