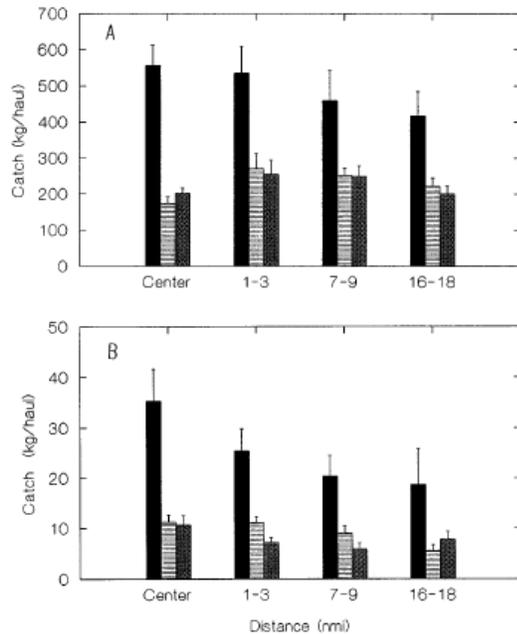


SEISMIC AIRGUNS and FISHERIES

While most of the attention has centered on marine mammals, seismic surveys also have serious consequences for the health of fisheries. Commercial fishermen in various parts of the world have complained about declining catch rates during seismic survey operations (McCauley et al. 2000), spurring a number of controlled experiments that compare fishing success at various distances from the source.



Average trawl catch rates of cod and haddock before (solid), during (striped), and after (gray) seismic shooting, by distance in nautical miles from the shooting area. (Engas et al. 1996)

Airguns have been demonstrated in Norwegian studies to dramatically depress catch rates of cod and haddock by as much as 40 to 80 percent (depending on catch method) over thousands of square kilometers around a single array (Engas et al. 1996; Løkkeborg 1991); and to displace two other commercial species, blue whiting and herring, on a similar spatial scale (Slotte et al. 2004), an area roughly the size of Rhode Island. These impacts were found to last for some time beyond the survey period—catch rates had not fully recovered during the five post-survey days monitored by researchers (Engas et al. 1996)—and researchers have characterized the impacts as “long term” (Slotte et al. 2004). Airguns have also been shown to substantially reduce catch rates of rockfish (Skalski et al. 1992) and possibly pollock (Løkkeborg et al. 2010).

Other impacts on commercially harvested fish include reduced reproductive performance and hearing loss (McCauley et al. 2000, 2003); and recent data suggest that loud, low-frequency sound also disrupts chorusing in black drum fish, a behavior essential to breeding in this commercial species (C. Clark, pers. comm.). A recent review cited stress-response data primarily from other species as reason for concern about long-term consequences for fish (Slabbekoorn et al. 2010).



Haddock and Atlantic cod



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