Essential Fish Habitat project status report

Reporting date: 10/11/2011

Project number: 2010-02

Title: Characterize Collection of field data to support modeling bottom trawling impacts and subsequent recovery rates of sponges and corals in the Aleutian Islands, Alaska

PIs: Rooper

Funding year:FY10

Funding amount: $64,700

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

Planned completion date if incomplete:

Reporting: The results of this project were reported in the attached publication:
Rooper, C.N., M.E. Wilkins, C. Rose & C. Coon. 2011. Modeling the impacts of bottom trawling and the subsequent recovery rates of sponges and corals in the Aleutian Islands, Alaska. Cont. Shelf Res. 31:1827-1834

Results: In August 2010, a six day cruise was carried out in the eastern and central Aleutian Islands aboard the charter vessel F/V *Sea Storm*. Video was collected along overlapping bottom trawl tow paths using a stereo video drop camera at 18 sites from Amukta Island to Atka Island (Figure 1). These sites have previously been towed using the GOA/AI bottom trawl survey net (poly'Noreaster) on multiple survey years. The video collected at these sites was analyzed to determine an empirical estimate of the amount of hard bottom seafloor *(h)* suitable for colonization by sponges and corals. Assuming that prior to fishing removals the population was in equilibrium at each of the study sites the original biomass at each site (B_0) can be estimated as:

$$B_0 = K * h$$

where *h* is the amount of hard bottom seafloor suitable for colonization by sponges and corals

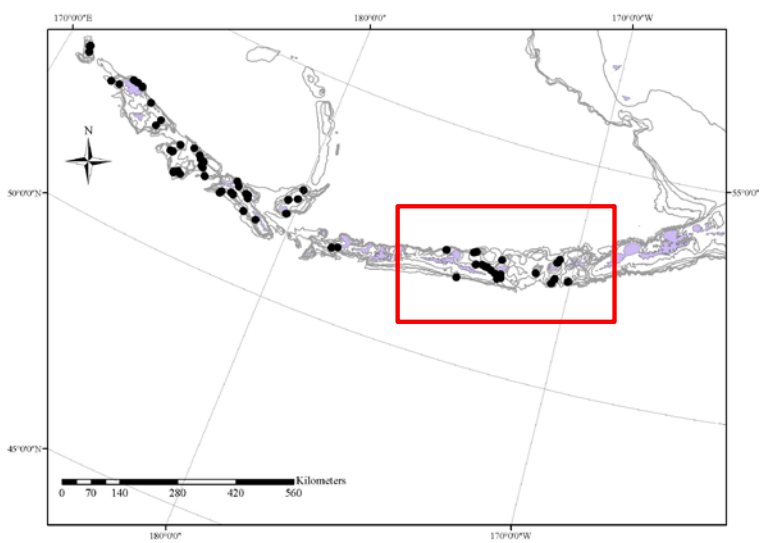

Figure 1. Map of the Aleutian Islands showing 18 study sites where underwater video was collected (inside red box)

and K is the carrying capacity for benthic invertebrates (per unit area). The data on h collected during this study was used in a model of invertebrate population growth and recovery rates that models the population abundances of sponge and coral at the 18 study sites over time. The video analysis and modeling was completed in fall 2010, with a manuscript published in 2011.