Essential Fish Habitat project status report

Reporting date: September 17, 2009

Project number: 2008-07

Title: Rockfish abundance and diurnal habitat associations on isolated rocky habitat in the eastern Bering Sea

PIs: Gerald R. Hoff, Chris Rooper

Funding year: 2008

Funding amount: $90,850

Status: ☒ Complete ☐ Incomplete, on schedule ☐ Incomplete, behind schedule

Planned completion date if incomplete: June 2009

Reporting: Have the project results been reported? Yes
If yes, where were the results reported?

Rooper, C.N., G.R. Hoff, and A. DeRobertis (in review) Assessing habitat utilization and rockfish biomass on an isolated rocky ridge using acoustics and stereo image analysis. Canadian Journal of Fisheries and Aquatic Sciences

Results: What is the most important result of the study?

During July 11-17 of 2008 a study was conducted aboard the FV/*Vesteraalen* on two unique rocky ridge habitats in the southern Zhemchug Canyon region. Acoustic data for biomass estimates as well as bottom topography and substrate type were collected along transects on each ridge using an EK60 single beam (38 kHz) echosounder during daylight hours and during nighttime hours. A stereo-video drop camera system was used to collect species and length composition data on fish and invertebrate species and their habitat associations at 15 transects.

EK60 transects conducted during daylight and nighttime hours along the same tracklines showed adult fish and larger juveniles were in the water column during the daylight hours and on bottom during nighttime. Video analysis from camera drops concurred by showing rockfish to be predominantly benthic during night, when fish were observed lying directly on the bottom and not visible to hydroacoustic methods. During daylight hours fish were demersal to pelagic forming large active schools above the bottom shown both by EK60 and video analysis. The distribution of rockfish on the ridges showed that while in the water column they were observed primarily on the southern side of the two ridges and found predominantly over the ridges in contrast to an adjacent flat sandy area.

Hydroacoustic and video data showed the rocky ridges to be highly productive as rockfish habitat and the ridges possessed an abundance of HAPC species such as coral and sponges, unlike the surrounding eastern Bering Sea slope habitat. We estimated 15,447 t of adult rockfish (predominantly northern rockfish) and 916 t of juvenile rockfish (predominantly POP). This is a much larger biomass of northern rockfish than has previously been estimated for the eastern Bering Sea shelf or slope. This research produced a habitat-based biomass estimate for fishes in an untrawlable area using acoustics as the primary tool for measuring fish biomass and stereo video for estimating both species composition and fish length.