



Ocean Noise: Adverse Impacts on Fish and Fisheries

Three decades of controlled scientific studies leave no doubt that intense sound hurts fish and damages fisheries. Even the viability of fish eggs was reduced in one study when the eggs were exposed to moderately loud sound for several days (Banner and Hyatt, 1973).

Many of the studies relate to the use of air guns for geological and oil and gas exploration but military sonar also poses a threat to fish. In a study done by the British Defense Research Agency, exposure to sonar-type signals caused auditory damage, internal injuries, eye hemorrhaging and mortality in commercially caught fish. Fishermen in Plymouth, England report precipitous drops in catch rate since the Royal Navy located a training range there.

In some parts of the ocean, air guns can be heard going off every few seconds day and night. Air guns located 3000 km away were the predominant part of the background noise heard over hydrophones placed in the middle of the North Atlantic Ocean (Nieukirk et al., 2004). McCauley and Popper (2003) exposed pink snapper to seismic air gun sounds and found that their ears were severely damaged. The auditory hair cells did not regenerate after almost two months. This damage was seen at exposure levels that might occur several kilometers away from the sound source. The authors note the ears of pink snapper are typical of the majority of commercially important species such as cod, haddock, salmon and tuna.

The authors also point out that fish with hearing impairment are more vulnerable to predators and less able to locate food and communicate acoustically. Popper (2003), in a review paper on the effects of noise on fish, concludes that current studies suggest that noise may effect fish behavior and thereby, fisheries.

In a study done by the Norwegian Institute of Marine Research, air guns caused extensive damage to the inner ears of fish and lowered trawl catch rates 45 to 70% over a 2,000 square mile area of ocean. Catch rates did not recover in the five days surveyed after air gun use stopped (Engås et al., 1996). Air gun pulses also caused a catch per unit effort decline of about 50% in the rockfish hook and line fishery off the coast of California.

It is time to pay attention to the studies showing that air guns and sonar-type signals can seriously injure and kill fish. The fact that several studies show that fish catch rates are significantly lowered by noise from air guns indicates that increasing levels of human-produced noise in the ocean can significantly and adversely impact the food supply, employment and economies of many nations.

Recent studies show that ocean background noise levels have doubled every decade for the past six decades in some areas (IWC Scientific Report, 2004). It is time to take action to protect marine life, commercial fisheries and the welfare of local fishing communities from the adverse impacts of intense ocean noise. Acoustic energy does not observe national boundaries. Therefore, we call upon the Member States of the United Nations to develop mechanisms to effectively address ocean noise pollution.