

Shore Stewards News

GUIDELINES AND RESOURCES FOR LIVING NEAR WATER | ESTABLISHED 2003

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Dangers to the Dungeness Crab



Figure 1: Dungeness Crab, *Metacarcinus magister* or formerly *Cancer magister*
Image Credit: Maxvis

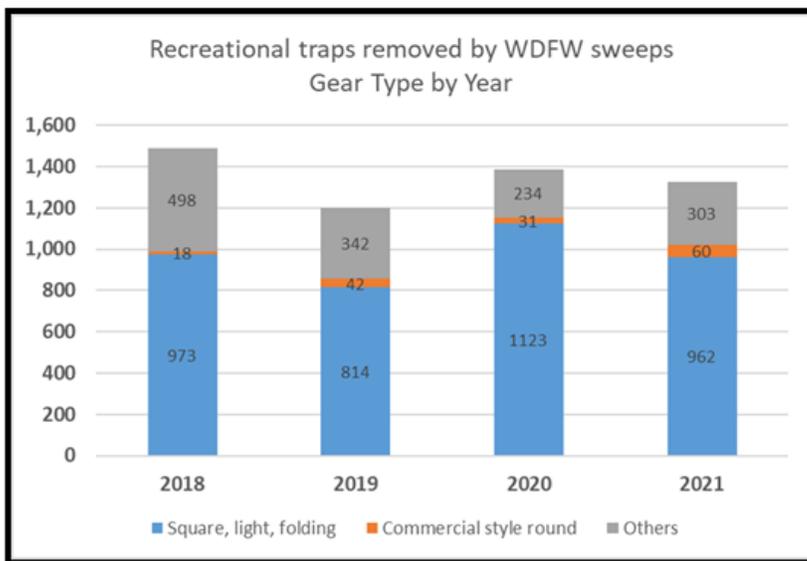
Introduction

Dungeness crab is an edible, large-bodied crustacean harvested from central California to the Gulf of Alaska. In Puget Sound, it is most abundant north of Seattle, in Hood Canal and near the Pacific Coast. Long before this area was settled by Europeans, Coastal Indigenous Peoples valued the crab for its cultural, ecological, sustenance, and economic roles passed down through tribal traditions spanning thousands of years. The Centre for Indigenous Peoples' Nutrition and Environment (CINE) mentions an ethnographic paper (Kuhnlein & Humphries 2017) that states, "... the Nuxalk word for crab was k'inacw. The Central and Northern Nootka called crabs hasãmts, while the Coast Salish word for crab was Xíxyik'." The name Dungeness was established on the North American Pacific Coast in 1792, after British explorer Captain George Vancouver arrived in the Strait of Juan de Fuca. He claimed the natural sand spit and nearby territory for Britain, naming it after a similar extension of land on the southeast coast of England called Dungeness. The name goes back to the Viking Era and is the Old Norse word for "headland." This area, near present day Sequim, Washington, was part of the

territory of the S’Klallam Tribe, and became known as New Dungeness. The sand spit, which juts 5.5 miles out into the Strait of Juan de Fuca, was later called Dungeness Spit. The first commercial fishery began in the area in 1848, but it wasn’t until 1925 that the word Dungeness started to be applied to the crab. Today, the combined harvests of Tribal, commercial, and sport crab fisheries average 10 million pounds a year. The Washington shellfish industry employs over 3,200 people and provides \$270 million to the state’s economy, supporting countless livelihoods. Yet, despite its enduring history, recreational popularity, and commercial importance, Dungeness crab populations face many potential threats including ocean acidification and warming sea-surface temperatures, as well as localized problems such as derelict crab pots and the invasive European Green Crab.

Derelict crab pots

Derelict fishing gear is any gear lost or left at sea; monofilament gillnets, purse seines, trawl nets, shrimp pots, and crab pots are examples. This abandoned gear can continue to trap aquatic species. According to a study by the Northwest Straits Foundation (2021a), “more than 12,000 crab pots are lost and become derelict every year in Washington’s Salish Sea, killing over 177,000 harvestable crab each year. It is estimated that a single lost crab pot can kill up to 15 crabs per year, and some estimates are much higher.” In addition, derelict fishing gear can cause further damage by “scouring or preventing habitat access through accumulation of gear or by fundamentally altering habitats by trapping fine sediments and changing the substrate.” (Sobocinski 2021)



Crab pots are lost for a variety of reasons. Strong tidal currents can cause pots to drift if they are not appropriately weighted. Abrupt changes in water depth can sink pots if the gear does not have enough line attached. Vessel traffic, both commercial and recreational, or crowded fishing grounds can lead to boats and ships running over buoys and lines. This causes line entanglement with other gear, severed lines, temporary or permanent buoy submersion, or drifting pots. Crab pots can also be lost by user error, malfunctioning gear, or vandalism. These many factors contribute to high numbers of derelict crab pots.

Figure 2: Derelict recreational traps removed by Washington Department of Fish and Wildlife over the past four years. **Image Credit:** Washington Department of Fish and Wildlife

What can you do about derelict crab gear?

Recreational crabbers can reduce the number of derelict crab pots in the Salish Sea by following some simple guidelines. To keep your pot and catch more crab, the Northwest Straits Foundation (2021b) recommends the following:

- **Avoid placing pots in marine transit and ferry lanes.**
- **Check tides and currents** to avoid strong tidal changes and currents that can cause pots to drift.
- **Use high visibility buoys** to clearly mark your gear.
- **Use a weighted line** that sinks below the surface to avoid it being cut by passing boats.

- **Weight your pot** so it won't move in as much during strong current or high tidal change events.
- **Use longer line** such as 1/3 more line than water depth to allow for changes in tides and currents.
- **Secure lid escape panels with biodegradable cotton escape cord** that allows crabs to escape from lost pots after the cord degrades.



Figure 3: Dropping crab pots without weights and attaching buoys incorrectly contributes to derelict gear.
Image credit: Washington Department of Fish and Wildlife

The Northwest Straits Foundation has released an instructional YouTube video for recreational crabbers called “[Virtual Crabber Workshop](#).” Presenters from the Washington Department of Fish and Wildlife, Shellfish Biologist Daniel Sund, and Lead Crustacean Biologist Katelyn Bosley, share up-to-date rules and regulations, recommendations for crab gear, best practices, and information resources. In addition, the Northwest Straits Foundation has additional information about when and where to set crab pots at: www.catchmorecrab.org. The site includes helpful links for tide predictions, ferry routes, tug and low tow routes, and commercial vessel tracking. There are also other instructional videos such as: “How to Keep Your Pots and Catch More Crab!,” “How to Rig Your Line,” and “Attach Rebar to the Bottom of Your Pot.” If you do lose a crab pot, you can report lost shellfish gear at: www.wdfw.wa.gov/fishing/shellfishing-regulations/gear-rules/lost-gear or call 855-542-3935. There are no penalties associated with reporting lost fishing gear. Marine Enforcement officers from the Washington Department of Fish and Wildlife may be able to recover your lost gear and return it if it is properly identified.

European green crab

The European green crab is known as *Carcinus maenas*, which is Latin for “raving mad crab”. Both opportunistic and prolific, it is considered the most invasive marine species in the world. A single female European green crab can produce up to half a million larvae annually. Once released, the larvae can travel hundreds of miles on ocean currents to new locations where they readily adapt to a range of salinity and habitat conditions. Without the natural population regulation from parasites or predators found in its native habitat, the European green crab can thrive unchecked in protected intertidal areas. The crab damages eelgrass beds, an essential habitat for Dungeness crab, as it actively disturbs bed sediments and uproots shoots while it searches for prey.

The European green crab will also outcompete Dungeness crab for habitat and food as it feeds on both plants

and animals. It will eat algae, detritus, soft-shell clams, worms, snails, mussels, small oysters, and smaller shore crab, including juvenile Dungeness crab. Adult European green crab will even eat their own young.



The first sighting of the invasive crab in the Salish Sea occurred in the San Juan Islands in 2016. The Kitsap (2021) reported, “In 2021, more than 102,000 European green crabs were caught in Puget Sound and along Washington’s coast. This was an astronomical 5,500% increase from the 1,800 crabs caught just two years earlier in 2019.”

Figure 4: The European Green Crab, *Carcinus maenas*.
Photo credit: Allie Simpson, Northwest Straits

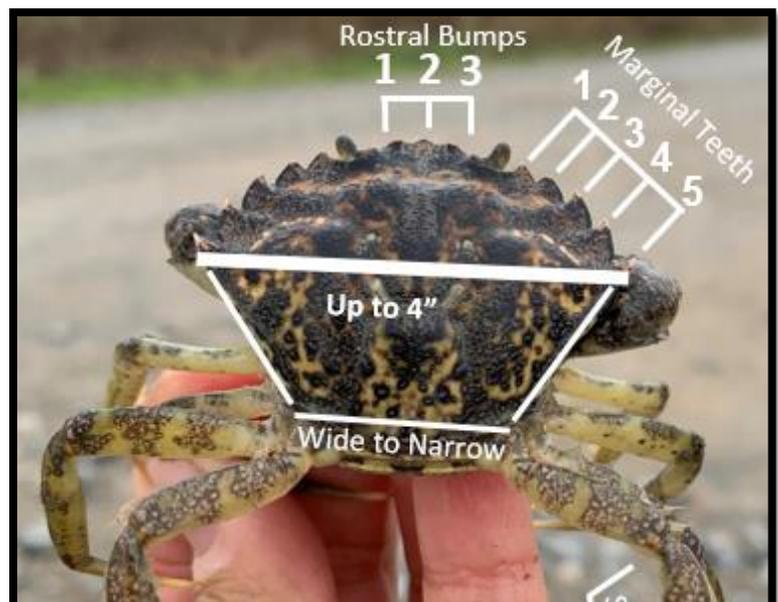
Most recently, in May 2022, a male European green crab was found in Hood Canal. The Puget Sound Institute (Dunagan 2022) stated, “The discovery of a green crab in Central Hood Canal was fairly shocking for those involved. Despite an extensive trapping effort, green crabs had never been spotted in Central or South Puget Sound, and this green crab in Hood Canal was more than 30 miles by water to the nearest confirmed sighting.” This finding came after an emergency order issued by Washington Governor Jay Inslee, in January 2022. The order called for the Washington Department of Fish and Wildlife to develop a statewide plan of action to prevent the European green crab from becoming permanently established in Washington waters. The plan will involve multiple agencies including the Department of Ecology, the Department of Natural Resources, the State Parks and Recreation Commission, Washington Tribes, and Indigenous peoples.

What can you do about the European green crab?

According to Salish Magazine (Robison & Gunnell 2022), “The best way for community members to help prevent expansion of the species in the Salish Sea is to be the ‘Eyes-on-the-Beach’ as you spend time along the coastline. The best places to look for evidence of European green crabs are intertidal areas with protective structure like vertical banks, intertidal vegetation, or hard debris such as shell, riprap and pilings, or logs. How do you know if you found an invasive green crab and not one of the many other native Salish Sea crab species? Count the spines! If it is a green crab, it will have five spines or marginal teeth on the outside of each eye. An easy way to remember this is **the word G-R-E-E-N has five letters.**”

Figure 5: The European Green Crab Is not always green. Some have a multi-colored mottled pattern and often have yellow, orange, or a red color.

Image Credit: Washington Department of Fish & Wildlife



If you do happen to find a European green crab, please do not remove it. **It is illegal to possess a live European green crab in Washington.** In addition, the Washington Department of Fish and Wildlife is asking the public not to kill suspected European green crabs since several native crabs are also green and may be identified incorrectly.

The Washington Department of Fish and Wildlife has teamed up with the Washington Sea Grant program at the University of Washington to lead a citizen science-based early detection and monitoring program along inland Washington shorelines. If you find a suspected European green crab or its shell in Washington, document the size of the crab by placing it next to a common object and take several photos from different angles and distances. Note your location and email all photos and detailed information as soon as possible to the Washington Sea Grant program at: crabteam@uw.edu. You can also report your sighting directly to the Washington Department of Fish and Wildlife on their website at: [Report an Invasive Species Occurrence](#) , or download the Washington Invasive Species app, available in your phone's app store. To see more photos and identifying features of the European green crab compared to other native species, download the Washington Sea Grant's [Crab Identification Guide](#) or download the [flyer from the Washington Department of Fish and Wildlife](#). If you are interested in receiving the Crab Team Newsletter or volunteering as a community scientist to help monitor and trap European green crabs, you can find more information on the Washington Sea Grant's website at: <https://wsg.washington.edu/crabteam/greencrab/>.

Want to learn more about Dungeness crab?

For a broader picture of Dungeness crab across the region including the life history of Dungeness crab, the management of the Dungeness crab fishery, Tribal Treaty Rights, and the goals and mission of the PNW Crab Research Group, please watch this informative webinar: [Dungeness crab in the Salish Sea](#). This talk also discusses the Larval Crab Monitoring Network and the implications of new information emerging from this collaborative effort.

Bibliography

- Arksey, L. (2008, May 1). *Sequim and the Sequim-Dungeness Valley -- thumbnail history*. Sequim and the Sequim-Dungeness Valley -- Thumbnail History. Retrieved July 1, 2022, from <https://www.historylink.org/File/8555#:~:text=The%20actual%20settlement%20of%20New%20Dungeness%20dates%20from,profited%20from%20the%20capabilities%20of%20their%20modest%20port.>
- Brasseale E, Grason EW, McDonald PS, Adams J, MacCready P (2019) Larval transport modeling support for identifying population sources of European green crab in the Salish Sea. *Estuaries and Coasts*. Vol 42:1586-1599. DOI: <https://doi.org/10.1007/s12237-019-00586-2>
- Dufault, A., Bosley, K., Velasquez, D., Sund, D., Nordstrom, K., Maurstad, C. J., & Chadwick, C. D. (2021, April 26). *2019-21 WDFW Puget Sound Dungeness Crab Fishery Report*. wdf.wa.gov. Retrieved July 1, 2022, from https://wdfw.wa.gov/sites/default/files/about/advisory/psrcsac/2019-20_crabreport_final.pdf
- Dunagan, C. (2022, July 1). *Green Crabs in Hood Canal raise questions about invasion; further response is coming*. Puget Sound Institute. Retrieved July 7, 2022, from <https://www.pugetsoundinstitute.org/2022/07/green-crabs-in-hood-canal-raise-questions-about-invasion-further-response-is-coming/>
- Hume, R. (2016, May 2). *Word Nerd*. Discover Our Coast. Retrieved July 1, 2022, from <https://www.discoverourcoast.com/coast-weekend/>
- Johnstone, E. (2022, June 20). *We need all hands on deck to slow the spread of European Green Crab*. Northwest Treaty Tribes. Retrieved July 1, 2022, from <https://nwtreatytribes.org/we-need-all-hands-on-deck-to-slow-the-spread-of-european-green-crab/>
- Kuhnlein, H. V., & Humphries, M. M. (2017). *Crabs General Ethnography*. Traditional Animal Foods of Indigenous Peoples of Northern North America. Retrieved July 1, 2022, from <http://traditionalanimalfoods.org/marine-invertebrates/crustaceans/page.aspx?id=6518#dung-b>
- Nash, M. (2022, June 1). *Green crab making inroads into Hood Canal*. Peninsula Daily News. Retrieved June 1, 2022, from <https://www.peninsuladailynews.com/news/green-crab-making-inroads-into-hood-canal/>
- Northwest Straits Foundation. (2021a, June 18). *Derelict Gear*. NW Straits Foundation.org | partners in marine conservation. Retrieved July 1, 2022, from <https://nwstraitsfoundation.org/derelict-gear/>

Northwest Straits Foundation. (2019, July 18). *Derelict Crab Pot Removal & Prevention Project*. NWStraitsFoundation.org | partners in marine conservation. Retrieved July 1, 2022, from <https://nwstraitsfoundation.org/project/derelict-crab-pot-removal-prevention-project/#:~:text=More%20than%2012%2C000%20crab%20pots%20are%20lost%20and,pots%20through%20targeted%20removals%2C%20research%2C%20education%20and%20outreach.>

Northwest Straits Foundation. (2021b, August 5). *Tips and tricks to catch more crab!* NWStraitsFoundation.org | partners in marine conservation. Retrieved July 1, 2022, from <https://nwstraitsfoundation.org/project/recreational-crabbing-resources/>

Puget Sound Restoration Fund. (2021). *Dungeness Crab*. Pacific Northwest Crab Research Group. Retrieved July 1, 2022, from <https://www.pnwcrab.com/about-dungeness-crab>

Robison, L., & Gunnell, C. (2022, June 17). *Invasive European Green Crab in the Salish Sea*. Salish Magazine. Retrieved July 6, 2022, from <https://salishmagazine.org/european-green-crab/>

Ryan, J. (2022, January 27). *These small green crabs are invading Puget Sound shores*. KUOW. Retrieved July 1, 2022, from <https://www.kuow.org/stories/nearly-3-000-european-invaders-found-on-puget-sound-shores-they-re-crabs>

Ryan, J. (2022, June 21). *60K green crabs captured in Washington Waters so far in 2022*. KUOW. Retrieved July 1, 2022, from <https://kuow.org/stories/60k-green-crabs-captured-in-washington-waters-so-far-in-2022>

Simpson, A. (2022). *European Green Crab*. Northwest Straits Commission. Retrieved July 1, 2022, from <https://www.nwstraits.org/our-work/european-green-crab/#:~:text=European%20Green%20Crab%2C%20considered%20one%20of%20the%20world%E2%80%99s,trapping%20efforts.%20Allie%20Simpson%20Ecosystem%20Project%20Coordinator%20simpson%40nwstraits.org>

Sobocinski, K. L. (2021, May). *The State of the Salish Sea*. Western CEDAR. Retrieved July 1, 2022, from <http://doi.org/10.25710/vfhb-3a69>

The Kitsap. (2022, May 31). *Invasive European green crab found in Kitsap County's Hood Canal*. The Kitsap. Retrieved July 1, 2022, from <https://thekitsap.com/2022/05/31/invasive-european-green-crab-found-in-kitsap-countys-hood-canal/>

USGS. (2022, March 3). *Invasive green crabs pose threat to Washington's shellfish industry and tribal culture: U.S. geological survey*. USGS science for a changing world. Retrieved July 1, 2022, from <https://www.usgs.gov/news/science-snippet/invasive-green-crabs-pose-threat-washingtons-shellfish-industry-and-tribal>

Washington Department of Fish and Wildlife. (2022). *Dungeness crab*. Species & Habitats. Retrieved April 10, 2022, from <https://wdfw.wa.gov/species-habitats/species/cancer-magister#regs-seasons>

Washington Department of Fish and Wildlife. (2022). *European Green Crab*. Species & Habitats. Retrieved April 10, 2022, from <https://wdfw.wa.gov/species-habitats/invasive/carcinus-maenas>

Washington Governor Jay Inslee News & Media. (2022, January 19). *Inslee issues green crab infestation proclamation*. Washington Governor Jay Inslee. Retrieved July 20, 2022, from <https://www.governor.wa.gov/news-media/inslee-issues-green-crab-infestation-proclamation>

Washington Sea Grant. (2022). *Invasive European Green Crab*. University of Washington College of the Environment. Retrieved July 1, 2022, from <https://wsg.washington.edu/crabteam/greencrab/>

Witmer, S. (2009, January 5). *Start of the Dungeness Spit*. Earth Science Picture of the Day. Retrieved July 1, 2022, from <https://epod.usra.edu/blog/2009/01/start-of-the-dungeness-spit.html#:~:text=The%20spit%2C%20at%20one%20time,the%20same%20name%20in%20England.>



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