Digging Deeper

1. All of our underwater wildlife lives and thrives in our local waters. Octopuses consume Dungeness Crab, shellfish, and small fish. Many of those smaller animals and fish eat phytoplankton (small microscopic photosynthetic organisms). The quality and health of our waters is important to phytoplankton. Influences of water movement due, in part, to currents and tides, transport nutrient rich water to and from the Pacific Ocean all the way to the Cascade Mountains and back again. They are inextricably tied to one another. Describe how Green Urchins, Sea Stars and Kelp, for instance, have been affected as water quality and nutrient distribution significantly decrease, or even cease in this biologically important area. How does this affect behavior? Also be sure to think about how these changes will affect other animals and organisms throughout the ecosystem. Answers can include but are not limited to their individual and population health, behavior, ranging patterns, and interactions with other species (changing ecosystem dynamics).

2. Describe how humans have influenced the abundance of underwater wildlife in the past and present and how we may affect them in the future (good and bad). Think about what we know happened, is happening now, and why research is needed; use that to explain possible outcomes for the future – can these lessons be used for other species and why?

3. Think about how researchers study these animals, including what questions they want to answer, what data they collect and how they may collect it. Using this information as a guide, choose any species of interest to you. Describe what questions you would want to answer about your chosen species (and why that is important to know), explain what data you would collect in order to answer these questions, and how you would collect it. Create/describe your study and also explain how this information could be used to help protect and conserve the species (and its environment if applicable).

    Lastly, conservation of a species relates to maintaining biodiversity of an ecosystem – but this is easier said than done. Think about your research topic and how this would help to maintain biodiversity in an ecosystem. Think about how one ecosystem relates to and affects other ecosystems. Think about what constraints might hinder the use/application of the research results – this can be either scientific, economic, political, or social considerations (for example, do we have the technology and/or money to implement the research or the solution it may produce; are there any political or social obstacles (e.g. political opposition, cultural ideas that need to be addressed)?). Discuss these constraints and how they may be able to be overcome.