

2021 South Sound Science Symposium Project Summary

Title: Light Trap Monitoring for Larval Dungeness Crab

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Project websites: South Sound Light Trap <http://pacshell.org/light-trap.asp>, Pacific Northwest Crab Research Group <https://www.pnwcrab.com/>

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Additional links to presentations, publications, posters: none

Project Summary: Adult Dungeness crab populations in South Puget Sound have declined significantly in recent years, with combined State and Tribal harvest in Marine Area 13 peaking in 2012 at 214,404 pounds but falling to only 31,116 pounds in 2016 (WDFW). The South Sound Dungeness crab fishery has been closed since 2018 to allow adult populations to recover. Led by Treaty Tribes and supported by a number of State and Federal agency shellfish biologists, academic, NGO, and community partners, the Pacific Northwest Crab Research Group (PCRG) was formed in late 2018 to fill critical data gaps for Dungeness crab fisheries in Puget Sound. A collaborative light trap monitoring program for larval Dungeness crab was developed by PCRG, and includes a South Sound light trap. The South Sound light trap was first deployed in April 2019 at Zittel's marina located in the Nisqually Reach. The trap fishes every night with an automated timer, April – September, and is monitored every two days for Dungeness megalopae and instars by a committed team of biologists and volunteers. In 2019, a total of 15 megalopae were caught, beginning June 5th, and ending on August 11th, with a maximum daily abundance of two megalopae. In 2020, a total of 47 megalopae were caught from June 12th to June 26th, with a maximum daily abundance of 15 megalopae. An increase in all size metrics of Dungeness crab megalopae; carapace width (+17%), carapace height (+17%), and total height (+7%), occurred between 2019 and 2020. The figure illustrates the total larval Dungeness crab catch per unit effort (CPUE) for all traps fished in 2020. Zittel's marina had the lowest catch at <1 CPUE followed by the Hood Canal trap (GAR) at <1.5 CPUE. In contrast, the other eight PCRG trap locations ranged from 5 CPUE at Suquamish (APS) to >90 CPUE at Port Gamble (LOF), >250 CPUE at Rosario Beach (ROS) and >300 CPUE in Port Townsend (PTW).

Through the PCRG collaboration, improvements to methods and standardization among the light trapping network will be applied to the South Sound trapping effort for the 2021 season. Larval samples will be preserved this season for genetic analyses to further investigate the South Sound population. The South Sound light trap is supported by the Nisqually Indian Tribe, WDNR Aquatic Reserves Program, Nisqually Reach Nature Center, and Pacific Shellfish Institute. Additional funding to support monitoring, outreach, and educational materials is provided by the Keta Legacy Foundation and the Squaxin Island Tribe.

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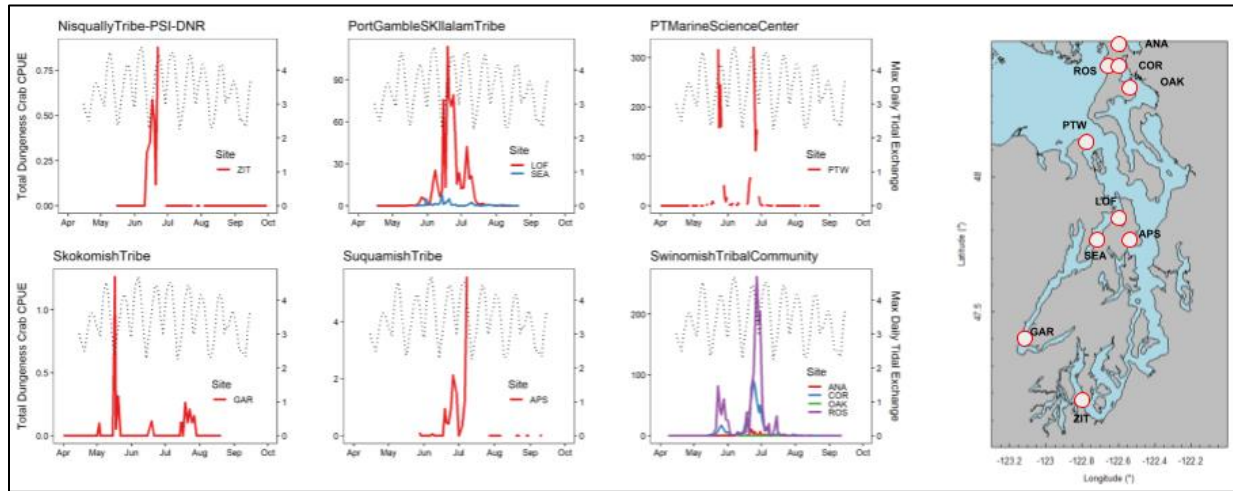


Figure. Larval crab catch per unit effort (CPUE) for 2020 monitoring season for all PCRG light traps. Location of light trap stations indicated on map. Note that the CPUE scale is distinct for each graph given the variability in catch across stations. Data collected and contributed by PCRG members: Port Gamble Tribe, Jamestown S’Klallam Tribe, Port Townsend Marine Science Center, Skokomish Tribe, Suquamish Tribe, Swinomish Tribal Community, Nisqually Tribe, WDNR Aquatic Reserves, Nisqually Reach Nature Center and Pacific Shellfish Institute. Figure credit attributed to PCRG.