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Electrical trawling for brown shrimp: Consequences for young life stages in spawning areas?

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The application of electric pulse fields in fishing gear is considered to be one of the most promising option to increase the sustainability of demersal trawl fisheries. In the pulse trawl for brown shrimp, the bobbin rope is replaced by lightweight electrodes, creating a low-intensity electrical field which selectively induces a startle response in the shrimps. Other benthic organisms are left untouched and can escape underneath a hovering trawl. Extensive testing of this device in the North Sea revealed a discard reduction of 35% and less bottom contact of 75%. In addition, exposure and survival experiments indicated that the use of these pulses has no immediate harmful effects on different adult fish and invertebrate species.

However the impact on other marine life stages is still unknown. As brown shrimp are caught in coastal zones and estuaries, important nurseries for a wide range of marine species, electro fishing over active spawning grounds could therefore harm embryos, larvae and juveniles if exposed during their most sensitive stages.

In the lab different developmental stages of embryonated eggs, larvae and juveniles of cod (*Gadus morhua*) and sole (*Solea solea*) were exposed in a homogeneous electrical field of 150V/m during 5 seconds. Survival, injury and development were macro- and microscopically inspected until 14 weeks after metamorphosis. Analysis of the results are still ongoing and will be reported at the congress.

Keywords: Pulse fishing, life stages, survival, development

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