

Use of Descending Devices to Improve Fish Survival in U.S. Caribbean Fisheries

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B.A. Marine Biology

179th Caribbean Fishery Management Council Meeting

August 11-12, 2022

Isla Verde, Puerto Rico

What are Fish Descending Devices?

A **descending device** is a simple mechanism or tool that allow to recompress one or more fish to desired depth, increasing the chance for post-release survival. When deep-water fish are brought rapidly to the surface, they can experience barotrauma and descending devices is an effective tool to minimize harm to the fish.

Key vocabulary

- **Barotrauma:** Injury caused by the rapid and drastic change in pressure during a fish ascent to the surface caused by expansion of gases in the swim bladder. For example, bringing the fish up from a depth of 33 feet corresponds to a pressure change of 1 atmosphere (atm) and 66 ft correspond to 2 atm. Those drastic depth changes will expand the fish air bladder twice or more of its natural volume.
- **Barotrauma Signs:** Fish show at least one of the following external signs; expanded abdomen, bulging eyes, inverted stomach (stomach is seen protruding from the mouth) and other symptoms such as internal bleeding. These could be fatal.

Some recommended articles

The Use of Descending Devices in Fisheries Management to Reduce Discard Mortality: Regional Experiences and Considerations



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April 28, 2017

Master of Environmental Management Candidate 2017
Coastal Environmental Management Concentration

Masters project submitted in partial fulfillment of the
Requirements for the Master of Environmental Management degree in
The Nicholas School of the Environment of
Duke University

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Version of Record: <https://www.sciencedirect.com/science/article/pii/S0165783619300621>

Manuscript_d77681466f1d24a3742c3983ff2a9241

1 **Title:** Effectiveness of descending devices to mitigate the effects of barotrauma among
2 rockfishes (*Sebastes spp.*) in California recreational fisheries

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Actions Related to the Use of Descending Devices in the Southeast Region

1. Jul/2020, South Atlantic Fishery Management Council:

- **Regulatory Amendment 29 to the Snapper-Grouper FMP** – Among other things, requires descending devices be *on board* a vessel and readily available for use on commercial, for-hire, and private recreational vessels while fishing for or possessing snapper-grouper species.

For more details: <https://www.fisheries.noaa.gov/bulletin/noaa-fisheries-announces-gear-modifications-snapper-grouper-fishery>

2. Jan/2022, Gulf of Mexico Fishery Management Council:

- **The Direct Enhancement of Snapper Conservation and the Economy through Novel Devices Act of 2020 (DESCEND Act)**
 - Added a new Section to the Magnuson-Stevens Act (Section 321) (Effective on Jan 13, 2022) - **Requires fishermen on commercial vessels charter vessels and headboats (for-hire,) and private recreational vessels to have a descending devices or venting tool rigged and ready to use when fishing for Gulf reef fish in Federal waters.**
 - Defines a Descending Device as an instrument that will release a fish at a depth sufficient for the fish to be able to recover from the effects of barotrauma; **is a weighted hook, lip clamp, or box that will hold the fish while it is lowered to depth,** or another device determined to be appropriate by the Secretary of Commerce (Secretary); and is capable of releasing the fish automatically, releasing the fish by actions of the operator of the device, or by allowing the fish to escape on its own.
- NOAA Fisheries published a final rule clarifying the definition of a descending device and venting tool that published on Jan 14, 2022.
 - Defines it as a device **capable of releasing a fish at the depth** from which the fish was caught;
 - Specifies that the device must use a **minimum of a 16-ounce** weight and a minimum length of 60 feet length of line attached to the descending device.
 - It must be rigged and **ready for use** when fishing for Gulf reef fish.

For more details: <https://www.fisheries.noaa.gov/action/descending-device-and-venting-tool-direct-enhancement-snapper-conservation-and-economy>

MY EXPERIENCE ON THE FIELD

*“A lifetime in the water has taught me that the **BEST FISHING PRACTICES** are just the minimum expected from a responsible fisher”*

The use of **DESCENDING DEVICES** increases the potential for the fish you released to survive. Help to build your legacy as a responsible fisher caring about future generations.

These tools have been proven to be effective on groupers, snappers and other deep-water fish.

Reasons for discarding fish (releases)...

Regulatory Discards

- Does not comply with minimum sizes
- Bag/trip limit restrictions
- Incidental hook up of prohibited species (e.g. closed season; protected species [Nassau grouper])
- Fishery closed due to an accountability measure (due to ACL overage) or closed for other reasons
- Catch and release species (sport fishing)

Economic discards

- non-marketable species or low value species
- fish too small or too big for market
- Other forms of selectivity

Fish that suffer from barotrauma might die or feed frigates and sharks!

What can you do as a fisher to ensure that the fish you released survive and potentially reproduce next year?

Popular Types of Descending Devices

- The *Seaqualizer*
- Inverted Hook or Shelton Fish Descender
- Weighted basket
- Others



Clip-on Inverted Hook Descending Device

Caribbean Compatible!!

1. Inexpensive (Price starts at less than \$2)
2. Easy to make
3. Easy to store
4. Useful for releasing most reef species
5. Can be used by recreational and commercial fishers
6. Can be used to release fish at desired depth
7. Expandable weight
8. Compatible with kayaks as well as large boats
9. Compatible with multiple retrieval methods
10. Rust proof and long-lasting
11. Quick fish release operation
12. Minimum potential harm to the fish vs. venting tools
13. Easy to use
14. Single person operation



Limitations of Single Descending Devices and Weighted Basket

1. Single in-line Descending Device (DD) releases mainly one fish at the time. It is possible to release more than one fish at the time using some in-line DD styles.
2. The weighted basket is more appropriate for party boats or commercial fishers, who may release many fishes at once. But it may be bulkier for use in small boats; it is more expensive and might require 2 persons to operate.

Don't forget !

1. Descending devices are effective and low cost.
2. Descending devices are easy to use.
3. Descending devices help to eliminate free floaters.

Next steps

- Discuss if the use of descending devices can be helpful for our fisheries.
- If so, discuss (and define) what a descending device would look like in the U.S. Caribbean.

QUESTIONS ?