Electronic Monitoring in the Shore-Side Hake Fishery 2004 to 2010

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Abstract

The non-tribal, commercial Pacific hake fishery is a seasonally intense spring/summer fishery that operates off the coasts of Washington, Oregon and northern California, consisting of both an at-sea processor fleet and a shore-side fleet. The shore-side fleet comprises about 35 vessels that make day fishing trips and deliver their catch to six ports. The shore-side whiting fishery has been subject to 100% at-sea monitoring since 2004; initially (2004 to 2010) this was carried out with Electronic Monitoring, mandated through an Exempted Fishing Permit (EFP), then later (2011 to present) with observers when the IFQ program was implemented. At-sea monitoring was primarily intended to ensure that vessels complied with maximized retention requirements, thereby allowing accurate accounting of all catch at shore-side offload stations.

All vessels carried an EM system, which consisted of two or three mast-mounted CCTV cameras, a GPS receiver, a hydraulic pressure sensor and a winch sensor. EM systems are generally installed on vessels prior to commencement of the fishing season and kept in place until the season completed. The EM system recorded sensor data continuously while the vessel was at sea and imagery was recorded from the start of the first fishing event until the vessel returned to port. Vessel skippers are required to keep accurate vessel logs for comparison with EM data.

Provisions of the EFP required that the EM system was powered continuously while the vessel was at sea, cameras kept clean, and the system regularly inspected. The vessel was required to report in if the EM system ceased operating. As well, vessel masters were required to keep accurate vessel fishing logbook on a haul by haul basis.

EM data were collected from fishing vessels on an approximately biweekly schedule. An analysis team reviewed all data from all vessels to assess data quality, identify the time and location of fishing operations, and monitor compliance with full retention requirements. As well, vessel logbook data were keypunched for comparison with EM data. The analysis results were available 1-2 months after collection. Compliance issues were directly forwarded to NOAA, while the bulk of the analysis results were compiled as an end of season report.

Over the seven years where the EM program was in place, the fishery ranged from 24 to over 180 days in duration and a typical year would involve about 800 fishing trips and 1,800 fishing events, equating to over 20,000 hours of sensor data and 16,000 hours of image data. Over the life of the program, there were improvements in both monitoring system performance and fishery compliance as a result of several factors including improved technology, maturing operational systems, and improved feedback and reporting processes. Data collection success went from 85% in early years to over 98% in the last two years of the program. Comparing 2006 to 2010 results, the frequency of discard events (events per set) went from 20% where all vessels had some discards, to 4% where the majority had established strategies to comply with maximized

retention. The above discard events were ‘operational discards’ relating to overfull intermediate nets or catching more than vessel capacity, resulting in the release of unsorted catch. There were no incidents of ‘selective discarding’ where a catch (e.g. salmon or rockfish) was sorted and discarded. It is suspected that such incidents were rare overall but would more likely occur with the EM system powered off.

Industry and NMFS co-fund the EM program with industry covering about 75% of the costs. Industry paid for all costs associated with placement and operation of EM systems aboard the vessel, and the cost for initial interpretation of EM data. NMFS paid for program outreach, training of NMFS staff, and data analysis, reporting and delivery of data. The total cost of the EM program was about $250 per sea day, or about 1% of the catch value. The program was year to year; costs would likely decline in a permanent program with established infrastructure and fishery participants would be motivated to purchase rather than lease EM systems.