



NOAA FISHERIES SERVICE



The difference between the weak hook (right) and the traditional circle hook (left) can barely be seen with the naked eye, but the weak hook is more likely to bend when a large bluefin tuna is hooked.

NOAA Fisheries Service Q & A:

New Pelagic Longline Hook Designed to Reduce Bycatch

Why is NOAA Fisheries Service interested in reducing bluefin tuna bycatch in the Gulf of Mexico pelagic longline (PLL) fishery?

Atlantic bluefin tuna may only be retained in the PLL fishery as bycatch associated with catch of target species, such as yellowfin tuna. Bycatch mortality is a problem, particularly in the Gulf of Mexico, as it is the only known spawning area of Western Atlantic bluefin tuna. Tuna researchers working on tagging projects in the Gulf of Mexico have noted that almost all bluefin tuna caught by PLL vessels die, as a result of high metabolic stress associated with capture in the warm Gulf of Mexico waters. The recent Deepwater Horizon/BP oil spill has also raised concern regarding the long-term survival of bluefin tuna in the Gulf of Mexico, particularly because of possible effects on eggs and larvae present in the Gulf during the oil spill.

Western Atlantic bluefin tuna are managed in accordance with conservation and management recommendations established by the International Commission for the Conservation of Atlantic Tunas (ICCAT), and the Consolidated Highly Migratory Species Fishery Management Plan and implementing regulations. In 2010, the scientific committee to ICCAT advised the Commission that it may wish to protect the 2003 bluefin tuna year class as it begins to reach maturity and contributes to spawning biomass. Based on size at age and fishery landings data, this year class is on the verge of availability to the U.S. commercial fishery.

Promising research results from a cooperative study conducted with vessels from the PLL fleet from 2008 to 2010, found that the use of new “weak” hook gear technology could reduce bluefin tuna bycatch in the Gulf of Mexico PLL fishery.

What is a “weak” hook and how does it work?

A weak hook is a circle hook that meets NOAA Fisheries Service’s current size and offset restrictions, but is constructed of round stock wire that is thinner-gauge (i.e. no larger than 3.65 mm in diameter) than the circle hooks currently used in the PLL fishery. The difference between the traditional circle hook and the weak hook is barely detectable to the naked eye; however, the weak hook is more likely to bend when a large fish



Hooks that retained bluefin tuna during the experiment: traditional hooks in the top row and weak hooks in the bottom.

such as a bluefin tuna is hooked. When the hook bends, the fish may be released. In a recent study in the Gulf of Mexico, NOAA Fisheries Service found a statistically significant reduction in the catch of bluefin tuna of 56%, but no statistically significant difference in the catch of yellowfin tuna, swordfish, dolphin fish, or escolar on weak hooks compared to traditional hooks. The catch of wahoo significantly decreased on the weak hook. (There was a decrease in the number of swordfish retained for sale with the weak hook; however, the decrease was not statistically significant.) Data for the participating vessels show variability in results and generally showed increasing success maintaining prior levels of target catch with increased experience using the new hook.

Are weak hooks rigged the same as traditional hooks? Where can I purchase them?

Yes, weak hooks are rigged the same as traditional hooks. Any tackle dealer that sells Eagle Claw or Mustad hooks should be able to get the weak hooks. There is a supply of Mustad weak hooks available at both Hi-Liner Tackle Co. (954-783-1320, www.hiliner.com) or SNL Tackle (772-589-3087, www.snllcorp.com). Increased availability is expected in March 2011.

Are weak hooks mandatory in the PLL Gulf of Mexico now?

Currently, the use of weak hooks in the PLL fishery is not mandatory; however, it is recommended. Several of the captains that participated in the NOAA Fisheries Service weak hook study have converted to exclusive weak hook use in their PLL operations. Use of the weak hook is expected to reduce bluefin tuna bycatch and mortality, growing concerns in the PLL Gulf of Mexico fishery. Current regulations governing gear in the PLL fishery are found at 50 CFR 635.21(c).

How can I find more information?

For additional information about use of weak hooks, including rigging, contact Charlie Bergmann (Charles.Bergmann@noaa.gov) 228-549-1760.

For information about fisheries for bluefin tuna and other tunas, contact the Atlantic HMS Management Division Northeast office at 978-281-9260.

For additional information about PLL regulations and fishing in the Gulf of Mexico, contact the Atlantic HMS Management Division Southeast Regional Office 727-824-5399.

For additional information about management of Atlantic Highly Migratory Species, please see our website at: www.nmfs.gov/sfa/hms/ or sign up for Atlantic HMS News at <http://www.nmfs.noaa.gov/sfa/hms/newslist/>.