

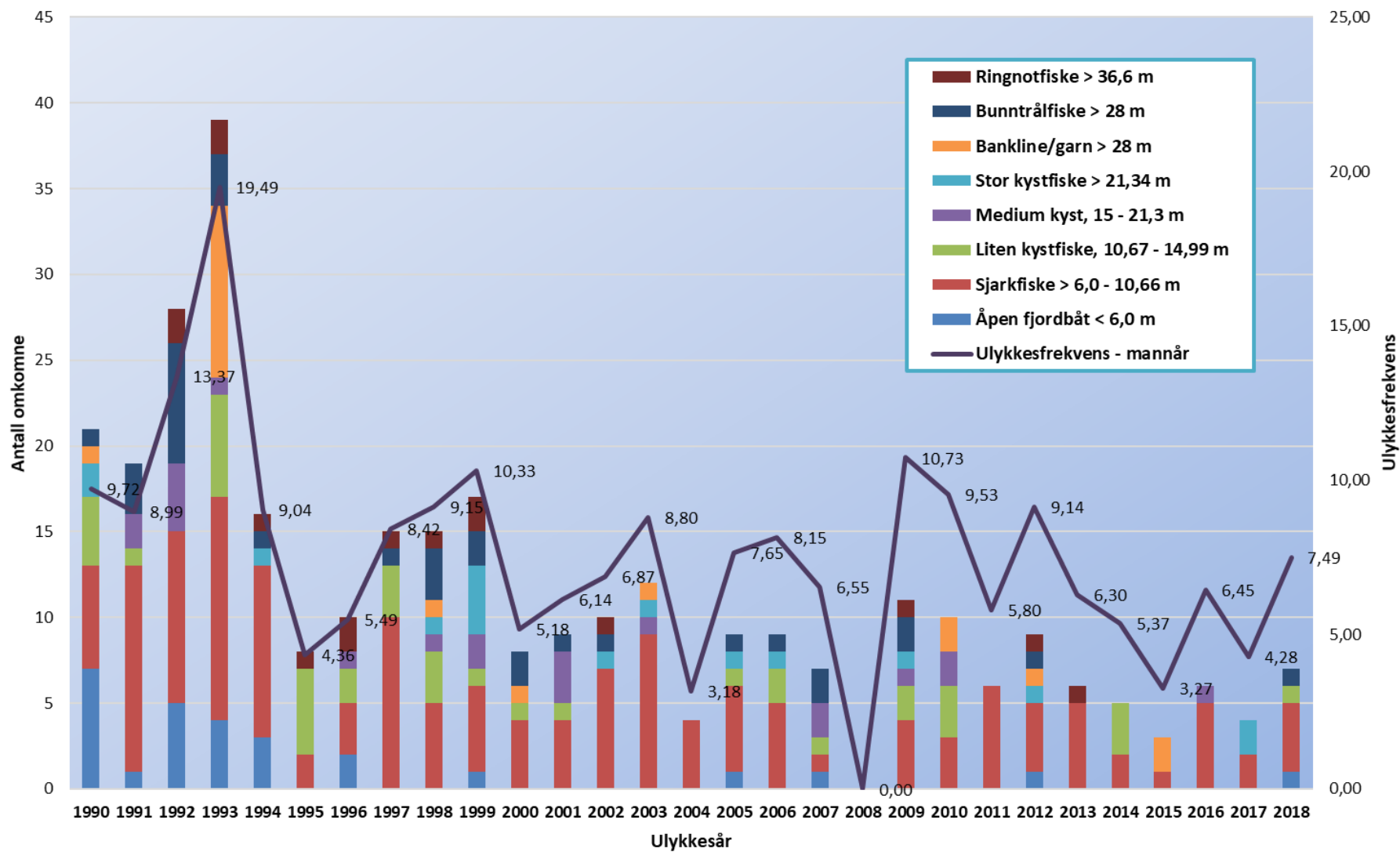
FORLIS ELLER FALL OVER BORD - FAKTORER FOR OVERLEVELSE

Ingunn M Holmen, seniorforsker i SINTEF Ocean

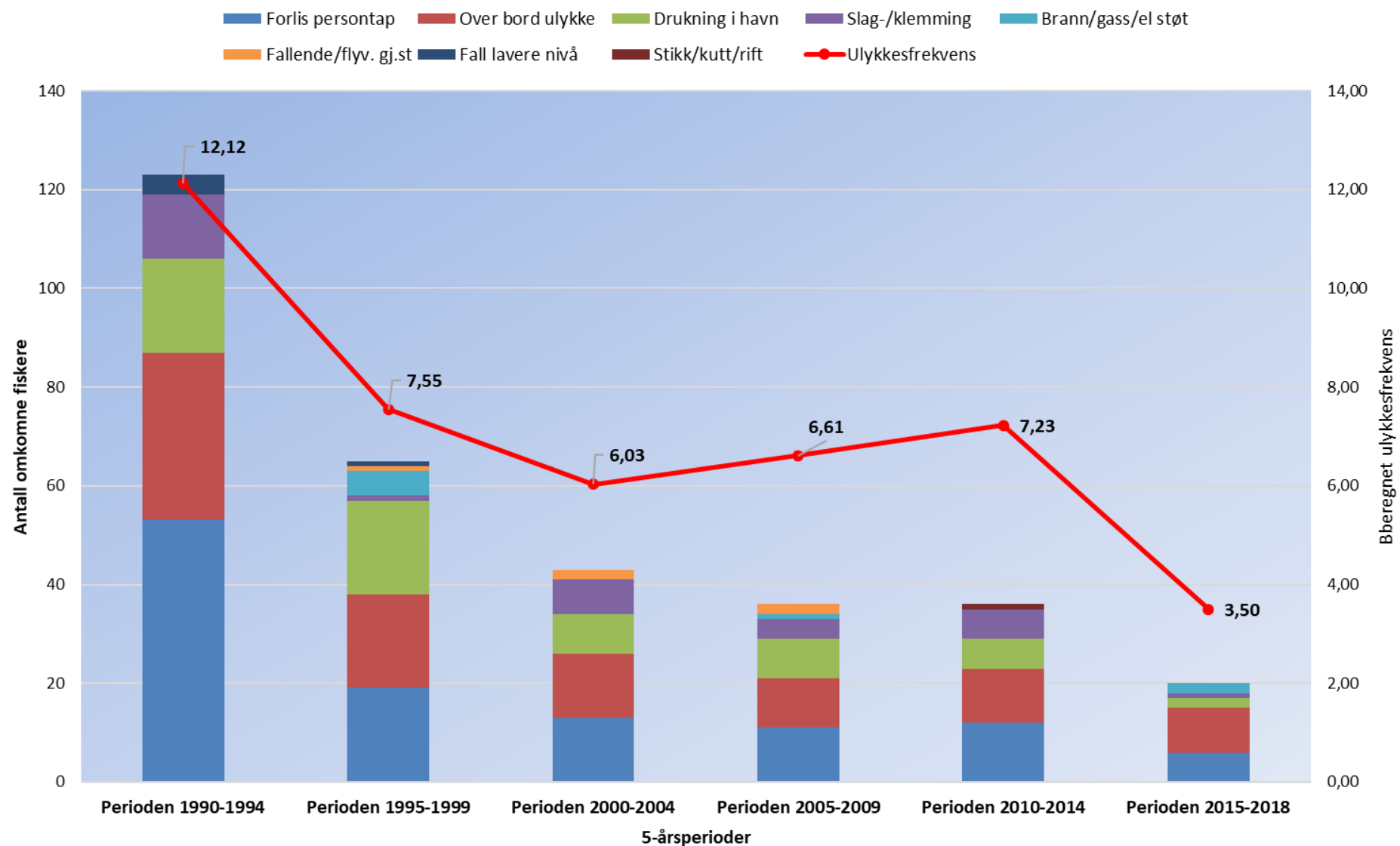
Dødsulykker i norsk fiske & fangst 1990-2018



Fiskerulykker - yrkesdød 1990 - 2018 - utvikling for åtte ulike fartøygrupper

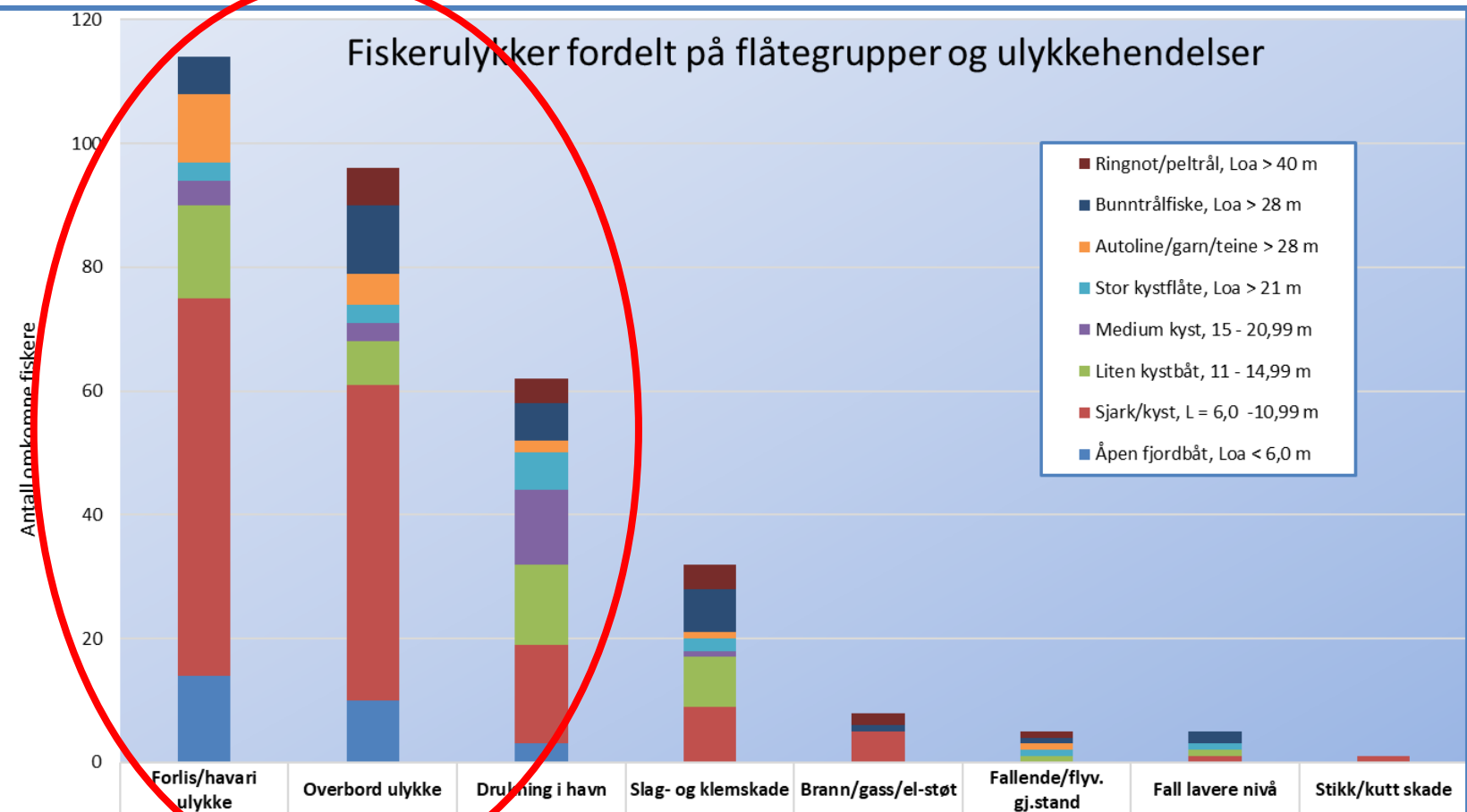


Fiskerulykker/yrkesdød i fiske & fangst fordelt på 5-årsperioder og en 4-årsperiode





Fiskerulykker fordelt på flåtegrupper og ulykkehendelser



Studie fra Alaska

Forfattere: Devin L. Lucas, Samantha L. Case, Jennifer M. Lincoln, Joanna R. Watson

National Institute of Occupational Safety and Health (NIOSH), Western States Division, Anchorage, AK, USA

Tittel: "Factors associated with crewmember survival of cold water immersion due to commercial fishing vessel sinkings in Alaska"

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Factors associated with crewmember survival of cold water immersion due to commercial fishing vessel sinkings in Alaska

Devin L. Lucas*, Samantha L. Case, Jennifer M. Lincoln, Joanna R. Watson

National Institute for Occupational Safety and Health, Western States Division, Anchorage, AK, USA

ABSTRACT

Occupational fatality surveillance has identified that fishing vessel disasters, such as sinkings and capsizings, continue to contribute to the most deaths among crewmembers in the US fishing industry. When a fishing vessel sinks at sea, crewmembers are at risk of immersion in water and subsequent drowning. This study examined survival factors for crewmembers following cold water immersion after the sinking of decked commercial fishing vessels in Alaskan waters during 2000–2014. Two immersion scenarios were considered separately: immersion for any length of time, and long-term immersion defined as immersion lasting over 30 min. Logistic regression was used to predict the odds of crewmember survival. Of the 617 crewmembers onboard 187 fishing vessels that sank in Alaska during 2000–2014, 557 (90.3%) survived and 60 died. For crewmembers immersed for any length of time, the significant adjusted predictors of survival were: entering a life-raft, sinking within three miles of shore, the sinking not being weather-related, and working as a deckhand. For crewmembers immersed for over 30 min, the significant adjusted predictors of survival were: wearing an immersion suit, entering a life-raft, working as a deckhand, and the sinking not being weather-related. The results of this analysis demonstrate that in situations where cold water immersion becomes inevitable, having access to well-maintained, serviceable lifesaving equipment and the knowledge and skills to use it properly are critical.

1. Introduction

Fishing vessel sinkings present extreme survival challenges to those involved. When a fishing vessel sinks at sea, crewmembers are at risk of immersion in water and subsequent traumatic injuries or death. Cold water immersion can cause hyperventilation, muscle tension, reduced cognitive function, and swimming failure; leading to death from drowning or hypothermia (Golden, 1973; Cooper et al., 1976; Hayward and Eckerson, 1984). Among the challenges of surviving a vessel sinking are psychological stressors, which have been shown to significantly affect decision making and response abilities, impairing chances of survival (Singer, 1982; Leach, 2004). To overcome these extreme environmental and psychological factors, crewmembers must be prepared with effective survival equipment, knowledge, and skills. High levels of emergency preparedness have not always been ubiquitous in the US fishing industry, which may have contributed to the long history of deadly vessel sinkings. During 1982–1987, an average of 108 commercial fishing fatalities occurred annually in the United States, the majority of which were due to vessel sinkings (National Research Council, 1991).

The US fishing industry is not alone in facing cold water survival

challenges when vessels sink at sea. Commercial fishing is recognized as an extremely hazardous occupation worldwide (Jensen et al., 2014). In Arctic and Nordic countries, fishermen are regularly exposed to the threat of cold water immersion (Jensen et al., 2014; Kaustell et al., 2016). Reducing the risk of exposure to cold water is relevant to the fishing industries of all northern nations.

Attempts to create safety standards for fishing vessels through federal legislation began in the 1930s, but were not successful until 1988 when the Commercial Fishing Industry Vessel Safety Act of 1988 (CFIVSA) was signed into law (Hiscock, 2002). The law required the US Coast Guard (USCG) to issue and enforce regulations for safety equipment and operating procedures on fishing vessels (USCG, 2009). Compliance with specific requirements of the law depends on the characteristics and activities of the particular vessel, such as the number and length of the vessel, area of operation, seasonal conditions, type of people on board, whether the vessel is federally documented or state registered, and the date the vessel was constructed or converted (USCG, 2009).

While the specific requirements of the CFIVSA vary based on individual vessel characteristics, in general the law requires most fishing vessels to carry survival equipment such as personal flotation devices

* Corresponding author at: NIOSH Western States Division, 4230 University Drive Suite 310, Anchorage, AK 99508, USA.
E-mail address: dlucas@cdc.gov (D.L. Lucas).

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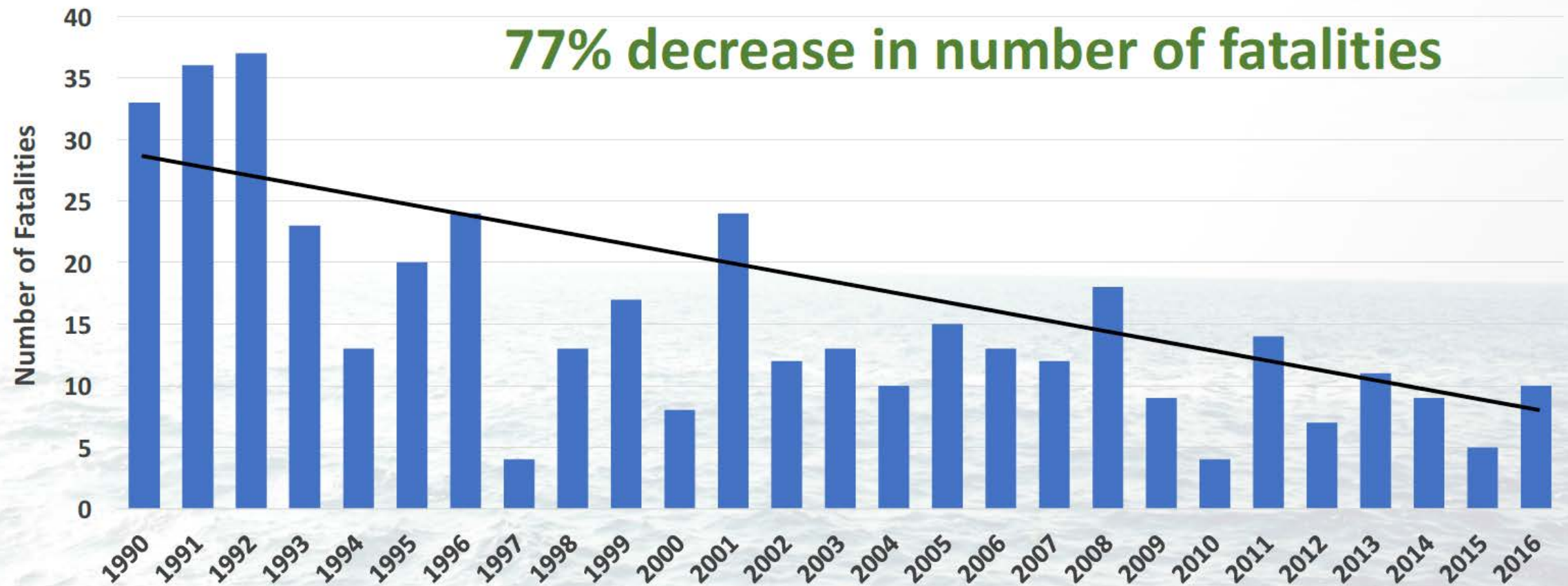
IFISH 5
June 11, 2018

Samantha Case, Jennifer M. Lincoln, Devin Lucas, Joanna Watson
National Institute for Occupational Safety and Health

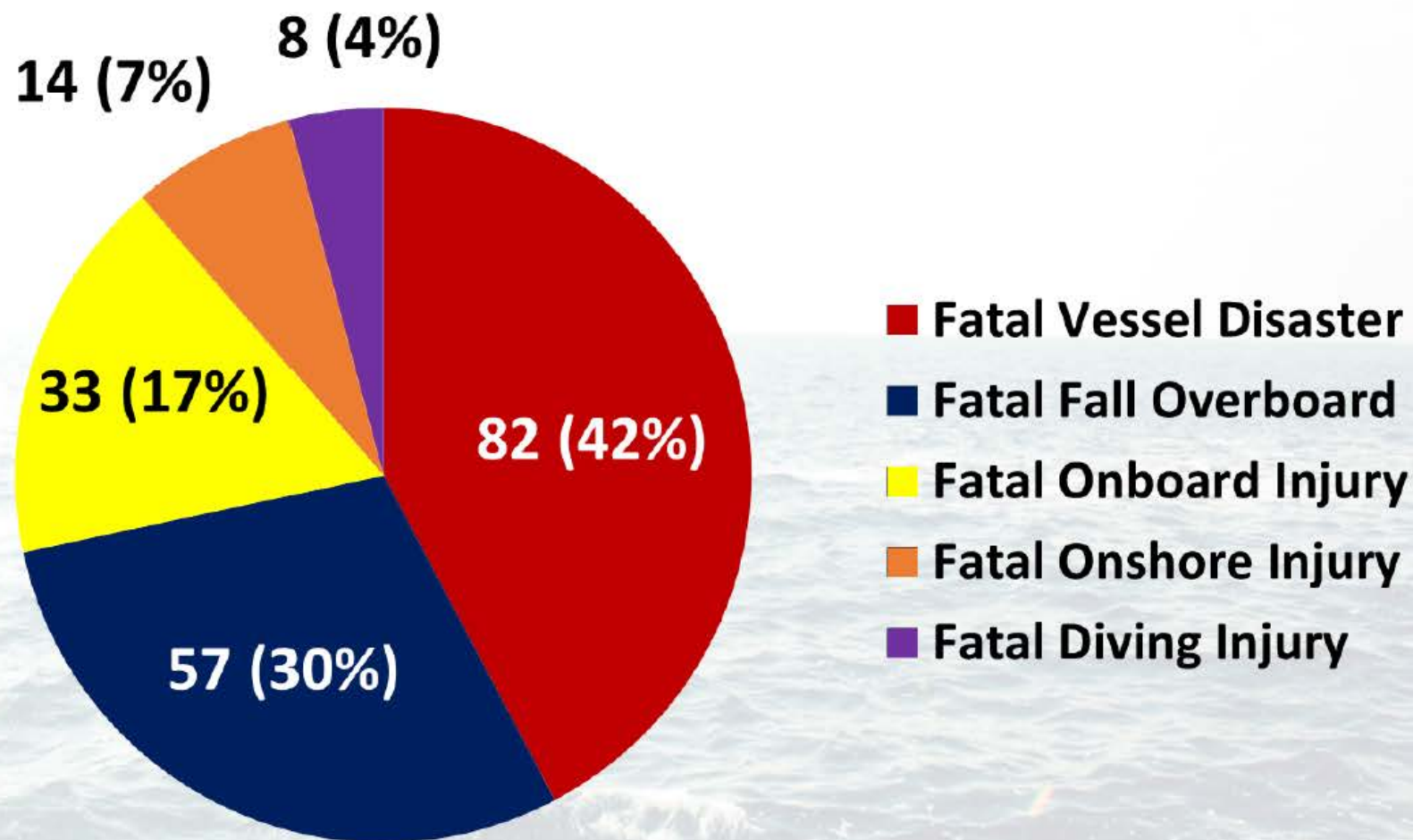


The findings and conclusions in this presentation have not been formally disseminated by CDC/NIOSH and should not be construed to represent any agency determination or policy.

Commercial Fishing Fatalities, Alaska, 1990–2016 (n=411)



Commercial Fishing Fatalities by Incident Type, Alaska, 2000–2016 (n=194)



Hvilke faktorer kjennetegner overlevelse etter fiskebåtforlis i Alaska?

Datagrunnlag:

- Fartøy med dekk (åpne båter ikke inkludert)
- Forlis og havari
- Alaska farvann
- Ulykker i årene 2000-2014
- Sikkerhetsopplæringen

Datakilder:

- US Coast Guard
- Lokale politimyndigheter
- Nyhetsmedia
- Fiskeriforvaltning

Analyser

- Analyser av forlis og mannskap som var om bord
- Statistisk regresjonsanalyse for å prediktere sjanse for overlevelse
- Skilte mellom to scenarier:
 - Opphold i vannet uansett lengde før redning
 - Lengre opphold i vannet > 30 minutter





Overlevelsesfaktorer

- Mannskap

- Redningsdrakt på Ja/Nei
- Redningsflåte brukt Ja/Nei
- Sikkerhetsopplæring Ja/Nei
- Stilling om bord Offiser/
Dekksmannskap/ Fabrikk/ Annet (stuert,
maskinist m.fl)

- Fartøy

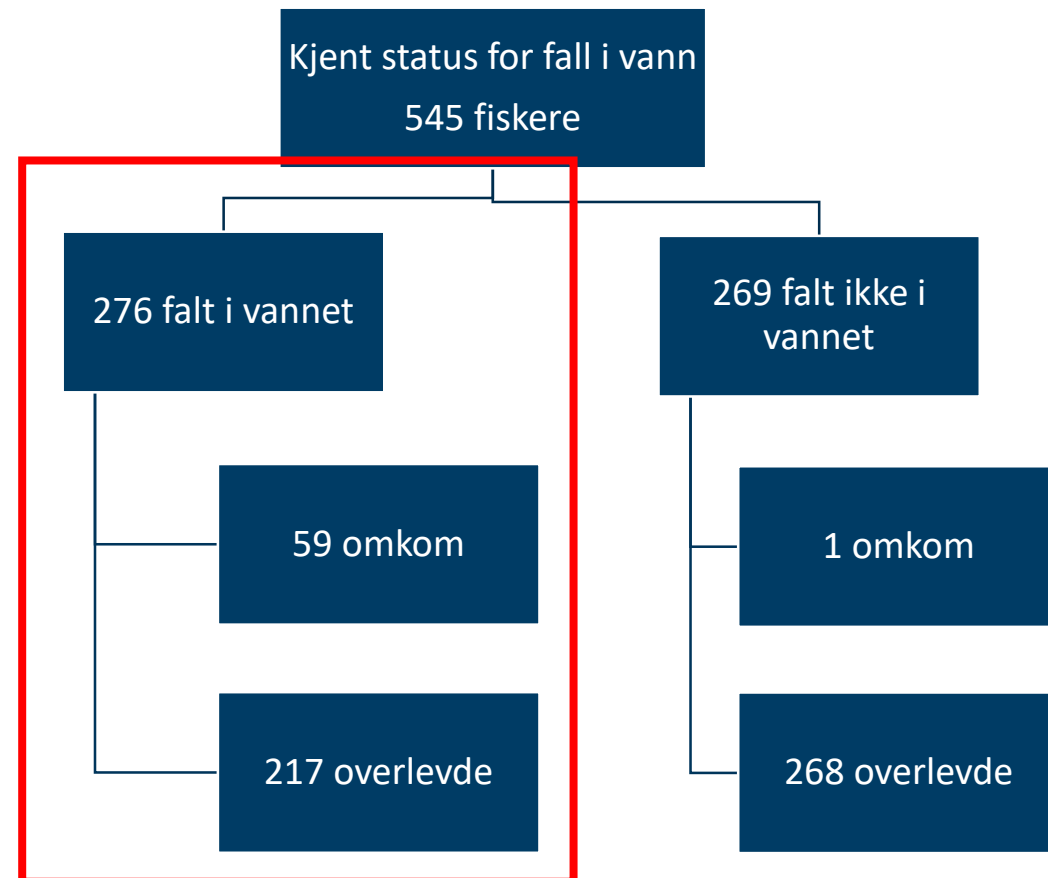
- Lengde < 50 fot >= 50 fot
- Alder <25 år/ >= 25 år
- Skrogmateriale: Glassfiber/Alu/Stål/Tre

- Hendelse

- Avstand fra land <= 3 miles/ > 3
miles
- Værrelatert Ja/Nei
- Region i Alaska Sørvest/Sør-
midt/Sørøst
- Sesong Sommer/Vinter

Forlis, overlevende og omkomne

- 187 fiskebåtforlis i Alaska 2000-2014
- Totalt 617 fiskere om bord på disse fartøyene
- 60 omkom



Positive overlevelsesfaktorer for de som falt i vannet (276 fiskere)

- Redningsdrakt på
- Redningsflåte
- Kort veg til land
- Stilling: dekksmannskap
- Fartøy <50 fot



Neste skreisesong tar de på hybridbåt

Mens Angelsen-brødrene fra Ramberg bløgger skrei på lofothavet, er nye «Angelsen Senior» under bygging i Kroatia. Neste vinter kan de dra garn uten motorstøy.



Resultater oppsummert

- Mannskap som falt i vannet hadde større sjanse for å overleve dersom
 - De kom seg om bord i redningsflåten.
 - Forliset ikke skjedde i dårlig vær.
- Mannskap som ikke ble reddet opp av vannet før etter 30 minutter hadde større sjanse for å overleve dersom
 - De hadde på seg redningsdrakt.
 - De kom seg om bord i redningsflåten.
 - Forliset ikke skjedde i dårlig vær.

Konklusjoner



- Tiltak for å forebygge forlis
 - Stabilitet/last
 - Unngå fylling
- Redningsutstyr må være tilgjengelig og i god stand
 - Redningsflåter
 - Redningsdrakter
- Sikkerhetsopplæring
- Øvelser om bord med alt utstyr

Takk for oppmerksomheten!

- Takk til NIOSH for lån av slides og en interessant studie.
- Takk til pensjonert kollega Halvard Aasjord for å ha oppdatert ulykkesstatistikken til SINTEF Ocean.





Teknologi for et bedre samfunn