Bering Sea coral conservation

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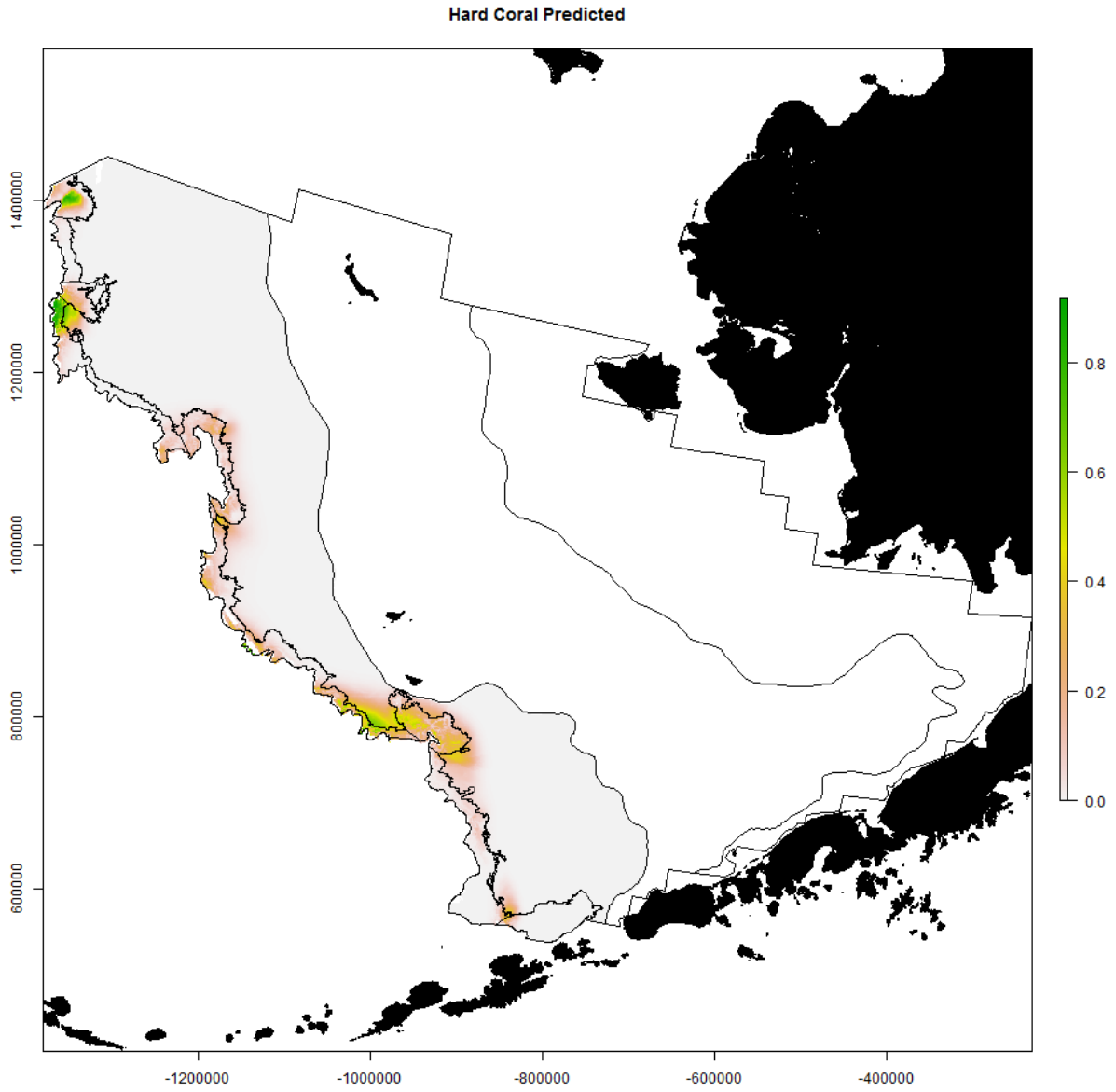
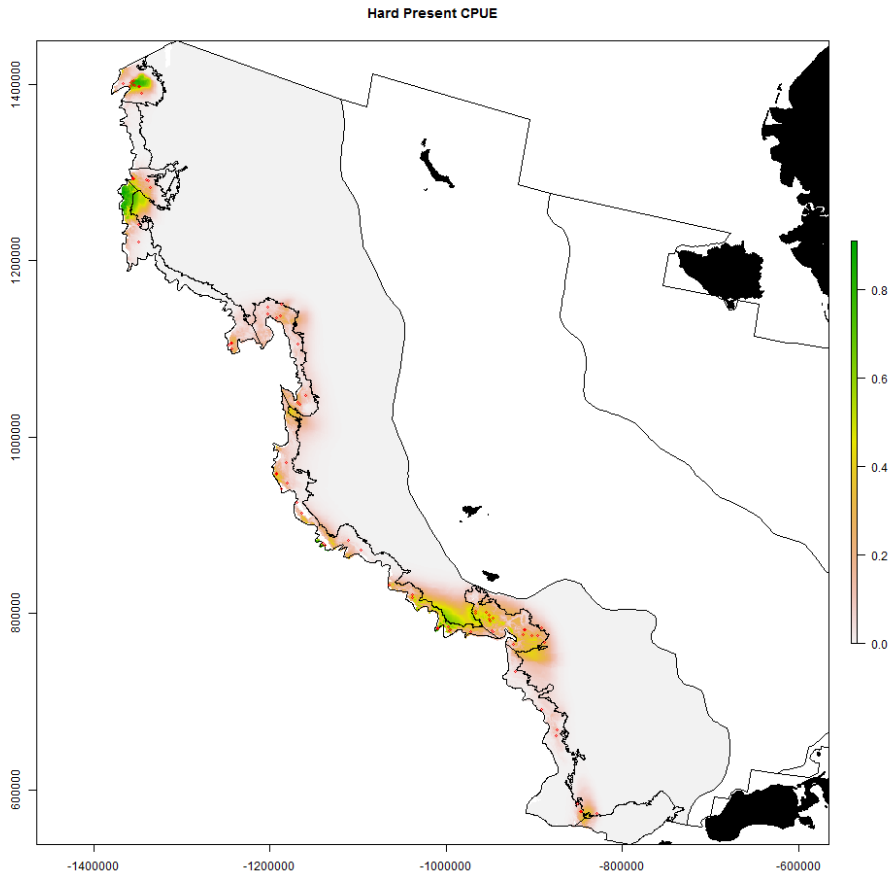
Outline

- Overlap additional data on existing coral model
- Biodiversity and rare species
- Proposed 2014 fieldwork

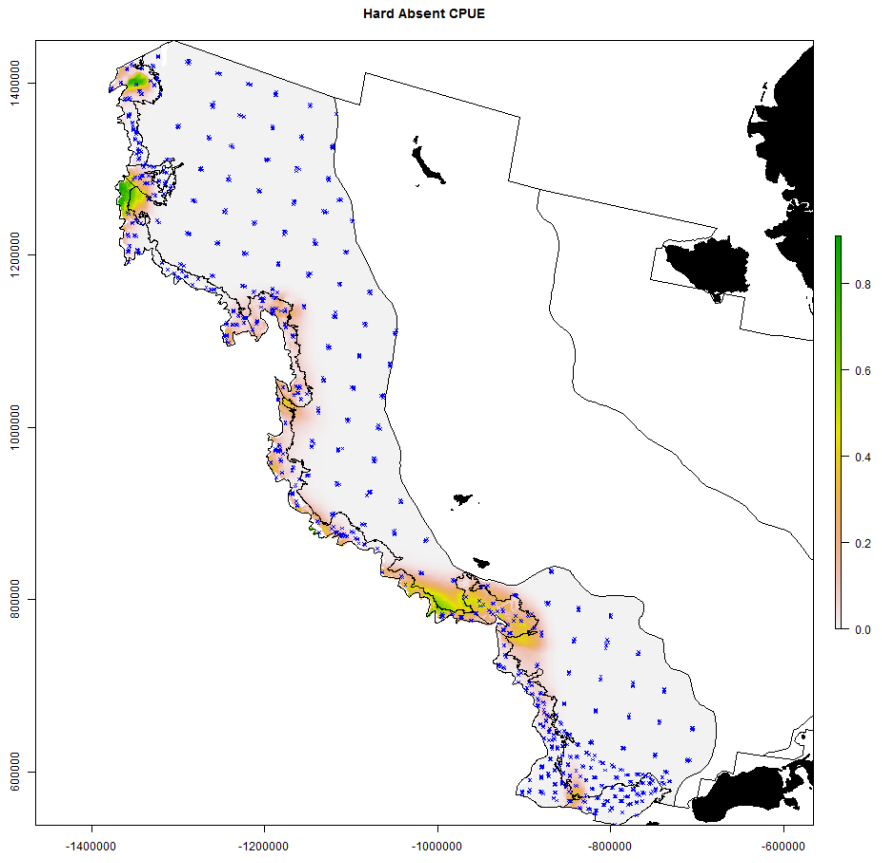
Existing coral model



Based on trawl survey data

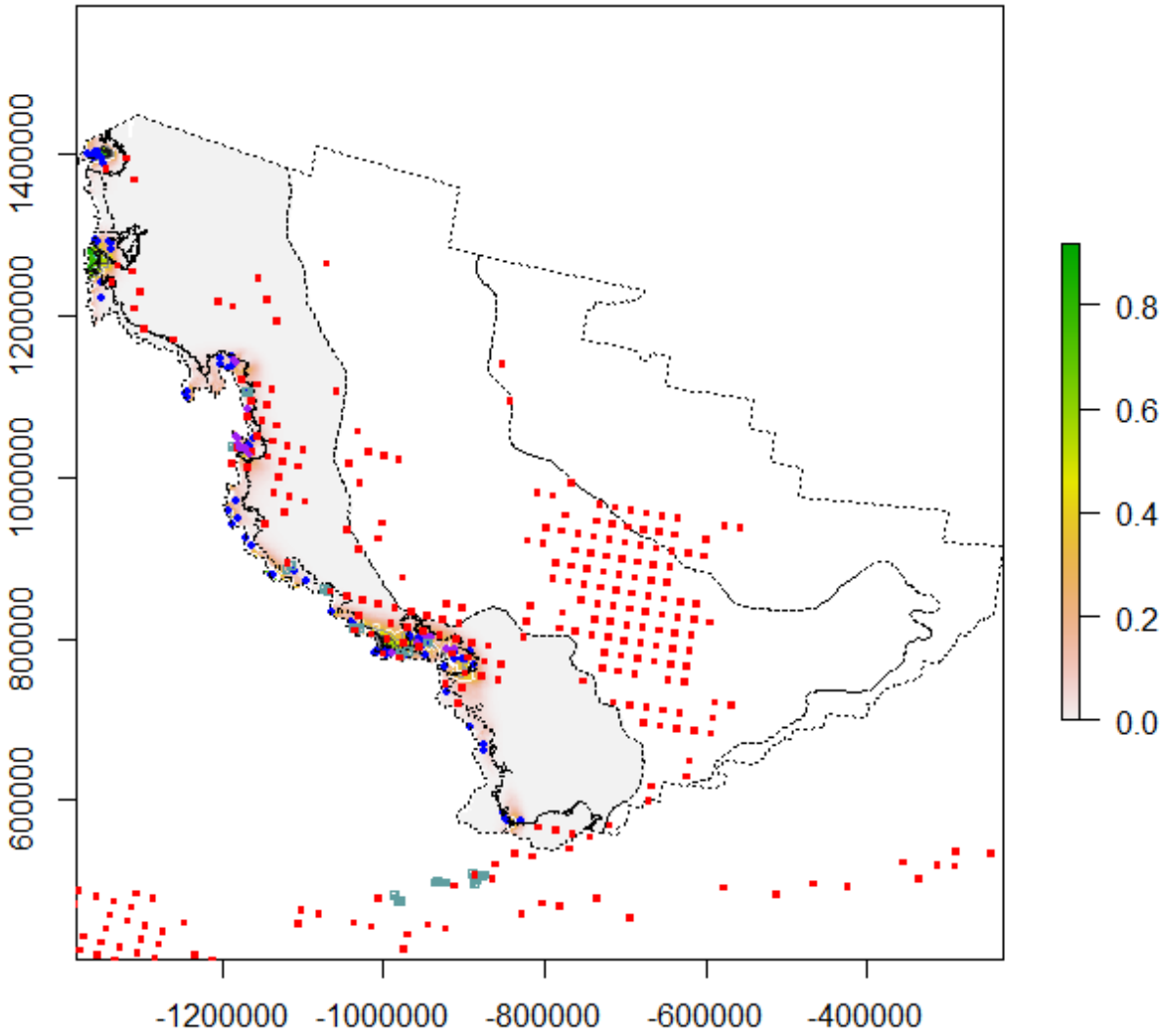


PRESENCE



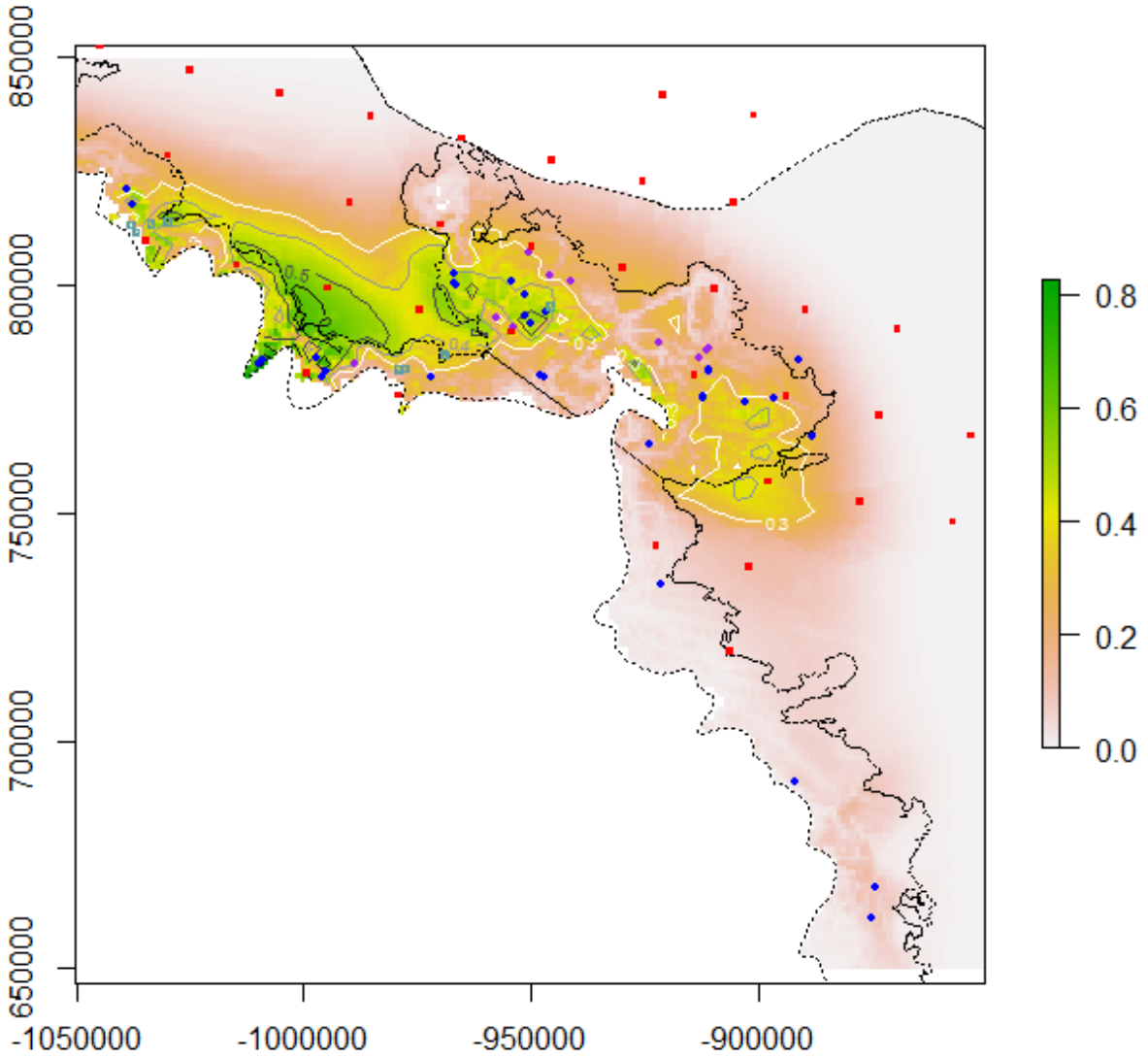
ABSENCE

Observer data



The dots represent coral presence (dark blue = trawl survey, light blue = longline survey, purple = video survey, red = observer).

Pribilof Canyon



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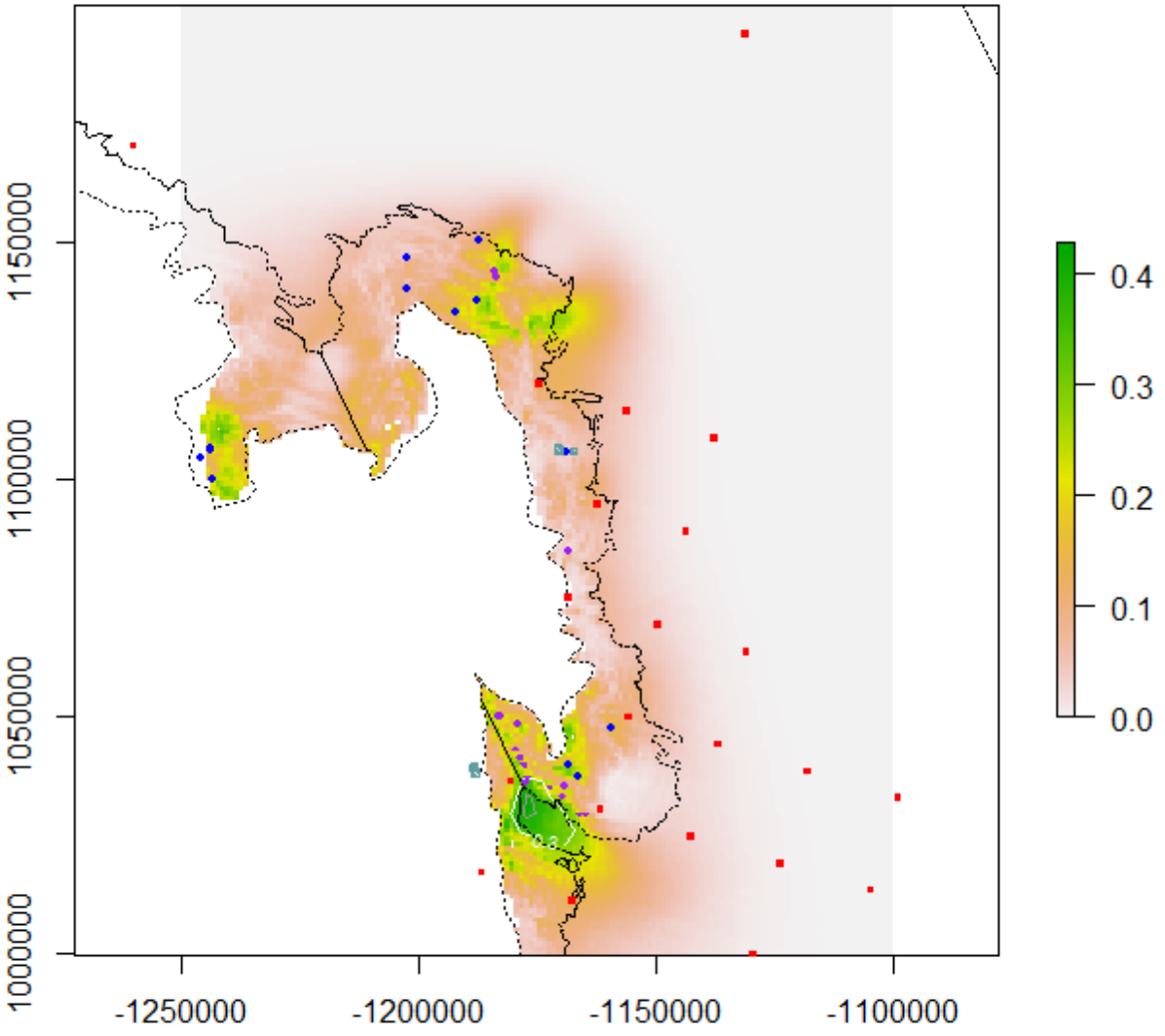
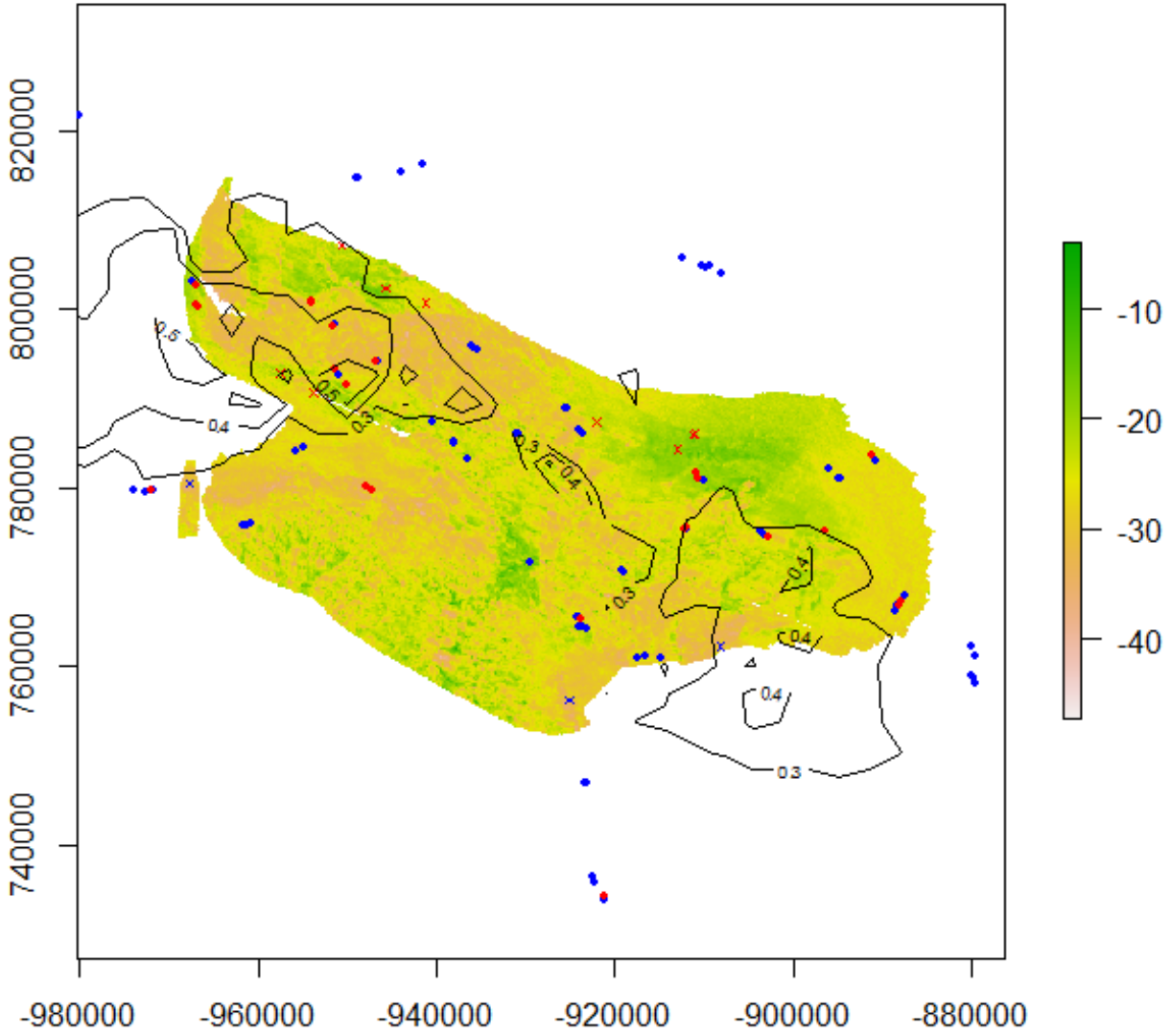
Zhemchug Canyon



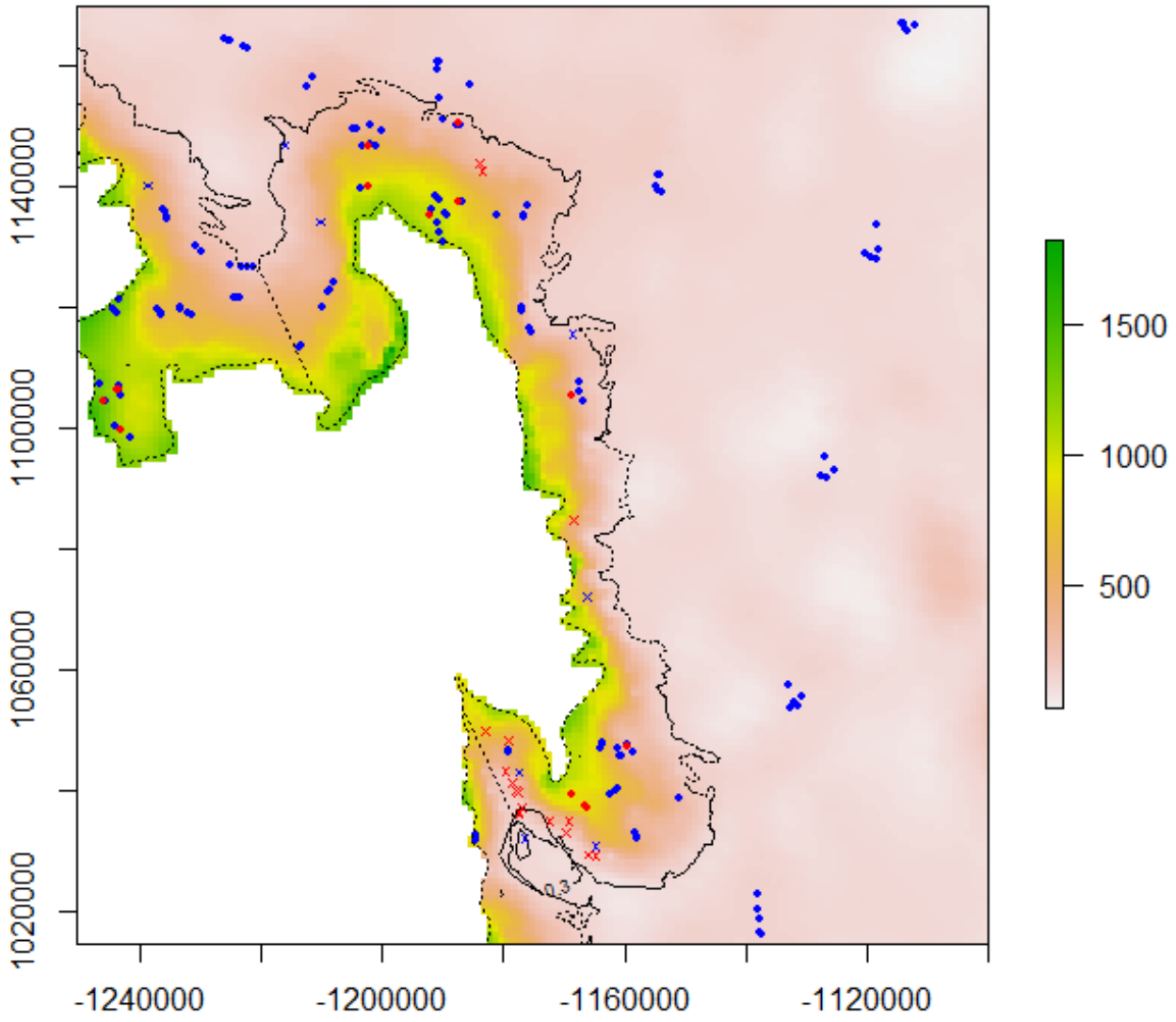
The dots represent coral presence (dark blue = trawl survey, light blue = longline survey, purple = video survey, red = observer).

Pribilof Canyon multibeam map



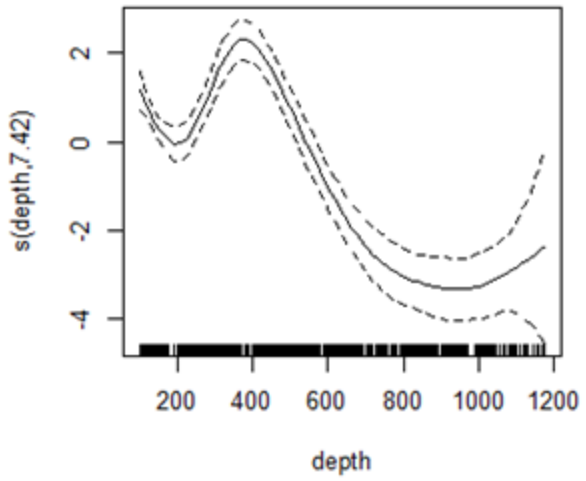
The contours represent the probability that coral is present. The dots represent coral presence (red) and absence (blue) and sampling gear of trawl survey (dot) and video survey (cross). The color scale represents multibeam backscatter with green indicating more backscatter (generally harder seafloor) and tan representing less backscatter (generally softer seafloor).

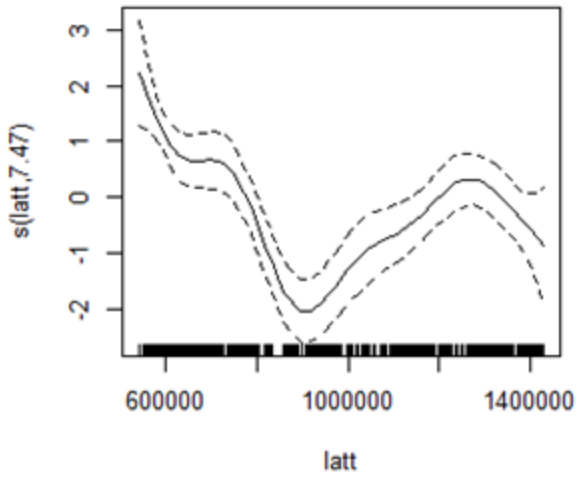
Zhemchug Canyon

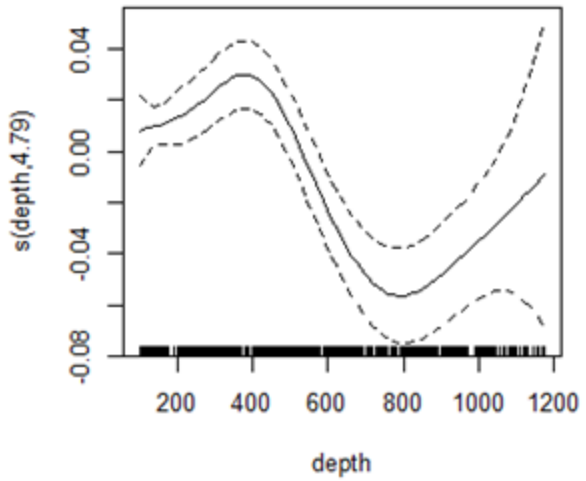


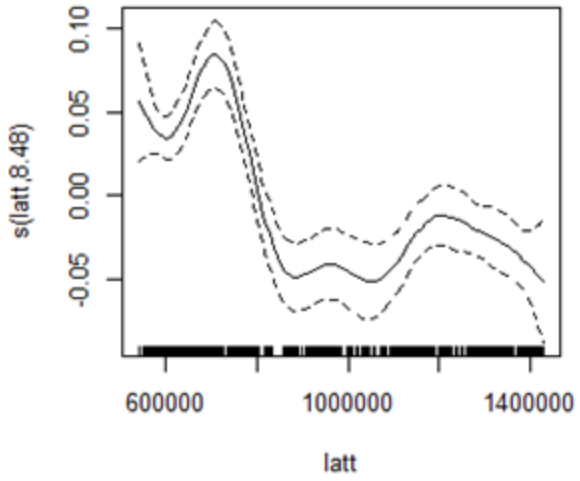
The contours represent the probability that coral is present. The dots represent coral presence (red) and absence (blue) and sampling gear of trawl survey (dot) and video survey (cross). The color scale represents bathymetry.

Biodiversity







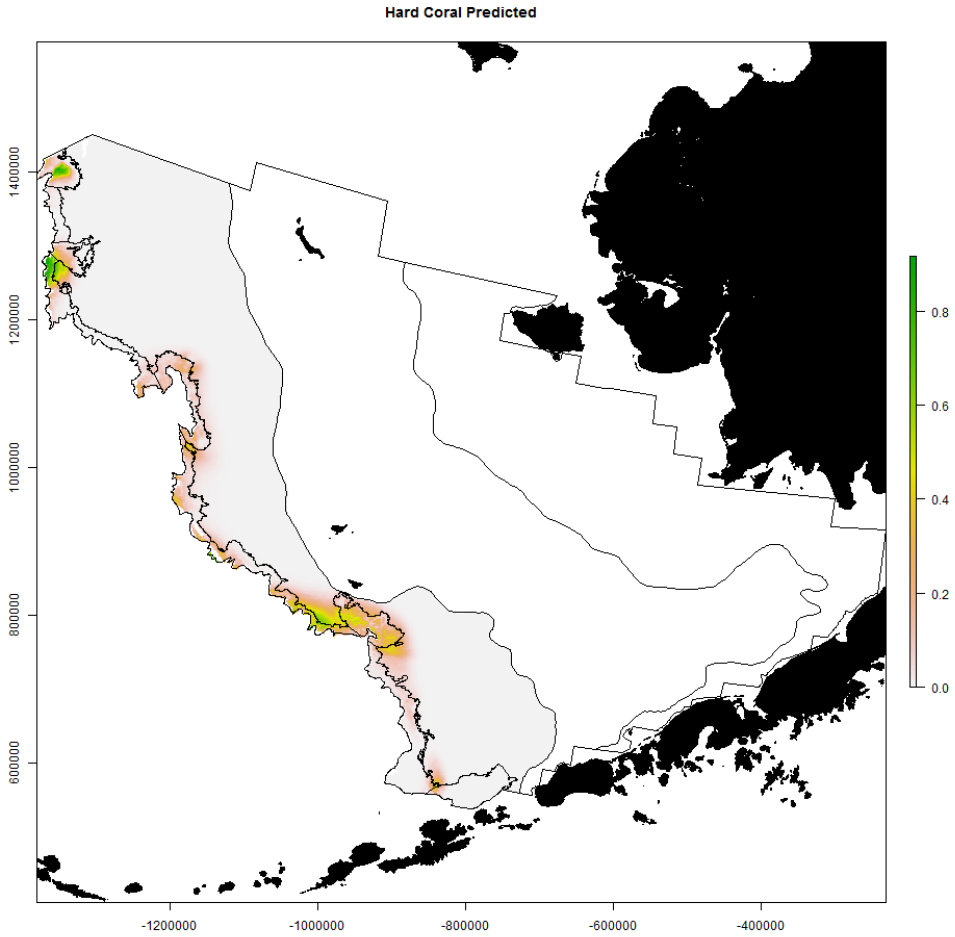


Two diversity indices (N1 [upper row] and Evenness [lower row]) plotted versus depth (m) and northing (in meters, Alaska Albers Equal Area Conic projection with center latitude = 50° N and center longitude = 154° W).

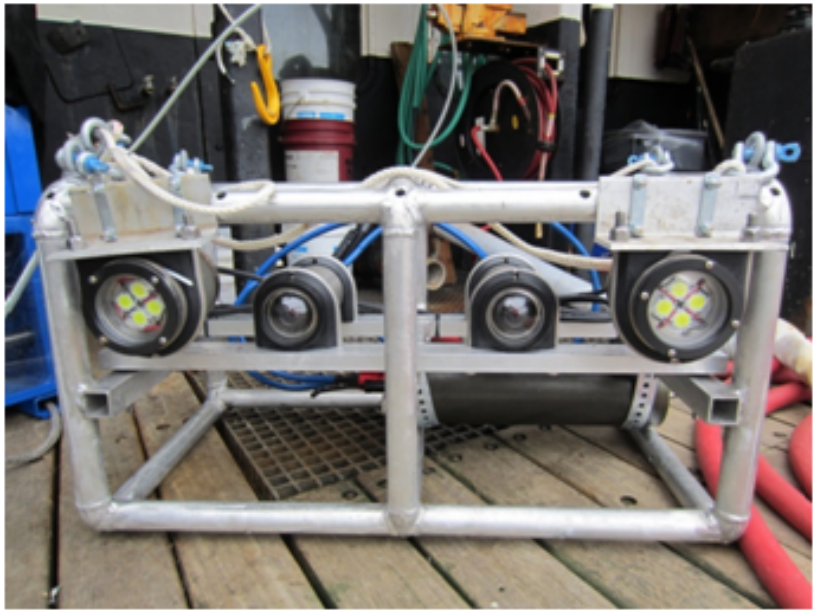
Rarity

Reviews of the biogeographical distribution of corals and sponges in Alaskan waters indicate that there are 19 coral taxa (Stone et al. in preparation) and 67 sponge taxa (Stone et al. 2011) found in the eastern Bering Sea. A single undescribed hexactinellid coral has been collected only in Pribilof Canyon (Stone et al. in preparation) as has a single recently described demosponge *Aaptuu kanuxx* (Lehnert et al. 2008) and so each may be endemic to that region.

Proposed 2014 fieldwork

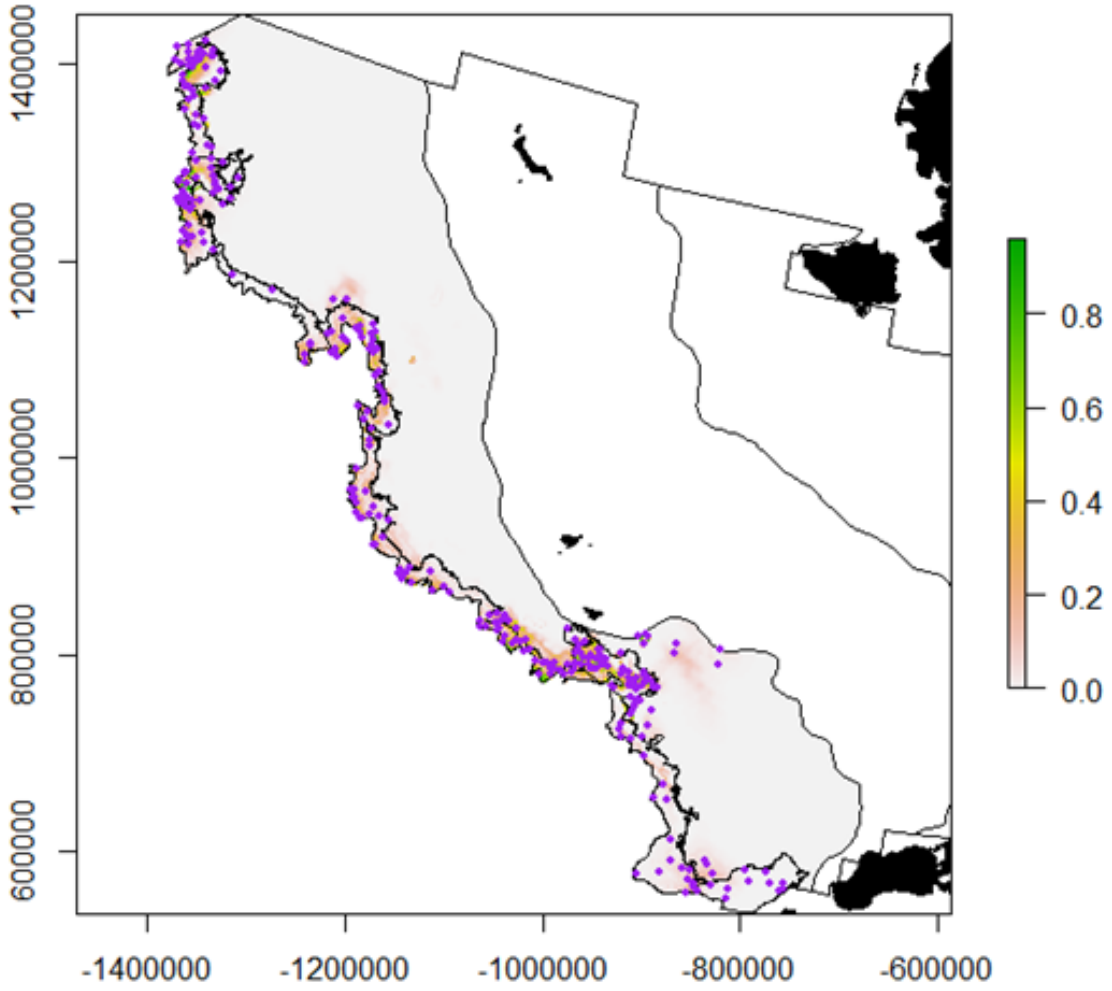


Focus on areas of likely coral habitat



Stereo drop camera

Proposed 2014 fieldwork



Sampling intensity is proportional to probability of coral presence

Primary objectives

- Gather information from fishermen on locations of hard-bottom areas
- Determine the presence/absence and density for major coral taxa at approximately 300 transects on the EBS slope using a stereo drop camera
- Measure the size and height of a subsample of the major coral taxa at each site
- Compare the presence or absence of coral at each site, information from fishermen and the probability of presence predicted by the existing coral model
- Apply the new information from fieldwork and fishermen in the coral model and produce revised predictions of coral locations and abundance

Secondary objectives

Secondary objectives are to determine the presence/absence and abundance of major sponge taxa at the sampled transects, to measure the fine-scale association of fish and crab with coral and sponge and to record evidence of fishing gear impacts.

Fishermen workshops

- Gather information from fishermen on locations of hard-bottom areas
- This information will be processed as geo-referenced overlays, compared to the results from the fieldwork and used as additional habitat information to revise these models.
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Timeline, budget and funding

- Fieldwork planned for summer 2014
- Image analysis about 1 year
- Report results in June 2015
- Total budget of about $485,000
- Seeking funding from Cooperative Research, Essential Fish Habitat and Deep Sea Coral