USING MESH SIZES TO REDUCE DISCARDS

EDWARD UEBER, Gulf of the Farallons Marine Sanctuary

Mesh selectivity can result in a greater degree of fish selectivity than can generally be obtained with other fishing gear. Generally, mesh selectivity is more effective if the net is stationary. When a net is moving through the water, the mesh can fill, and this condition can cause the net to lose its selectivity. However, when the bag of a trawl net fills, catchability of the net decreases because of the pressure at the net mouth. Net design can change the selectivity of a given mesh size.

Mesh selectivity is greatest in single-species fisheries such as Pacific herring. Effective regulation of fish size decreases as the number of species within a fishery increases. For example, flatfish will go through the mesh differently than lingcod (*Ophiodon elongatus*) or rockfish. An effective net for a flatfish may be ineffective for a round fish, resulting in a catch of round fish that may be too young for breeding or too small to be sold. You must be very careful when you design your mesh size that you know what the net's effect will be on the long-term productivity of a fishery.

One associated discard problem is the simultaneous catch of marketable and nonmarketable sizes of the same species. Increasing the size of the mesh may enable smaller fish to escape to be caught later when they are bigger and more marketable.

Mesh sizes on the West Coast have also been implemented to stop the gilling problem. Some people don't perceive gilling as a problem, but fish do get gilled in the meshes and must be extracted. An instance where gilling caused a major problem occurred in the Pacific sardine fishery when a net would "Christmas tree" with small sardines, and almost every mesh would contain a sardine. I have spoken with a fisherman out of Coos Bay who uses five-inch mesh to fish for widow rockfish (*Sebastes entomelas*). He said he had a gilling problem, but all of the fish gilled were saleable. If he had used a smaller mesh net, he would have had to remove and discard the smaller fish because they would have been too small to sell.

Sometimes mesh is used in gillnet fisheries to select a certain species or certain size of fish. In San Francisco Bay, the California Department of Fish and Game has increased the mesh size for gillnets used to fish for herring. The larger mesh nets, when fished over a given time period, increase the size of herring being caught. Larger herring tend to be female and this results in the overall herring catch having a greater roe

female and this results in the overall herring catch having a greater roe content and greater value. In this roe fishery worth $20 million, almost all male fish caught are discarded. Fishermen do not discard them at sea because it is difficult to separate the males from the females there. As much as 50 percent of the catch may not have roe and be discarded by the processor.