

## Author's Accepted Manuscript

Long-term effects of bottom trawling on large sponges in the Gulf of Alaska

Patrick Malecha, Jonathan Heifetz



www.elsevier.com/locate/csr

PII: S0278-4343(16)30500-3  
DOI: <http://dx.doi.org/10.1016/j.csr.2017.09.003>  
Reference: CSR3667

To appear in: *Continental Shelf Research*

Received date: 21 September 2016  
Revised date: 30 August 2017  
Accepted date: 1 September 2017

Cite this article as: Patrick Malecha and Jonathan Heifetz, Long-term effects of bottom trawling on large sponges in the Gulf of Alaska, *Continental Shelf Research*, <http://dx.doi.org/10.1016/j.csr.2017.09.003>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Long-term effects of bottom trawling on large sponges in the Gulf of Alaska

Patrick Malecha\* and Jonathan Heifetz

Auke Bay Laboratories, Alaska Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, 17109 Point Lena Loop Road, Juneau, Alaska 99801, USA

\*Corresponding author. Tel.: +1 907 789 6415; E-mail address: pat.malecha@noaa.gov

## Abstract

Manipulative studies that characterize short-term effects of bottom trawls on seafloor habitats are numerous, but studies that examine long-term effects are rare. The long-term (13 years) effects of a single bottom trawl on large (>20 cm) erect sponges were investigated by revisiting the site of prior experimental trawling studies. In prior studies, large sponges were assessed immediately after trawling and 1 yr post-trawling. Thirteen years post-trawling, the density of large sponges was 31% lower and the incidence of sponge damage (torn, necrotic, missing tissue, prone) was 64% higher within strip transects in trawled versus reference areas. For all sponge species combined, the density of large sponges was 3.01 individuals 100 m<sup>-2</sup> in trawled areas and 4.37 individuals 100 m<sup>-2</sup> in reference areas. The relative difference in density between the reference and trawled areas was greater 13 yrs post-trawling than it was immediately after or 1 yr post trawling. Reduced recruitment or more likely, delayed mortality, are possible explanations for the reduced relative density of sponges in trawled areas. The most abundant sponge species in both trawled and reference areas was *Rhabdocalyptus*

Download English Version:

<https://daneshyari.com/en/article/8884142>

Download Persian Version:

<https://daneshyari.com/article/8884142>

[Daneshyari.com](https://daneshyari.com)