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# Groundfish Expanded Mortality Multiyear (GEMM), 2002–18

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**U.S. DEPARTMENT OF COMMERCE**

National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
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### **Recommended citation:**

(Somers et al. 2020)<sup>1</sup>

<sup>1</sup> Somers, K. A., J. E. Jannot, V. Tuttle, K. Richerson, N. Riley, and J. T. McVeigh. 2020. Groundfish Expanded Mortality Multiyear (GEMM), 2002–18. U.S. Department of Commerce, NOAA Data Report NMFS-NWFSC-DR-2020-01.

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# **Groundfish Expanded Mortality Multiyear (GEMM), 2002–18**

Kayleigh A. Somers, Jason E. Jannot, Vanessa Tuttle,  
Kate Richerson, Neil Riley, and Jon T. McVeigh

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Fishery Resource Analysis and Monitoring Division  
Northwest Fisheries Science Center  
2725 Montlake Boulevard East  
Seattle, Washington 98112

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## Groundfish Expanded Mortality Multiyear (GEMM)

This data product includes total estimated discard, discard with discard mortality rates (DMRs) applied, landings, catch (discard and landings), and mortality (discard with DMRs applied and landings) for all species and groupings recorded in A-SHOP, WCGOP, EM, and PacFIN data for the years 2002 to 2018.<sup>1</sup> These data supercede any other reports and are considered the most current and accurate estimate of mortality. All units are metric tons (mt).

As well as adding 2018 data, values from previous years were recalculated based on updated A-SHOP, WCGOP, EM, and PacFIN data and the most current procedures for estimation. The most current DMRs approved and used by the Pacific Fishery Management Council's Groundfish Management Team are applied to species discard estimates across all years, following methods used in the 2018 groundfish mortality report (i.e., if there is a DMR applied to estimates for that species–sector–gear in Somers et al. [2019], then it will be applied to all years in this product). These analyses are described in detail in Somers et al. (2019) as well as methods described in earlier reports, and are available on the Northwest Fisheries Science Center Fisheries Observation Science web page. We also include Pacific halibut commercial catch estimates from Jannot et al. 2020a. For more information on the methods used to calculate these estimates, see Jannot et al. 2020b.<sup>2</sup>

In 2015, some portions of the catch-share fleet began using electronic monitoring rather than 100% observer coverage; catch and mortality in these sectors are reported separately from the 100% observer-monitored portions of the fleet. In 2017, WCGOP first observed the directed Pacific halibut fishery and the California sea cucumber and ridgeback prawn fisheries. Previous versions of the GEMM incorporated those landings in the “Incidental Fisheries” sector and did not estimate discards. In this version, landings were estimated for each year (2002–18), but discards were estimated only in 2017 for all three fisheries and in 2018 for the directed Pacific halibut and ridgeback prawn fisheries. 2018 discard estimates in the sea cucumber fishery are unavailable due to a low number of observed vessels.

Additionally, permitted research and recreational data are included for 2005 to 2018. Management groupings have not been applied retroactively in research mortality estimates, and nongroundfish species are reported inconsistently across research projects and should be interpreted with caution. Estimates of total catch and mortality of black rockfish, cabezon, china rockfish, and kelp greenling in the Oregon recreational fishery include data from the shore and estuary sector, which does not report discard and landed catch separately.

The GEMM data product can be downloaded from this report's [NOAA Institutional Repository](#)<sup>3</sup> record by clicking on the “Supporting Files” tab.

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<sup>1</sup> A-SHOP = At-Sea Hake Observer Program, WCGOP = West Coast Groundfish Observer Program, EM = electronic monitoring, and PacFIN = the Pacific Fisheries Information Network.

<sup>2</sup> Jannot, J. E., N. Riley, and J. T. McVeigh. 2020b. Pacific Halibut Individual Bycatch Quota Calculations for Use in the NOAA West Coast Region Individual Fishing Quota (IFQ) Program: Methods for Estimating Pacific Halibut Discards for In-season Reporting and Special Cases. U.S. Department of Commerce, NOAA Processed Report NMFS-NWFSC-PR-2020-01. <https://doi.org/10.25923/dwa2-1568>

<sup>3</sup> <https://repository.library.noaa.gov/>

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U.S. Secretary of Commerce  
Wilbur L. Ross, Jr.

Acting Under Secretary of Commerce  
for Oceans and Atmosphere  
Dr. Neil Jacobs

Assistant Administrator for Fisheries  
Chris Oliver

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