

EVALUATING SURGICAL IMPLANTATION OF 23-MM PASSIVE INTEGRATED TRANSPONDER (PIT) TAGS IN ARCTIC GRAYLING

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Passive integrated transponder (PIT) technology is useful for evaluating movement, habitat use, and the dynamics of fish populations and communities. One distinct advantage of this approach is the ability to collect information throughout the life of individually identifiable fish using passive (remote) monitoring sensors (fixed and portable antennas). Despite widespread use of PIT tags in a variety of salmonids, some questions remain concerning post-implantation survival in some species. To determine potential negative effects of using PIT tags in Arctic grayling (*Thymallus arcticus*), we (1) implanted 23-mm

half-duplex tags in Arctic grayling and measured subsequent short-term mortality, and (2) reviewed literature concerning the effects of using PIT tags in fish. We PIT-tagged grayling from 158 to 340 mm in total length, and after four days, we observed 100-percent survival and 100-percent retention of PIT tags. Furthermore, published reports suggested that survival and growth of PIT-tagged salmonids ≥ 100 mm does not differ significantly from controls. These results support the assertion that PIT-tagging Arctic grayling >150 mm will not negatively affect grayling populations or research results. Subsequent research to determine the minimum size of Arctic grayling that can be implanted with 23-mm PIT tags without negative effects is warranted.