Essential Fish Habitat project status report

Reporting date: 10-15-12

Project number: 2012-3

Title: Essential fish habitats of juvenile Pacific cod, yellowfin sole, and northern rock sole along the Alaska Peninsula

PIs: Hurst, Cooper, Duffy-Anderson, and Stoner

Funding year: 2012

Funding amount: $72,300

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

Planned completion date if incomplete:

Reporting: Have the project results been reported? If yes, state where the results were reported and attach an electronic copy of the report.

No.

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

The following observations are based on preliminary, field-based species identifications and observations made underway. Catch rates are based on CPUE standardized to a 5-min tow (approximately 675 m^2).

Synoptic sampling for juvenile fishes and crabs was successfully conducted on the Bering Sea shelf and in the nearshore waters around Port Moller on the Alaska Peninsula. Sampling took place between 19-Aug and 1-Sept. Sampling over the Bering Sea shelf remains ongoing through Oct 14, 2012. A total of 75 nearshore samples ranging in depth from 2-35 m were collected from the chartered fishing vessel FV Bountiful and 33 shelf samples ranging in depth from 30 to 125 m were collected from the NOAA Ship Oscar Dyson (Figs. 1 & 2). The sampling vessels used identical 3-m beam trawls and fish catches were processed in identical manners. Invertebrate and biogenic structure bycatch were enumerated in all tows and sediment samples were obtained from each sampling location.

Juvenile stages of the commercial fishery species northern rock sole, yellowfin sole, and Pacific cod were most abundant along the Alaska Peninsula between depths of 15-35 m. These species were present, but were captured lower abundances in coastal embayments and over the Bering Sea shelf. There appeared to be specific- and age-specific differences in locations of maximum catch rates associated with sediment characteristics and water

depth. Juvenile stages of red king crab were not encountered during sampling and Chineocetes species (snow and tanner crab) were found on the Bering Sea shelf, but not in nearshore waters or coastal embayments.

Age-0 flatfish (northern rock sole and yellowfin sole <50 mm).

Small juvenile flatfishes were captured at high abundances (>50 per tow) at a small number of stations (n=4) along the Alaska Peninsula. Depths of these stations were 38, 33, 32, and 23 m. These fishes were also captured in lower numbers at other stations in this depth range, but were generally absent from deeper and shallower sites.

Juvenile northern rock sole and yellowfin sole (50-150mm TL).

Juveniles of these species, assumed to represent age 1-2, were most abundant in coastal samples near Port Moller (mean 43 NRS and 8 YFS per tow) than in the coastal embayments of Port Moller and Herendeen Bay (mean 7 NRS and 4 YFS per tow) and in offshore Bering Sea shelf samples (<5 fish per tow). Both species tended to be absent from shallow (<3 m) wave-swept areas along the coast. There was a trend for NRS to be found in higher abundances on sandier sediments with YFS on muddier sediments, both along the coast and in coastal embayments. The high abundances of these species in coastal waters is consistent with previous observations along other portions of the Alaska Peninsula.

Age-0 Pacific cod (50-80mm TL)

Juvenile Pacific cod were captured sporadically in coastal (mean 11 fish per tow) and shelf samples (<1 fish per tow). They were most abundant at depths of 15 to 20 m, but there was one offshore catch of 52 fish at 38 m. Juvenile Pacific cod were less abundant in the coastal embayments (mean 1 fish per tow). However, it is possible that fish in the embayments were utilizing shallow nearshore rocky and vegetated habitats in the head of Herendeen Bay as has been observed in the Gulf of Alaska. Such habitats were not sampled during these surveys.

Juvenile red king crab

Only 3 juvenile red king crab were captured during sampling, suggesting that open areas of sand and muddy-sand habitats are not a primary nursery area for these species. Two types of habitats with more structure (deep channels and shallow subtidal areas along rocky coastlines) were not well sampled in this work and should be considered for re-evaluation.

Juvenile tanner crab and snow crab (Chinoecetes spp).

Juveniles of these species were not captured in nearshore waters along the Alaska Peninsula or in the embayments of Port Moller and Herendeen Bay. They were captured in approximately 10 of the 33 offshore Bering Sea stations. Laboratory identifications will be required to determine the relative distributions of the two species.

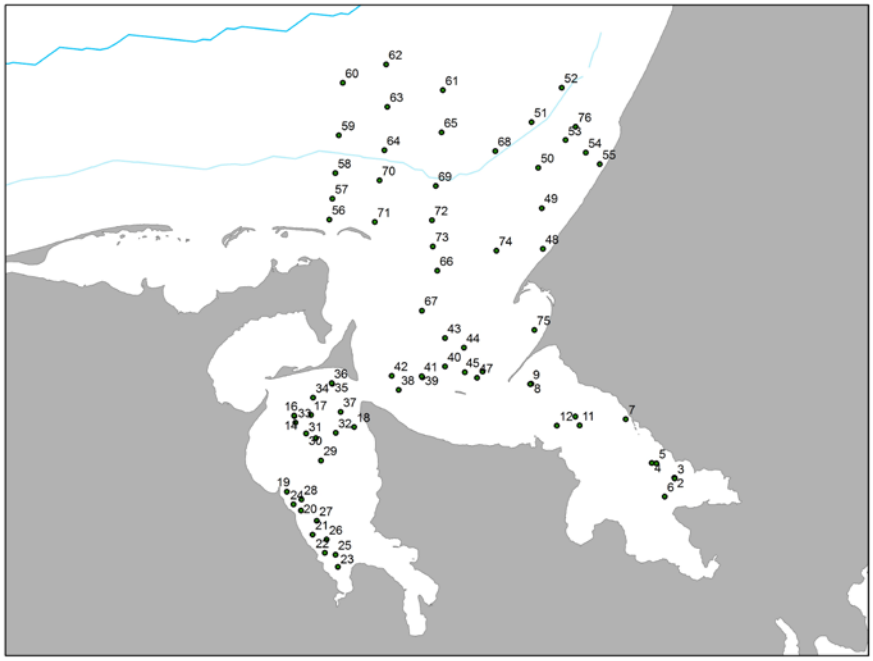

Fig. 1. Beam trawl sampling locations in nearshore waters and coastal embayments of the central Alaska Peninsula sampled by FBEP staff on the chartered vessel FV Bountiful, Aug. 17 to 26, 2012.

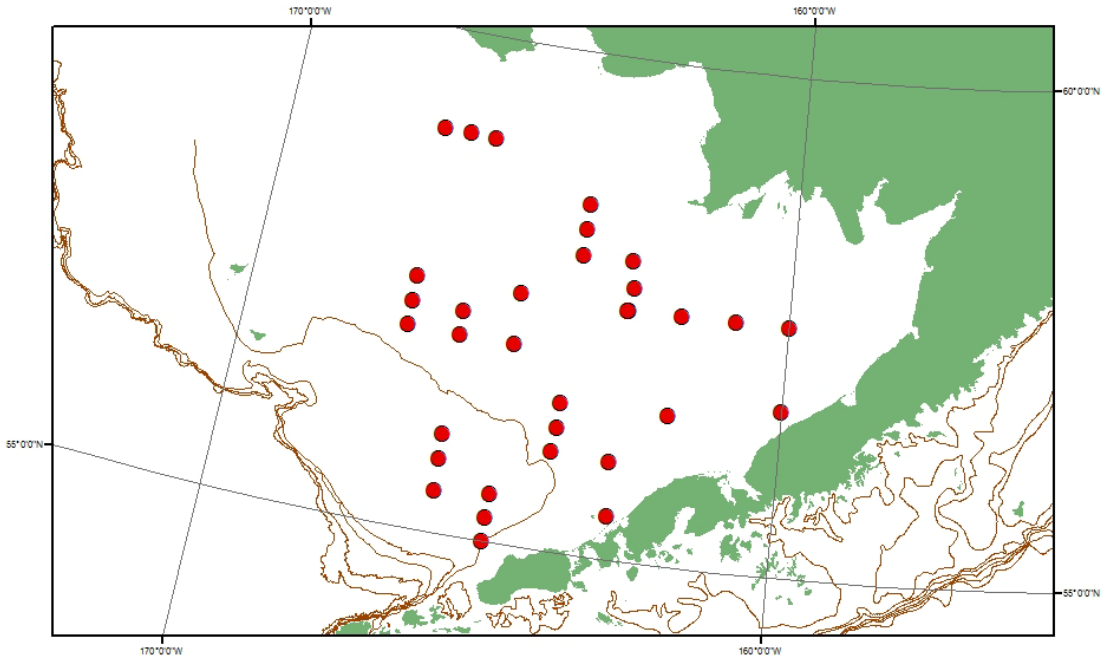

Figure 2. Beam trawl sampling stations in the southern Bering Sea sampled by RPP staff on the NOAA Ship Oscar Dyson, Aug. 20 to Sept. 1, 2012.