The Great Red Snapper Count

DEPLETION STUDIES

This fact sheet describes the depletion studies phase of the Great Red Snapper Count, which is a two-year research project to estimate the abundance of red snapper in the U.S. Gulf of Mexico.

Index-removal depletion gear. (A) A remotely operated vehicle (ROV), used to record video footage; fish counts from this footage yield relative abundance indices. (B, C, D) Hook-and-line gear is used for removals, which provide an absolute abundance estimate.

Photos by (A-C) David Hay Jones and (D) Trey Spearman, Dauphin Island Sea Lab/ University of South Alabama Fisheries Ecology Lab

What is a depletion study?

A depletion study is a scientific survey which collects two types of information: relative abundance (in our case, counts of red snapper *relative* to other species present) and absolute abundance (a known number of fish removed from the population).

Where are scientists conducting depletion studies?

Depletion studies for red snapper are being conducted at both natural and artificial habitat types.

How do scientists determine the abundance of red snapper from the depletion data?

The ratio of relative abundance to absolute abundance yields a population size estimate.

Questions or comments? Contact the project team at snappercount@harteresearchinstitute.org

For more information, visit snappercount.org

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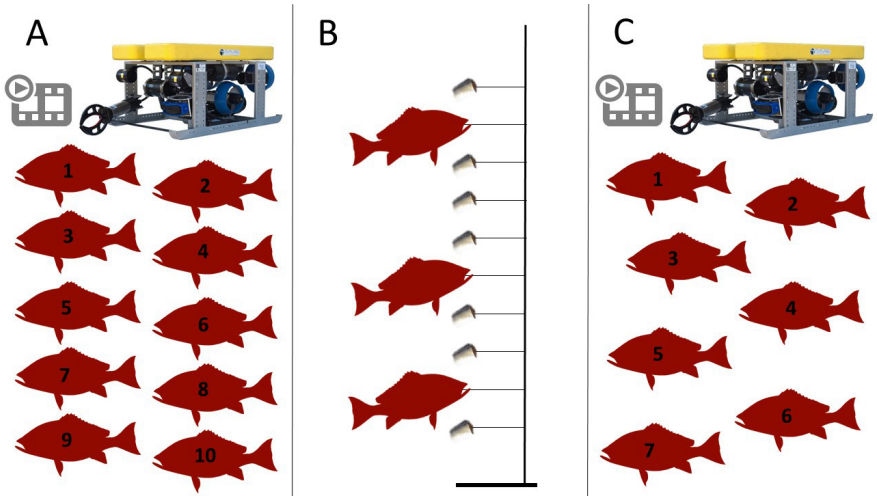
What types of depletion studies are being used to estimate abundance?

1. *Index-Removal:*

- This method involves successive cycles of indexing (or counting) the population using video footage collected with a remotely operated vehicle (ROV), then removing individuals from the population using hook-and-line gear, and then indexing again with the ROV.
- After at least one index-remove-index cycle is completed, the second index should be a reduction of the first index, based on the number of individuals that were removed.

The Outland Technology ROV-2500, which is being used to record video footage for relative abundance indices.

Photo by Outland Technology, Inc.



One cycle of the index-removal depletion method involves indexing (A), removing fish (B), and indexing again (C).

Image by Amanda Jefferson, Mississippi State University/Mississippi-Alabama Sea Grant

2. *Change-in-Ratio:*

- This method applies the same principles as index-removal but collects relative and absolute abundance data in a different way.
- Relative abundance is determined during scientific surveys immediately before and after a recreational fishing season, while absolute abundance is simply the number of fish removed by the recreational fishery.

For the change-in-ratio depletion method, indexing occurs immediately before and after the red snapper recreational fishing season, and recreational landings are used to determine removals.

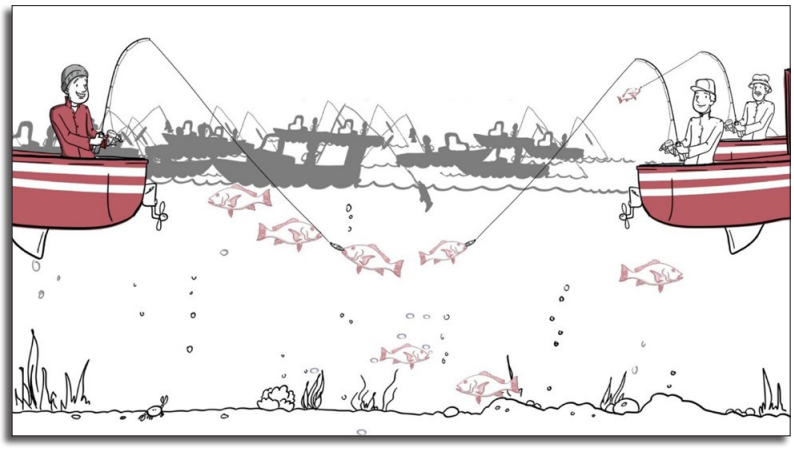


Image by HypnoVid

This independent study is being conducted by a leading team of red snapper scientists from across the Gulf of Mexico and beyond:

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