

**PIT Tags Go Wild:
Using PIT Tags in a Wild Marine Fish
to Directly Estimate Exploitation Rate**

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Oregon's primary recreational groundfish fishery targets the nearshore species, black rockfish (*Sebastes melanops*). The 1993 black rockfish assessment relied on the relative CPUE trends derived from recreational fishery sampling programs. These data are not robust to problems of sampling bias or changes in fishing distribution, and can result in errors in the trend of relative population abundance. An alternative approach is to estimate current exploitation rates and evaluate sustainability. The desire to estimate exploitation for black rockfish off Oregon prompted us to investigate the use of passive integrated transponder (PIT) tags for a mark-recapture program. Because PIT tags are invisible to anglers, tag non-reporting problems are eliminated, and tag detection rates can be estimated directly. We tagged 2,550 fish (29cm - 54cm) with PIT tags (12mm x 2mm) in 20 days of fishing near Newport, Oregon. Tags were injected in the hypaxial musculature below the gill arches, determined to be the best site by a previous PIT tag retention study. During tagging, barotrauma symptoms were noted and fish were recompressed by releasing them from a cage at 12 m depth. During the fishing season (May – October), carcasses of almost all black rockfish landed by charter vessels in Newport and Depoe Bay were counted by samplers and electronically scanned for tags. We scanned 41,825 carcasses and recovered 52 tags giving a preliminary exploitation rate of 2% and a corresponding abundance of ~2 million. This technology can be used successfully to provide finer resolution of population status within the assessed stock unit.