Do eelgrass interiors, edges, fringes, and meadows provide different habitat functions for mesopredators?

Camera stations for video surveillance were set up in each habitat type. This station is exposed at low tide and is within eelgrass habitat.

Seining, or wading net sampling, was completed at each habitat type.

The Dungeness crab (Cancer magister) is one of many mesopredators identified in the video surveillance and seining sampling.

An ecosystem is dynamic and multilayered, making it challenging to understand and manage. One way scientists are attempting to determine how to best manage nearshore resources is by investigating the functional diversity within the ecosystem. By looking at how certain species use different parts of eelgrass habitat, managers can make more informed decisions regarding what aspects are important to maintain, and how best to restore or enhance eelgrass beds.

Functional diversity is indicative of an ecosystem's resilience to environmental change and of potential for recovery if impacted. Some research has focused on diversity of benthic and epibenthic invertebrate organisms within eelgrass habitat, such as filter-feeding mollusks and epiphyte mesograzers. However, investigations focusing on diversity of mesopredators (fish, crabs and birds) is limited. Because many of the species of ecological and commercial value in Washington State associated with eelgrass fall into the mesopredator classification (e.g. salmonids, waterfowl). AAMT set up a series of monitoring stations to obtain information on distribution, abundance and function of mesopredators in eelgrass habitat.

Beginning in Spring 2015 and continuing through Spring 2017, four habitat types were assessed for species use and diversity: (1) eelgrass patch interior (2) eelgrass patch edges (3) bare patches (4) eelgrass meadow interiors. Monitoring locations were selected to represent coastal, south fjord, and north fjord. Video surveillance, seining (wading net catching) and tethered prey were used to collect information on species richness, abundance and behavior in each habitat type. **Preliminary data processing and analysis indicate:**

- o **Predation rates were highest inside eelgrass and lowest in bare areas.**
- o **Species richness for seines was highest in eelgrass and lowest in bare patches.**
- o **Species richness for video surveillance was highest on edges.**
- o **Species abundance and richness was lower in interior of meadows compared to fringe habits.**