



The Science behind the Overfishing Determination for MHI Bottomfish

Scientific analysis of bottomfish catch data for the Hawaii Archipelago indicates that the amount of fishing for bottomfish currently occurring in the main Hawaiian Islands (MHI) is not sustainable in the long term. In other words, if no action is taken to reduce the mortality of bottomfish caused by MHI fishermen, there will be continued declines in the populations of seven commonly caught deepwater bottomfish species—onaga, ehu, opakapaka, lehi, hapuupupuu, gindai and kalekale (the “Deep 7”).

This conclusion has been reached by scientists from the National Marine Fisheries Service (NMFS) and from the University of British Columbia. The two independent studies analyzed Hawaii bottomfish catch data from 1948 to the present. For more information on these stock assessments, go to www.pifsc.noaa.gov/bottomfish/.

In these analyses, two measures were used to gauge how much fishing is taking place on the Hawaii bottomfish stock. Both of these measures are related to the maximum sustainable yield (MSY), which is the maximum annual catch that can be maintained without causing a continual decline in the stock.

The first measure compares the estimated size of the fish stock (in other words, the amount of fish or biomass) in any given year with the estimated size of the fish stock that would produce the MSY (long-term maximum annual catch). Because fisheries scientists have no direct measurement of the amount of Deep 7 bottomfish in the MHI, they use instead a proxy or substitute, which is based on the catch per unit of effort (CPUE), or the pounds of bottomfish caught per bottomfish trip. If bottomfish were being fished at MSY in the MHI then the current CPUE should be the same as the CPUE at MSY. Unfortunately, this is not the case. The current CPUE (or lbs of bottomfish caught per trip) is about 40 to 50 percent lower than it would be at MSY.

The second measure compares the mortality, or amount of removal, of fish through fishing in any given year with the fishing mortality that produces MSY. As fisheries scientists also have no direct measure of fishing mortality, they use another proxy, which is based on the number of days fished to catch bottomfish. If bottomfish were being fished at MSY in the MHI, the number of days fished to catch bottomfish at present should be the same as the number of days fished to produce the MSY catches. Unfortunately, once again, this is not the case. The amount of fishing mortality in terms of days fished is currently about twice the level of fishing effort that would maintain MSY, or the long-term maximum annual catch.

The severity of the overfishing of MHI bottomfish means that action needs to be taken to reduce fishing effort and fishing mortality in the MHI to ensure the long-term health of the stock. The scientific analyses indicate that we need, at a minimum to reduce fishing effort in the MHI by 24 percent. The Western Pacific Regional Fishery Management Council, NMFS and the State of Hawaii have concluded that the best way to accomplish this reduction is to initially implement a seasonal closure (scheduled for May 15 to October 1, 2007) to provide some relief for the Deep 7 bottomfish species and to give sufficient time to develop longer term management measures, which will include an annual limit on catches and improved information from the commercial and non-commercial bottomfish fishery.