

North Pacific Research Board Semiannual Progress Report
Project 712: By-catch Characterization of the Pacific Halibut Fishery

Project #: F2712-00

Title: By-catch characterization in the Pacific halibut fishery: A field-test of electronic monitoring

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Project Summary: This research will improve our understanding of the ecosystem impacts of halibut fishing through improved monitoring of longline fishery by-catch, using electronic video monitoring (EM). We will be evaluating the ability of EM and currently utilized North Pacific Groundfish Observer Program (NPGOP) monitoring methods to operate effectively in a commercial longline (hook-and-line) setting. By-catch rates in the Pacific halibut fishery are not well estimated and the majority of vessels operating in this fishery are not required to have NPGOP monitoring; hence, estimates of by-catch are not based on direct observation of the fishery. Previous research by one of the partners in this proposal documented successful electronic monitoring of Pacific halibut longline fishing conducted from chartered research vessels. While this work supported the use of EM to monitor by-catch in numbers of fish, the research was not conducted under commercial fishing conditions where a much broader range of environmental and physical factors affects the vessel operations.

Progress Summary: We have contracted both observer and electronic monitoring providers and have conducted several observer training sessions. A database has been developed that complements the existing North Pacific groundfish observer database and will be used to manage the data collected during the study. The database has been installed on four laptop computers purchased with NPRB funding and is currently being used by observers deployed at-sea.

As part of our education and outreach goals, we established a study web page (http://www.psmfc.org/alaska_halibut/) in March 2008 that contains information about the study, and progress to date. This web page will be updated with additional information and analyses as they become available. As we indicated in our previous progress report, a poster was prepared describing the study and the research goals. This poster was presented at the International Pacific Halibut Commission Annual meeting in Portland, OR (15 January 2008) and at the Annual Marine Symposium in Anchorage (20 January 2008).

We started our field activities in April with a sampling trip onboard the F/V Gretchen S., a 37 ft halibut longline vessel fishing from Cordova. The vessel was able to accommodate a single observer who collected census (hook status of every hook fished) data for each longline set. Unfortunately, due to a hard-drive failure, we were unable to collect any video (EM - electronic monitoring) data during that trip.

The next two trips sampled were on the F/V Sherrie Marie, a 65ft vessel fishing from Homer in late May and early June. Two observers were deployed on the first trip, however, space on board the vessel and safety concerns arising from overcrowding necessitated deploying only a single observer on the second trip. During the first trip, both census (hook-status) data and standard NPGOP data were collected on all 22 sets allowing for comparisons between the two data sources. During the second trip, the single observer collected census data on all 21 sets of that haul. On both of these trips, the EM equipment did not function

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properly and we were able to collect intermittent video data only. These intermittent data will allow only limited comparisons of EM and observer methods for these trips.

There were operational factors affecting the EM equipment thus far during this study. The EM failure during the first trip was due to a hard-drive error, potentially caused by power supply fluctuations to the computer equipment. On the *Sherrie Marie* it appears that the threshold level was set too high on the pressure sensor; it was insufficient to start the video recording and keep the video running throughout the haul. The EM supplier will resolve these issues before we attempt to capture video data on additional vessels. The problems experienced to date are not original to this application but they have typically been rare in previous deployments. In this sense, they are operational issues, rather than conceptual problems.

We had originally planned to collect data aboard two vessels (small; <60ft and large: \geq 60ft) fishing in each month (April and May) in the Gulf of Alaska, and two vessels fishing in July and August in the Bering Sea. Vessels less than 60 ft are currently exempted from carrying groundfish observers in most situations, hence in addition to allowing vessels to be paired within an area, we would have also have paired these 'observed' and 'unobserved' vessels. Each vessel would have carried two observers to allow both standard NPGOP data collection and census (hook status) monitoring of each haul.

Unfortunately, we are not able to implement the study as originally planned. We were able to solicit only two vessels willing to participate in April and May, and weather conditions limited the number of trips by the *F/V Gretchen*. As a result, we will not be able to completely evaluate paired vessels during our analyses as planned. Additionally, we will be unable to deploy two observers on most vessels. Two observers were able to be deployed on a single trip made on the *F/V Sherrie Marie*. Hence, we are currently unable to compare standard NPGOP-based catch estimates with the census of catch for two of the three trips. We have commitments from additional vessels willing to participate; however, all of the vessels contacted are able to carry only one observer. Lastly, while we may be able to use some of the EM data collected, at this time it does not appear that we will be able to make comparisons of observer-based catch estimates with the catch census for most trips. However, we will fulfill our primary goal of comparing observer-based catch censuses with EM catch estimates.

Seven vessels have agreed to participate in the study in July through September. It is anticipated that these vessels will make 10 to 15 trips during that time. Most of these trips will be in the Gulf of Alaska with one vessel expected to fish in the Bering Sea. Inclusive of the data already collected (three trips); these additional trips will result in data predominantly from the Gulf of Alaska (8 to 10 trips). The vessel fishing in the Bering Sea is expected to make 3 to 5 trips.

This research is dependent on cooperation with industry, and as a result, data collection is aboard fishing vessels that volunteer to participate in the study. This has resulted in some departures from our original study design due to fishing schedules and weather issues limiting the number of trips, and vessel size limiting the number of observers deployed. However, we have been successful in deploying observers on vessels that generally are not required to carry observers due to their small size, and have been effective in collecting observer-based catch censuses. We have identified the operational issues surrounding the EM data collection, and expect to collect EM data through the fall of this year. We will be able to test the effectiveness of EM to collect data in a commercial fishery.