The use of archived tags in retrospective genetic analysis of fish

Collections of historical tissue samples from fish (e.g. scales and otoliths) stored in museums and fisheries institutions are precious sources of DNA for conducting retrospective genetic analysis. However, in some cases only external tags used for documentation of spatial dynamics of fish populations have been preserved. Here we test the usefulness of fish tags as a source of DNA for genetic analysis. We extract DNA from historical tags from cod collected in Greenlandic waters between 1950 and 1968. We show that the quantity and quality of DNA recovered from tags is comparable to DNA from archived otoliths from the same individuals. Surprisingly, levels of cross-contamination do not seem to be significantly higher in DNA from external (tag) than internal (otolith) sources. Our study therefore demonstrates that historical tags can be a highly valuable source of DNA for retrospective genetic analysis of fish.

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