Long-term Fluctuations in Age and Sex Composition of Pilot Whale Schools in the Faroe Islands

Langtíðar broytingar í aldurs- og kynsmynstri hjá grind

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Úrtak

Grindahagtølini vísa, at tey ár tá ið grindirnar eru nógvar, eru tær eisini stórar, og føðin nógv. Hesi ár eru fleiri kallfiskar og fleiri leiftrar í grindum, og størstu kallfiskarnir eru smærri samanborið við ár við fáum grindum.

Extended abstract

In the Faroe Islands the long-finned pilot whale (*Globicephala melas*) has been taken for food since the Norse settlement more than 1,000 years ago and hunting statistics are available back to 1584 and unbroken from 1709. This whaling statistics include some biological information in the form of the total number of whales and their valuation, in the old Norse value *skinn*. A *skinn* is a weight value and one skinn is on average composed of 38 kg meat and 34 kg blubber; the usable part of a pilot whale contains 54% of the total body weight.

From the period 1821-1997 there exist from 647 out of the 1.793 landed schools containing 250.329 long-finned pilot whales in total, the skinn value (533.389,875 in total) of each single whale (from 90.498 whales). A change in the unit of skinn value about 1832 excludes the material 1709-1831 from the calculations. Moreover, information about the skinn value and sex exist for 10,102 whales, of which 816 are from 3 schools 1870-1871, the remaining from 1964-1997. The skinn value, sex and sexual status were available for 3,020 whales examined by the Faroese international research programme 1986-1988.

Statistical analysis of these data showed that many schools per year were connected with many whales per year, while the skinn measurements showed minimum values of mean whale size (total annual number of skinns / total annual number of whales) in years with maximum number of pilot whales landed. Estimation of a time series of the sex distribution of the pilot whale schools in the period 1832-1994 showed a mean proportion of males of 29% and 71% for the females, correspondingly. Modelling the male/female part of the total number of whales landed 1832-1994 showed that in peak periods the part of males was

higher than in law periods. A corresponding modelling of the mature/immature parts of the total number of whales landed 1832-1994 showed that in time periods when the number of whales were high and the food abundant, the schools consisted mainly of immature whales. Moreover, the largest whales in the schools were shortest in peak periods.

This means that in years with a high number of schools and many whales, the annual average whale size was small. In peak periods the food is abundant and the schools consisted mainly of immature whales and proportionally more males. Local differences appeared in the average annual whale size corresponding with the environmental rhythmic variations. A lower annual whale size was found in the southern district in peak periods. Finally, peak periods seem to appear at the same time all over the North Atlantic.

This extended abstract is based on the paper: Bloch, D., and Lastein, L. 1995. Modelling the school structure of pilot whales in the Faroe Islands, 1832-1994. *In:* Blix, A.S., Walløe, L. and Ulltang, U. (eds.). *Whales, seals, fish and man:* 499-508.