

OREGON DEPARTMENT OF FISH AND WILDLIFE REPORT ON
HARMFUL ALGAL BLOOMS (DOMOIC ACID) IN INTEGRATED ECOSYSTEM
ASSESSMENT REPORT

Oregon Department of Fish and Wildlife (ODFW) is appreciative of the valuable information included in the 2019 California Current Ecosystem Integrated Ecosystem Assessment Report (Agenda Item E.1.a; IEA Team Report 1; March 2019). Also appreciated is the effort expended by the Integrated Ecosystem Assessment (IEA) team to modify and improve the 2019 Report per suggestions and guidance provided at the March 2018 PFMC meeting (Agenda Item F.1.a; NMFS Report 1; March 2018). As a result of this guidance, Harmful Algal Blooms has been added as a new metric of ecosystem function in the 2019 Report. The report describes domoic acid levels in razor clams from coastal sites in Washington, which experienced no razor clam fishery impacts from the below-threshold levels of domoic acid in 2018. ODFW offers data for domoic acid levels in razor clams from coastal sites in the Oregon, as well as description of 2018 fishery impacts in Oregon from domoic acid levels in razor clams and Dungeness crab, to augment the 2019 Report.

Domoic Acid Levels in Razor Clams in Oregon (1991-present)

Domoic acid levels in razor clam tissues from Oregon sites have been documented since the early 1990's (Figure 1), providing managers with a long-term time series of bioaccumulation of domoic acid biotoxin in this commercially and recreationally harvested species. The time series shows several peaks over the past 3 decades, and the recent 4 years exhibiting continuous, elevated domoic acid levels as high as or higher than any peaks seen in the decades prior.

Fishery Impacts from Domoic Acid Bioaccumulation in Harvested Species

In 2018, razor clam harvesting experienced several closures due to domoic acid (DA) accumulation above the Federal Drug Administration (FDA) alert level of 20 ppm for razor clam tissue. Most of the Oregon coast, from Cascade Head to the Oregon-California border was closed at the end of 2017 and that closure extended until DA levels fell below the alert level in the middle of April 2018 in the section from the Umpqua River south to Cape Arago. The remainder of 2018 was a series of fishery openers and closures, by time and area, as the domoic acid levels in razor clam tissue samples required actions to protect public health. The section of coast from Cape Blanco to the Oregon-California border was closed to razor clam harvest in 2018 and has been since August 29, 2014, due to domoic acid biotoxin levels.

In 2018, Dungeness crab harvest also experienced interruptions due to domoic acid (DA) detections above the Federal Drug Administration (FDA) alert level of 30 parts per million (ppm) for crab viscera. These detections occurred in both the early and late part of the year, affecting both the recreational and commercial Dungeness crab fisheries in Oregon. For the commercial ocean Dungeness crab fishery, both the opening of the 2017-18 and the 2018-19 commercial seasons (run from December to August) were delayed in part due to elevated domoic acid detected in crab viscera detected from the central and southern portions of the coast. Elevated viscera results were also detected once the 2017-18 crab season opened from the southern portion of the coast, which required all crab harvested for commercial purposes to be eviscerated for a period of time.

The recreational crab fishery was closed in all of these same areas and times when domoic acid was detected above 30 ppm in crab viscera.

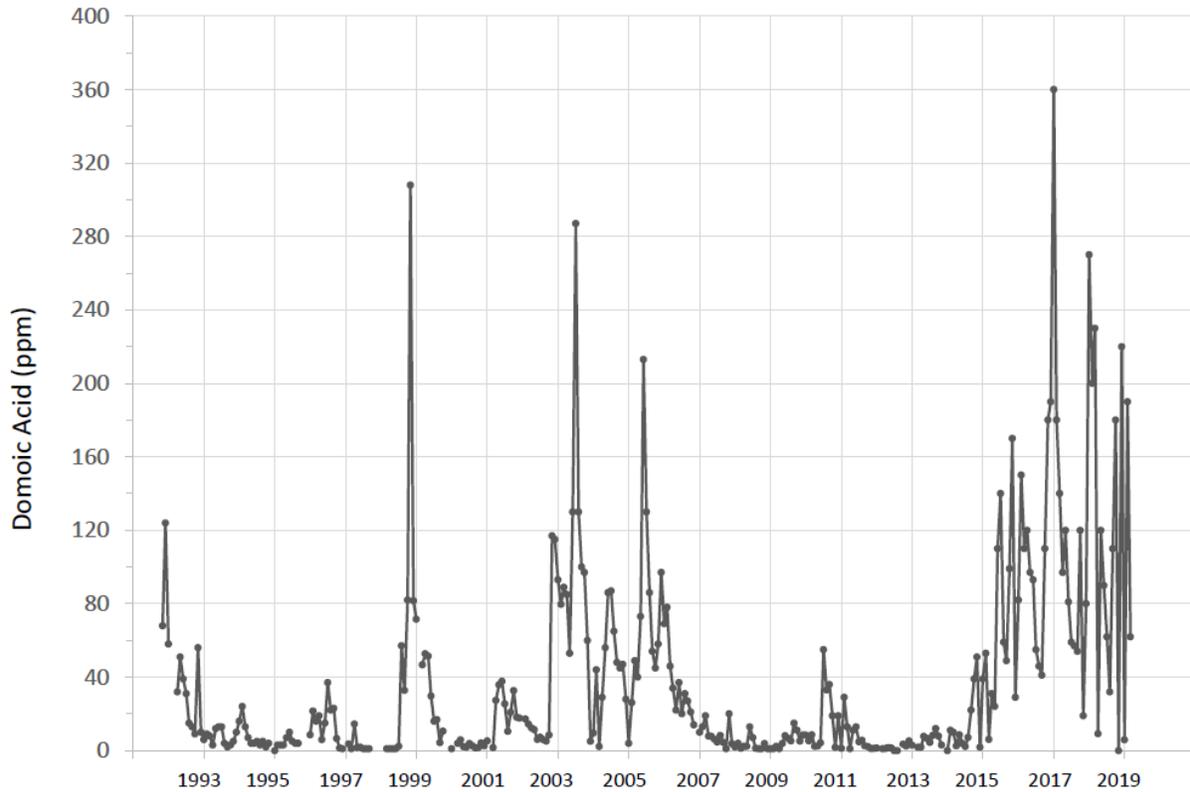


Figure 1. Monthly maximum level of domoic acid (parts per million; ppm) measured in razor clam tissues from sites in Oregon from 1991-2019. Tissue sampling design is to collect tissue twice monthly from multiple sites across the Oregon coast, year-round. Federal Drug Administration criterion level for human consumption of domoic acid in razor clam tissue is 20 ppm. These data are from analyses conducted by the Oregon Department of Agriculture (ODA), using High Pressure Liquid Chromatography (HPLC). Data in this graph are analogous to the data presented in the 2019 IEA Team Report for Washington (Agenda Item E.1.a; IEA Team Report1; March 2019; Figure 3.4.1, Page 8). Oregon data are available from ODA. Other biotoxins assayed by the state of Oregon include Paralytic Shellfish Poison (PSP) in razor clams and mussels.