

Chapter 15: Crabs in the Coos Estuary

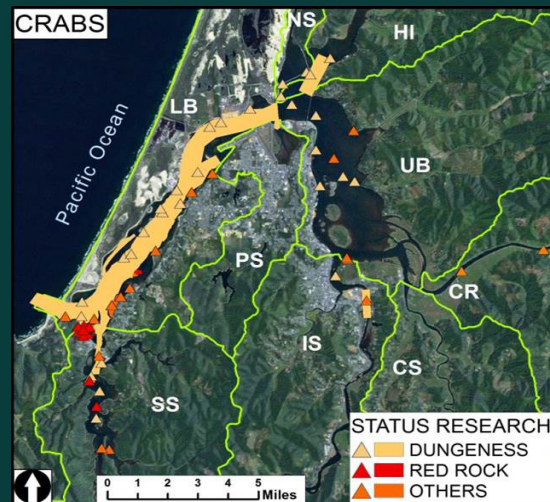


Jenni Schmitt, Colleen Burch Johnson
- South Slough NERR

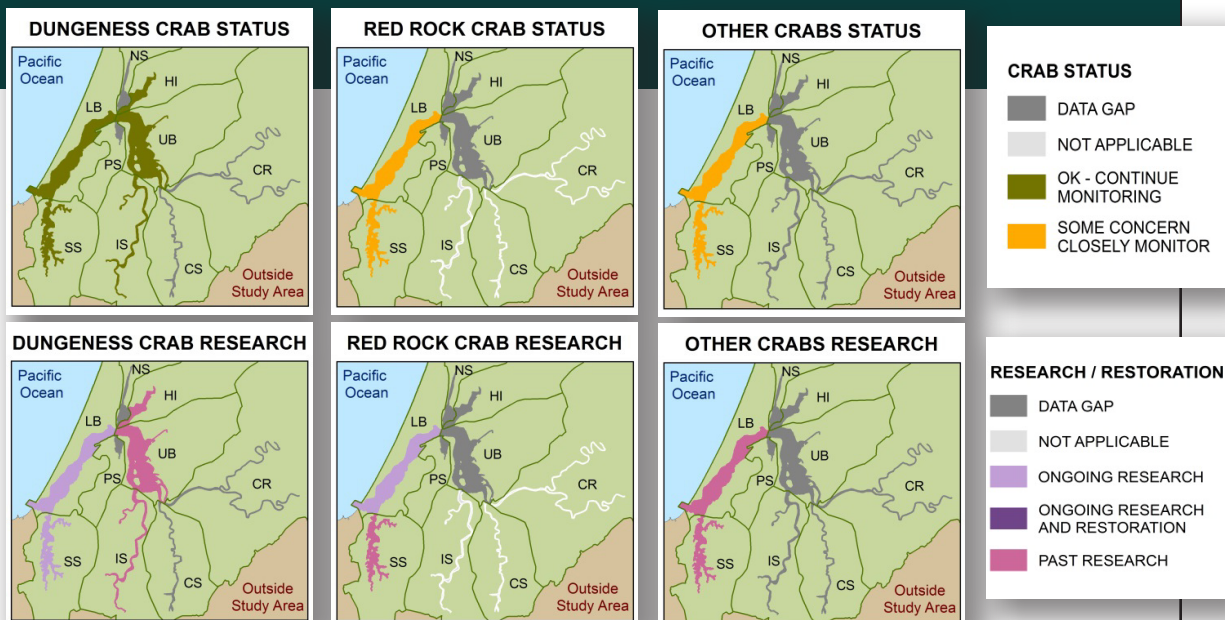
Dungeness Crabs: The Dungeness crab fishery is sustainably managed, allowing for continued stable Dungeness populations on the west coast in general.

Red Rock Crabs: Red Rock crabs appear to have a healthy resident population in Coos Bay, although their populations are largely unstudied.

Other Crabs: More information is needed to properly assess these populations. Shore crabs appear abundant despite the introduction of the Atlantic mud crab. The status of subtidal crabs, pea crabs and kelp crabs has not been recently assessed.



Subsystems: CR- Coos River, CS- Catching Slough, HI- Haynes Inlet, IS- Isthmus Slough, LB- Lower Bay, NS- North Slough, PS- Pony Slough, SS- South Slough, UB- Upper Bay



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*This chapter includes three data summaries: **Dungeness Crabs, Red Rock Crabs, and Other Crabs** – each describing the most current research on the status and trends (where the data allow) of crab populations in the Coos Estuary.*

The South Slough and Lower Bay are the two most studied subsystems for all crab populations and the only subsystems where information is reported for red rock crabs (*Cancer productus*). Although Dungeness crabs (*Cancer magister*) are mainly found in the Lower Bay and South Slough subsystems, Dungeness crab populations have been studied in all subsystems except Pony Slough, Coos River and Catching Slough. Information about “Other Crabs” comes mainly from studies focusing on South Slough and the Lower Bay, and from limited studies in the Upper Bay, Isthmus Slough and Coos River subsystems.

While all three crab-related data summaries include current and historical data, information for Dungeness and red rock crabs is by far the most current. For example, recent creel surveys have been conducted by the Oregon Department of Fish and Wildlife (ODFW) to help understand Dungeness crab population trends (Ainsworth et al. 2012), and a new, though preliminary ODFW study informs us of red rock population structure in the Coos

estuary (Groth et al. 2013). Much of the information for the Other Crabs data summary is older, the most current being from deRivera et al. in 2005.

Information in crab data summaries was derived from a variety of sources including theses (e.g., Dunn 2011), agency reports (e.g., Ainsworth et al. 2012), peer review literature (e.g., Shanks 2013), and personal communications with various researchers.

Data Gaps and Limitations

Dungeness Crab Data: Due to their economic importance, Dungeness crabs are the most studied of the crab species. However, questions remain about how Dungeness crabs use estuaries.

For example, the migration of Dungeness between the estuary and the ocean is largely unstudied, although preliminary results from Groth et al. (2013) suggest seasonal movement of Dungeness crabs in and out of the Coos estuary.

Another Dungeness crab-related question Oregon State University is investigating (with ODFW), is the possibility of genetically different subpopulations of Dungeness crab –important for understanding how to keep the Dungeness crab fishery sustainable since harvesting selectively among crab subpopulations can affect genetic characteristics within a population and ultimately reduce the fisheries’ productivity. (ODFW 2013).

An ongoing ODFW study samples Dungeness crabs in the Yaquina and Alsea estuaries, collecting data on carapace width, weight, sex, epifaunal growth on carapace, missing appendages, parasite presence, and evidence of pitting (injuries), thus providing important abundance and health information (ODFW 2013). A similar study in the Coos estuary could provide insight into the use of habitats by Dungeness crabs locally.

Red Rock Crab Data: Even though red rock crabs are recreationally harvested, this native crab has been largely unstudied. However, ODFW is now gathering much-needed information (e.g., growth rates) that may contribute to our understanding of how red rock crabs use the Coos estuary.

Other Crabs Data: More information is needed on other crabs in the Coos estuary. The most comprehensive targeted study is Queen's thesis from 1930 which provides an excellent historic baseline for other crabs in the Coos estuary but is obviously of limited use for understanding the status of current crab populations. Most needed is information characterizing the current distribution, productivity, and habitat usage by the large variety of non-Dungeness crabs that use the Coos estuary – especially subtidal crabs, pea crabs (*Pinnixa faba*), and kelp crabs (*Pugettia producta*), about which there is especially limited information.

Non-Indigenous Crabs

While there is mention in this chapter of a non-indigenous crab species (Atlantic mud crab—*Rhithropanopeus harrisi*), the status of non-native crab populations in the Coos estuary, including invasive species such as the European green crab (*Carcinus maenas*) are discussed in full in Chapter 18: Non-Indigenous and Invasive Species.

References

- Ainsworth, J. C., M. Vance, M. V. Hunter, and E. Schindler. 2012. The Oregon recreational Dungeness crab fishery, 2007-2011. [Oregon Department of Fish and Wildlife Information Report 2012-04, Marine Resources Program]. Newport, OR.
- deRivera, C. E., G. M. Ruiz, J. Crooks, K. Wasson, S. Lonhart, P. Fofonoff, B. Steves, S. Rumrill, M. S. Brancato, S. Pegau, D. Bulthuis, R. K. Preisler, C. Schoch, E. Bolwby, A. DeVogelaere, M. Crawford, S. Gittings, A. Hines, L. Takata, K. Larson, T. Huber, A. M. Leyman, E. Collinetti, T. Pascot, S. Shull, M. Anderson, and S. Powell. 2005. Broad-scale nonindigenous species monitoring along the West Coast in National Marine Sanctuaries and National Estuarine Research Reserves. [Report to National Fish & Wildlife Foundation]. 126 pp.
- Dunn, P. H. 2011. Larval biology and estuarine ecology of the Nemertean egg predator *Carcinonemertes errans* on the Dungeness crab, *Cancer magister*. [PhD Thesis]. University of Oregon.
- Groth, S., S. Yamada, E. Post, and J. Heinrich. 2013. Mark recapture of red rock crab, *Cancer productus*, in Coos Bay, OR. [Poster session presented at Towards an Estuarine Ethic: integrating science and stewardship]. 36th Annual Meeting of the Pacific Estuarine Research Society: 2013, April 4-7. Delta, BC.

Oregon Department of Fish and Wildlife (ODFW). 2013. Oregon Dungeness Crab Research and Monitoring Plan. Available online http://www.dfw.state.or.us/MRP/shellfish/commercial/crab/docs/ODFW_Dungeness-CrabResearchMonitoringPlan2013.pdf

Queen, J. C. 1930. Marine decapod crustacea of the Coos Bay, Oregon district. [MS Thesis]. University of Oregon, Department of Biology.

Shanks A. L. 2013. Atmospheric forcing drives recruitment variation in the Dungeness crab (*Cancer magister*), revisited. Fisheries Oceanography 22(4): 263-272.