

USING TELEMETRY TO UNDERSTAND CULTURED AND WILD JUVENILE WINTER FLOUNDER *Pseudopleuronectes americanus* MOVEMENTS AND HABITAT USE

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Winter flounder is a potential stock enhancement candidate in New Hampshire, USA. In past pilot-scale releases, post-release surveying was conducted by trawl and beach seine. However, cultured juvenile fish were recaptured only at the release site, whereas wild fish were ubiquitous throughout all other surveyed areas. To find out more information on the movement of these released fish, cultured fish were fitted with acoustic tags (VEMCO V7-2L-R256 coded pinger tags). In addition, wild fish from the release area were tagged and tracked so that movements and habitat use of both cultured and wild fish could be compared.

To ensure that the tag does not interfere with the fish's swimming abilities, a laboratory experiment was conducted in the laboratory in a 2 m diameter round fiberglass tank containing a 2 cm layer of sand on the bottom. Three cultured fish (mean size = 33g, 117mm) were fitted with dummy tags and filmed from above for 48 hrs along with 3 untagged cultured fish (mean size = 22g, 108mm) and 3 wild caught untagged fish (mean size = 15g, 118mm). At the end of 2 days, while still filming, each fish was prodded gently to elicit a burst swimming episode. No differences were observed in the burying behavior (ANOVA, $p=0.37$), burst swimming speeds (ANOVA, $p=0.07$), or the amount of moves (ANOVA, $p=0.50$) made by tagged and untagged cultured fish. Therefore, we assumed that the tag location and mode of attachment did not adversely affect the flounder and we initiated the field work.

Simultaneous releases of cultured and wild winter flounder occurred throughout August-December 2005 in the Hampton-Seabrook Estuary, New Hampshire, USA. Fish were tracking by a combination of handheld hydrophones and a VRAP system, and data were analyzed using ArcView 3.3 software. Although both cultured and wild fish maintained similar home ranges, the cultured fish immediately emigrated out of the release area while the wild fish maintained high release site fidelity. Cultured flounder habitat use was very similar to wild flounder habitat use in terms of bottom water temperature, dissolved oxygen, salinity, depth, and sediment composition.