National Institute for Occupational Safety and Health (NIOSH)

Report to the

North Pacific Fishery Management Council

April 2021

INTRODUCTION

The National Institute for Occupational Safety and Health (NIOSH) is a federal agency that conducts scientific research and makes prevention recommendations to improve the safety and health of our Nation's workforce. NIOSH operates within the Centers for Disease Control and Prevention under the US Department of Health and Human Services. NIOSH does not have regulatory or enforcement authority. While NIOSH, the Occupational Safety and Health Administration (OSHA), and the US Coast Guard (USCG) each play a role in protecting commercial fishermen, they have different functions, responsibilities, and authorities.

NIOSH has conducted research on safety and health issues in the commercial fishing industry since the 1990s, focusing first on Alaska then expanding nationwide in 2007. Based on the success of its commercial fishing safety research, NIOSH created the Center for Maritime Safety and Health Studies (CMSHS) in 2015 and now conducts and supports research across a variety of maritime industries, including seafood processing, marine transportation, and shipbuilding.

RESPONDING TO THE COVID-19 PANDEMIC

CDC/NIOSH has published numerous COVID-19 resources to protect workers:

Guidance

- COVID-19 Information for the Workplace [Link]
- Importance of COVID-19 Vaccination for Essential Workers [Link]

- Essential Workers COVID-19 Vaccine Toolkit: Information for Employers and Employees [Link]
- Protecting Seafood Processing Workers from COVID-19: Interim Guidance from CDC and the Occupational Safety and Health Administration (OSHA). Developed in consultation with the Food and Drug Administration (FDA) [Link]
- Checklist for Seafood Processing Worksites: Align Your COVID-19 Assessment and Control Plan with CDC/OSHA Worker Protection Guidance [Link]
- What Maritime Pilots Need to Know About COVID-19 [Link]
- Interim Guidance for Ships on Managing Suspected or Confirmed Cases of Coronavirus Disease 2019 (COVID-19) [Link]

Webinars

- COVID-19 Prevention and Mitigation: American Bureau of Shipping and the CDC Discuss Impacts of COVID-19 in the Maritime Industry - On Demand Webinar, August 19, 2020 [Link]
- COVID-19 Testing Strategies for U.S. Merchant Mariners - U.S. Committee on the Marine Transportation System COVID-19 Working Group Webinar, November 18, 2020 [Link]
- COVID-19 Vaccines for the Marine Transportation System Workforce - U.S. Committee on the Marine Transportation System COVID-19 Working Group Webinar, March 03, 2021 [Link]

NIOSH is also participating in a COVID-19 webinar hosted by Alaska Sea Grant on April 28th, 2021 from 12:00 - 2:00 pm AKDT:

- COVID-19 webinar: Federal and State guidance and mandates for the Alaskan commercial fishing and seafood processing industries [Link]

RESEARCH AND PUBLICATIONS

- **Study examines characteristics of vessels involved in sinkings, capsizings; prior vessel casualties a risk factor.**

  Case, SL, & Lucas, DL. (2020). Predicting commercial fishing vessel disasters through a novel application of the theory of man-made disasters. Journal of safety research, 75, 51-56.

  Vessel disasters (e.g., sinkings, capsizings) are a leading contributor to fatalities in the U.S. commercial fishing industry. Primary prevention strategies are needed to reduce the occurrence of vessel disasters, which can only be done by developing an understanding of their causes and risk factors. If less serious vessel casualties (e.g., loss of propulsion, fire, flooding) are predictors of future disasters, then reducing vessel casualties should in turn reduce vessel disasters and the

accompanying loss of life. This case-control study examined the association between vessel casualties and disasters using fishing vessels in Alaska during 2010–2015. The findings show that vessels that experienced casualties within a preceding 10-year period were at increased odds of disaster. Other significant predictors included safety decal status and hull material. The results of this analysis emphasize the importance of implementing vessel-specific preventive maintenance plans. At an industry level, specific prevention policies should be developed focusing on high-risk fleets to identify and correct a wide range of safety deficits before they have catastrophic and fatal consequences.

- **Analysis examines nonfatal injuries and illnesses among Alaska's fishing workforce.**

  Syron LN, Case SL, Lee JR, & Lucas DL. (2021). Linking datasets to characterize injury and illness in Alaska's fishing industry. Journal of Agromedicine.

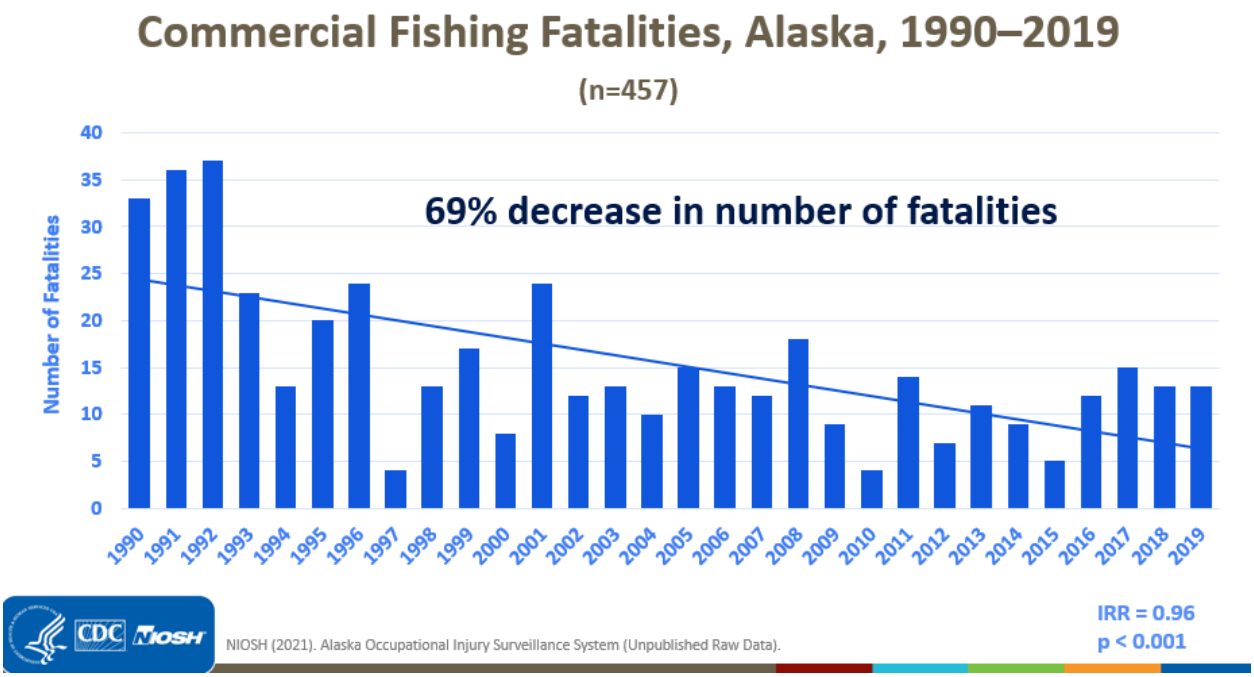
  Limited research has characterized nonfatal injury/illness in Alaska's hazardous fishing industry. This study aimed to determine (a) the utility of linking datasets to conduct surveillance, and (b) injury/illness patterns during 2012–2016. Data were obtained from the Alaska Trauma Registry (ATR), Fishermen's Fund (FF), and US Coast Guard (USCG). Datasets were coded to identify patterns in injury/illness characteristics and circumstances. Probabilistic linkage methods were utilized to identify unique incidents that appeared in more than one dataset. After linking datasets, 3,014 unique injury/illness cases were identified. By dataset, 2,365 cases appeared only in FF, 486 only in USCG, 110 only in ATR, 25 in ATR and FF, 15 in ATR and USCG, 10 in USCG and FF, and 3 in all datasets. FF mainly captured claims submitted by small, independently-owned vessels in Southcentral and Southeastern Alaska. In contrast, USCG mainly captured reports from large, company-owned vessels in Western Alaska. By nature, cases were most frequently sprains, strain, and tears (27%), cuts (15%), and fractures (11%). Across fleets, injuries/illnesses most frequently resulted from contact with objects and equipment (41%), overexertion and bodily reaction (27%), and slips, trips, and falls (20%). Work processes associated with traumatic injuries were most frequently hauling gear (18%) and walking, climbing, and descending (18%). Half of all injuries were of moderate severity (53%). Linking datasets, which capture different segments of Alaska's fishing industry, provides the most comprehensive understanding of nonfatal injury/illness to date. These results, stratified by fleet and severity, will inform prevention strategies.

FATALITY UPDATE

NIOSH developed the Commercial Fishing Incident Database (CFID) to track fatalities in the U.S. commercial fishing industry. CFID contains information for each fatal event, including characteristics of the crewmembers and vessels involved. Much of the data are abstracted from US Coast Guard investigative reports. Data from CFID has allowed NIOSH and stakeholders to identify fishery- and region-specific risks and develop relevant prevention strategies.

Trends and Patterns of Commercial Fishing Fatalities in Alaska

The following charts show historical trends and patterns of fishing deaths in Alaska. These were presented during the US Coast Guard *F/V Scandies Rose* Marine Board of Investigation in early March 2021.



1Figure 1: Commercial Fishing Fatalities, Alaska, 1990-2019. This chart shows the number of commercial fishing fatalities that have occurred in Alaska each year from 1990 through 2019. There have been 457 deaths in Alaska's commercial fishing industry over this 30-year period. Overall, the number of fatalities in the industry has decreased 69%.

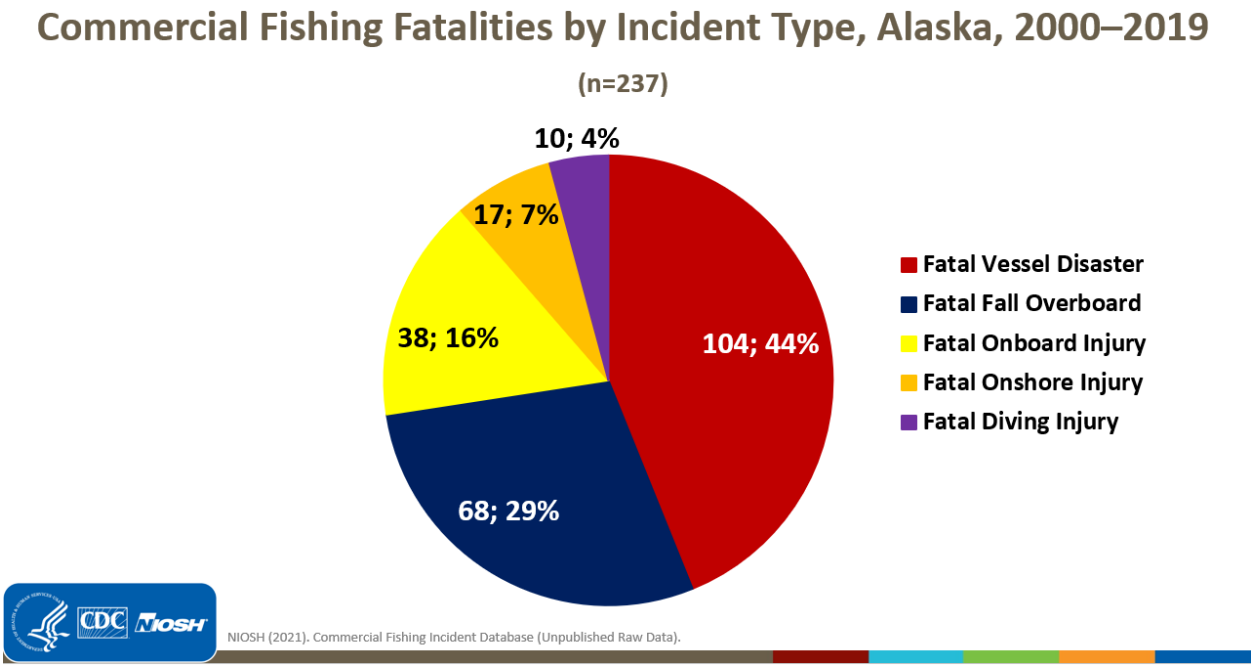


Figure 2: Commercial Fishing Fatalities by Incident Type, Alaska, 2000-2019. During the 20-year period 2000-2019, there were 237 deaths in Alaska's commercial fishing industry. Vessel disasters (e.g., sinkings, capsizings) resulted in the most deaths (44%). Falls overboard were the second leading contributor to fatalities at 29%. Onboard fatalities are those that occur on a vessel that are not related to vessel abandonment. These can be considered "operational," such as contact with equipment or machinery, as well as "non-operational," including suicides, homicides, and unintentional drug overdoses. These types of deaths represent 16% of all fishing fatalities in Alaska during 2000-2019. Onshore fatalities (e.g., falls from docks) and diving fatalities constitute 7% and 4% of all deaths during this time period, respectively.

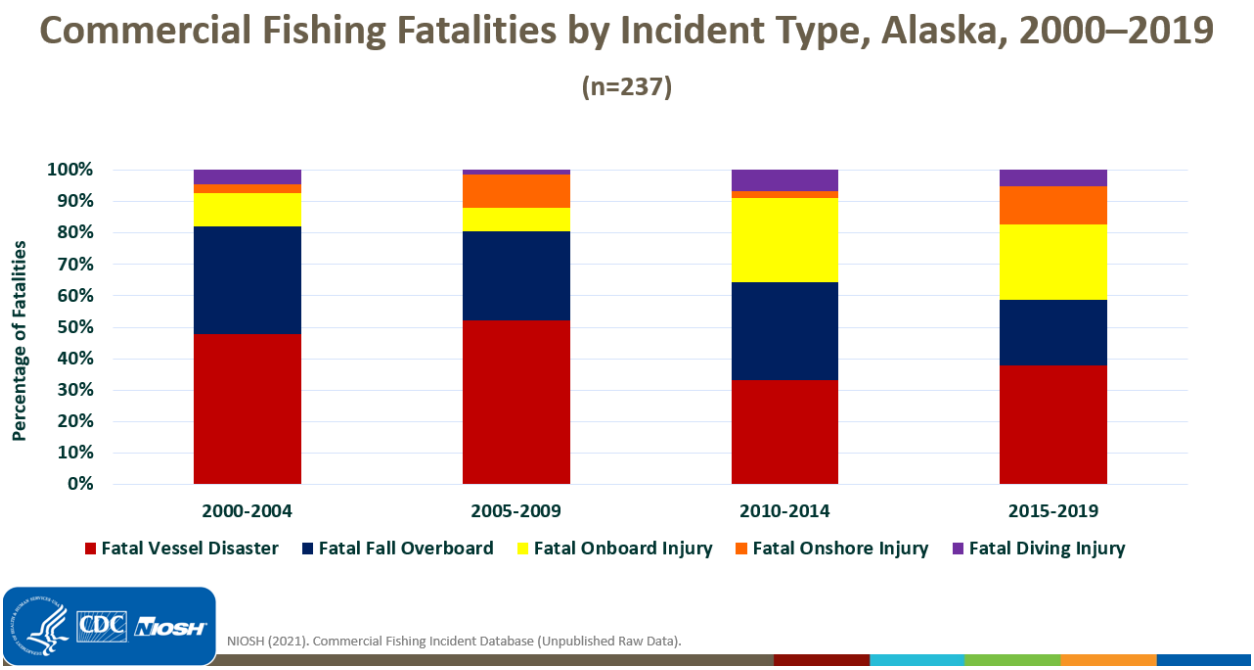


Figure 3: Commercial Fishing Fatalities by Incident Type, Alaska, 2000 - 2019. This chart shows commercial fishing fatalities in Alaska in five-year periods, with the proportion of deaths due to incident type represented by the colored bars. This allows us to see how fatalities have changed over time. For instance, in 2000-2004 and 2005-2009, vessel disasters resulted in about 50% of all fatalities during those time periods. Then in 2010-2014, vessel disasters represented a decreasing proportion of fatalities, about one-third, mostly involving skiffs rather than decked vessels. Additionally, fatal onboard injuries, shown in yellow, represent an increasing proportion of deaths. In recent years, this has been due to an increasing incidence of suicides and unintentional drug overdoses that occur on fishing vessels.

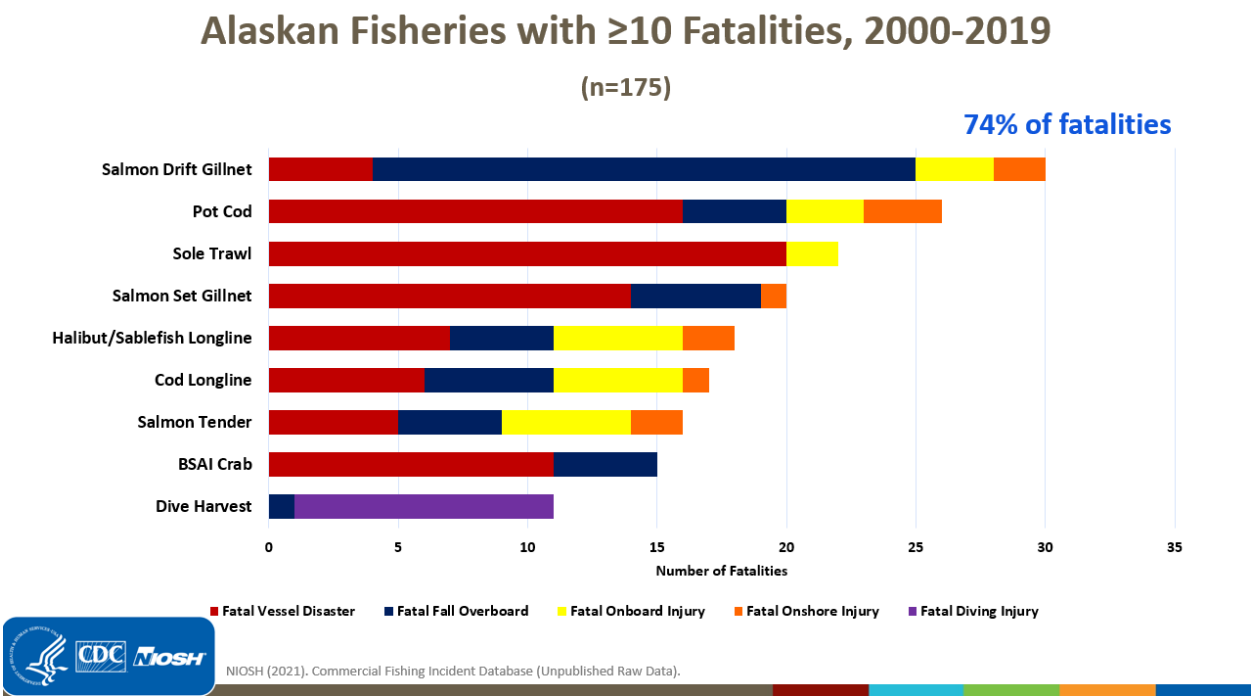


Figure 4: Alaskan Fisheries with ≥10 Fatalities, 2000-2019. This chart shows the fisheries in which fatalities occurred during 2000-2019 and the incident types that resulted in the fatalities. Seventy-four percent of Alaskan commercial fishing fatalities were attributed to the nine fisheries shown here. The fisheries with the highest number of fatalities over this period are salmon drift gillnet, pot cod, sole trawl, and salmon set gillnet.

This chart also demonstrates how risks can vary by fishery. For instance, deaths in the salmon drift gillnet fishery are largely driven by falls overboard, whereas most deaths in the salmon set gillnet fishery are the result of skiff capsizings.

Recent Fatalities in Alaska's Fishing Industry

In 2020[1], seven commercial fishing fatalities occurred in Alaska:

Incident Type	Number of Fatalities
Fatal Vessel Disaster	3
Fatal Fall Overboard	2
Fatal Onboard Injury	1
Fatal Onshore Injury	1
Fatal Diving Injury	0

CONTACT

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Relevant Links:

NIOSH Commercial Fishing Safety

NIOSH Center for Maritime Safety and Health Studies

COVID-19 Information for the Workplace

[1] 2020 fatality data are preliminary, pending validation with state and federal partners.