Building resilience of coastal fishing communities to harmful algal blooms

Kathleen M. Moore  
*University of Washington*, moorekat@uw.edu

Stephanie Moore  
*United States. National Oceanic and Atmospheric Administration*, stephanie.moore@noaa.gov

Stacia Dreyer  
*University of Washington*, sdreyer@uw.edu

Edward Allison  
*University of Washington*, eha1@uw.edu

Sunny Jardine  
*University of Washington*, jardine@uw.edu

*See next page for additional authors*

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Speaker
Kathleen M. Moore, Stephanie Moore, Stacia Dreyer, Edward Allison, Sunny Jardine, Terrie Klinger, Julia Ekstrom, Anna Varney, and Karma C. Norman

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Building socioeconomic resilience to harmful algal blooms in coastal communities

Kathleen Moore*, Eddie Allison, Stacia Dreyer, Julie Ekstrom, Sunny Jardine, Terrie Klinger, Stephanie Moore, Karma Norma

Research Motivation

The 2015 HAB event was linked to anomalously warm ocean conditions (McCabe et al., 2016), which may worsen in the future.

Research objectives

1. Assess the social, cultural and economic impacts of the 2015 HAB event.
2. Identify factors that contribute to an individual’s ability to cope with HAB events.

Methods

• Mixed mode (mail and online) survey across 16 west coast fishing communities.

• Mail survey recruited participants in shellfish/crab related business using InfoUSA and PacFIN databases.

• Online survey advertised via state agency email lists with participants self-selecting.

• N=381 (47% mail, 53% online; 41% WA, 24% OR, 35% CA; 55% fisheries jobs, 45% hospitality/other jobs).

• Ordinal regression and multinomial logit models used to empirically test factors influencing an individual’s vulnerability to HAB events.

Preliminary Findings

HAB Exposure Index

• Lost fishing opportunities were calculated as the proportion of days a fishery was closed due to HAB toxins relative to the normal season length (Moore et al., in prep).

Figure. Stacked bar charts of the values of the (a) HAB index and (b) component scores for fisheries harvest closures due to domoic acid (DA) in 2015 (black), 2016 (gray) and all prior years (white).

Figure. HAB index component score for closures to the commercial Dungeness crab fishery in conjunction with NOAA indices of community social vulnerability and commercial Dungeness crab fishing dependence.

Socioeconomic Impacts

Credit: WDFW - The Oregonian, June 16, 2015

*p<0.05

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Contact author: Kathleen Moore at moorekat@uw.edu

References:

