

European Green Crab Increase Concerns



A cooler full of invasive European green crabs trapped by WDFW and Lummi Nation co-managers in 2021.

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Emergency actions needed to manage green crabs

Gov. Jay Inslee [issued](#) an emergency [proclamation](#) on Jan. 19, 2022 to address the exponential increase in European green crab populations within the Lummi Nation's Sea Pond and outer coast areas.

The Washington Department of Fish and Wildlife (WDFW) is requesting \$8,568,000 from the Legislature during the 2022 supplemental session to control increasing green crab populations.

The European green crab (*Carcinus maenas*) is a globally damaging invasive species that poses a threat to Washington's economic, environmental, and cultural resources as well as tribal treaty rights.

WDFW's Aquatic Invasive Species Unit has determined that the \$2.3 million appropriated by the 2021 State Legislature for European green crab management in the 2021–23 biennium is not sufficient to successfully control these exploding populations. This poses an imminent danger of these invasive crabs seriously threatening the environment, economy, and human well-being of Washington state.

WDFW worked with the Governor's office, the [Office of Financial Management](#), tribal co-managers including the [Lummi Nation](#), [Makah Tribe](#), and others including [Washington Invasive Species Council](#) and [Washington Sea Grant](#) on this legislative request. In this request, \$4,573,000 would pass through to the Lummi Nation, Makah Tribe, and other partners, and WDFW would use the remaining \$3,995,000.

Of the \$8,568,000 emergency funding request, \$2,472,000 would be used to implement highest priority emergency management actions this fiscal year, including increased European green crab population control actions at the Lummi Sea Pond. In fiscal year 2023, the remaining \$6,096,000 would support continued green crab emergency management actions.

Working with partners, WDFW also seeks to ramp up outreach to affected stakeholders including the shellfish industry, local communities, and the public to support green crab identification, monitoring, and reporting.



WDFW staff and partners prepare to deploy traps for European green crabs at Drayton Harbor near Blaine.

Emergency Funding Supports Emergency Actions

WDFW is working with tribal co-managers, Washington Sea Grant, local, state, and federal agencies, shellfish growers and others on comprehensive short- to long-term actions needed to control European green crab populations, including:

Short-term (FY22 - January to June 30, 2022)

- \$8,568,000 emergency funding request to State Legislature
- Hire, train, and equip staff to assist Lummi Nation trapping in April
- Hire, train, and equip staff to begin coastal trapping starting in May
- Hire and train staff for community outreach starting in April
- Develop and begin implementing rapid response, coastal, and statewide grant funding programs
- Coordinate development of policy forum for regional strategy

Mid-term (FY23 - July 1, 2022, to June 30, 2023)

- Continue implementation of European green crab trapping efforts
- Continue implementing rapid response, coastal, and statewide grant funding programs
- Policy development of long-term regional action plans

Long-term (BN23-25)

- Propose 2023-25 biennium funding to state legislature
- Implement long-term regional action plans

European Green Crab Impacts

European green crabs are voracious predators and can have devastating impacts to native species and habitats as documented in their global invasion history. In the Pacific Northwest, those impacts include predation on shellfish and destruction of critical habitat such as eelgrass beds and estuary marshes.

These ecological impacts could significantly impact juvenile Dungeness crab populations, salmon recovery, Southern Resident killer whale recovery, shorebird food supply, and ultimately affect the overall health and resiliency of Puget Sound. Of equal importance, these impacted natural resources are part of the cultural identity of tribes and people of Washington and disproportionately affect endangered species, tribal treaty and cultural resources, small businesses, and low-income communities.

Lummi Sea Pond Infestation

The Lummi Sea Pond (LSP) is located on Lummi Nation sovereign lands and WDFW has provided significant technical and funding support to the tribe in managing this situation since first detection in 2019. The LSP is a 750-acre diked intertidal area within Lummi Bay created in the 1970s to support Lummi fish and shellfish aquaculture programs.

For more information

<https://wdfw.wa.gov/egc>

<https://wdfw.medium.com/european-green-crab-increase-warrants-emergency-actions-b5f34ddd853>

<https://wsg.washington.edu/crabteam/greencrab/>

<https://www.lummi-nsn.gov/Website.php?PageID=845>

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Aerial of Lummi Sea Pond and EGC trapping locations for the week of Oct. 8, 2021. Larger dots represent higher catch rates.

European green crabs were first documented in the Salish Sea at Sooke Basin, British Columbia in 2012, in the San Juan Islands in 2016, and in Lummi Bay in 2019. Original infestation of the Lummi Sea Pond is assumed to be from outer-coast larval settlement into the pond. With more than 86,000 European green crabs captured in 2021, the European green crab population in the LSP represents exponential growth since 2020 and an imminent danger to the Lummi Nation and greater Salish Sea ecosystem.

On Nov. 23, 2021, the Lummi Indian Business Council passed a resolution declaring the green crab invasion a disaster. The resolution details the immediate and significant threat of green crabs, establishes a Lummi task force to play a leading role in confronting the invasion, and highlights the need for resources to support the development and implementation of a comprehensive response strategy.

Action Area	2019 Captures	2020 Captures	2021 Captures *
Drayton Harbor	38	253	146
Lummi Bay	23	5	0**
Lummi Sea Pond	41	2,670	86,028

*Number captures pending final analysis; ** no effort

In 2021, WDFW began supporting the Lummi Nation in May with maximum cooperative trapping effort applied in September and October as capture numbers rose dramatically over the summer. Staff resources dedicated to LSP efforts included three Lummi Nation staff and up to six WDFW staff pulled from coastal and Salish Sea EGC efforts. Combined Lummi/WDFW equipment included up to 500 traps and three watercrafts. During this period, capture rates averaged around 10,000 green crabs per week.

In context of management scale, the aerial overlay to the left shows the outline of the LSP superimposed over Capitol Lake in Olympia. If those 500 traps were spaced evenly throughout the 750-acre LSP, coverage would be only one trap per 1.5 acres or basically one trap per city block — a level that does not provide effective green crab population control.

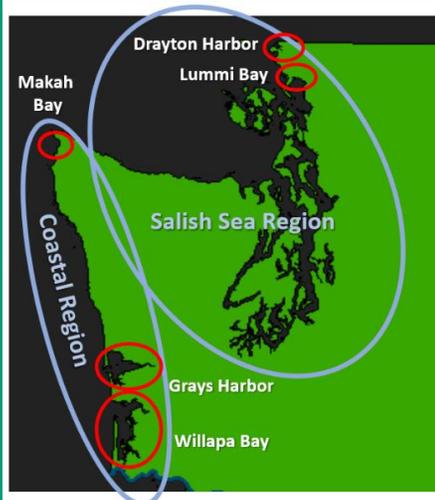


Outline of the 750-acre Lummi Sea Pond overlaid upon Capitol Lake in Olympia.

Based on our experience and data shared by the Lummi Nation, WDFW concludes:

- European green crabs are well-distributed across the LSP, composed of multiple age classes, and are successfully reproducing.
- Control of the LSP green crab population is still feasible.
- Failure to quickly respond to the LSP population could result in rapid loss of green crab management control in the Salish Sea as a whole.
- Full deployment of Lummi and WDFW resources during September and October were not sufficient to see reduction in populations. WDFW cannot sustain full deployment at the LSP under present resources as it would significantly enhance green crab invasion risks and harm statewide.

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European green crab Salish Sea and Coastal region management areas (larger blue circles) and current intensive management areas (smaller red circles).

Coastal Infestation

Coastal capture data alone does not provide the full picture as 2021 numbers in the table below are mostly reflective of the WDFW’s focus on assessing marginal habitat and filling in gaps to gauge the extent of European green crab invasion instead of focusing regional trapping efforts towards catching the most green crabs possible.

However, a significant portion of the green crabs caught during the season came from a few targeted removals in “hotspot” areas. For example, at the end of the season, WDFW, in coordination with the Shoalwater Bay Tribe, Pacific County, and Washington Sea Grant (WSG) captured ~2,000 crabs for a two-night effort in Tokeland area and WDFW, in coordination with WSG, captured ~1,300 crabs in a two-night effort at Ocean Shores. This is similar to catch-per-unit effort we saw at the LSP, which is why we believe there has been exponential growth in these coastal areas since 2020.

The Makah Tribe’s trapping efforts in 2021 were also limited in focusing on research, and COVID prevented enhanced support from WDFW.

Action Area	2019 Captures	2020 Captures	2021 Captures *
Grays Harbor	150	857	4,434
Willapa Bay	176	1,517	10,366
Makah Bay	1,441	1,072	1,460

*Number captures pending partner submission and final analysis.

Based on our experience and data shared by coastal co-managers and partners, WDFW concludes:

- European green crabs are well-distributed across these basins, composed of multiple age classes, and warming waters are creating more opportunity for larval invasion from other west coast populations.
- Control of European green crab in coastal areas is still feasible but likely requires re-focusing efforts on protection of sensitive habitat areas and aquaculture resources.
- Failure to control protected resource areas could result in rapid loss of habitat for critical species and impacts to aquaculture products.
- Current funds provide only two seasonal technicians to support WDFW and one for Washington Sea Grant, which are not sufficient for effective population control across the coastal region.



A large male European green crab. These crabs are not always green and can easily be misidentified by members of the public. Photo by Allen Pleus, WDFW.

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