Addendum to SC/61/RMP9

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Cpue considerations

The SC at the 60th meeting decided that historic cpue could be used in a qualitative way in assigning weight to IST hypotheses.

The history of modern in Iceland whaling is reasonably well documented (Sigurjónsson and Gunnlaugsson 2006). It started in 1883 when the first Norwegian landstation was established in Tálknafjörður, NW Iceland. In the following years several additional whaling stations were built in this area.

There was a rapid growth in this industry but by 1900 the catch statistics show clearly a rapidly decreasing catch rates per boat. The decrease in large whale abundance, of which fin whales were the most abundant, is also expressed by decisions taken by managers of the whaling companies. Thus, around 1900 they started moving the stations from west to ast Iceland where whales were still plentiful. However, some stations continued operating at the west coast. When whaling was formally banned in 1915 only one station remained and it is clear that fin and blue whales were close to commercial extinction for all practical purposes.

The whaling ban imposed in 1915 was in effect until the reopening of the Tálknafjörður landstation catching a total 480 whales during 1935-1939 (80% fin whales and 12% sperm whales). In 1948 a landstation was established in Hvalfjörður, W-Iceland. During 1948-1985 over 200 fin whales were caught annually from this station off west Iceland. It is clear from the catch statistics of this latter period that fin whales had made a significant recovery in 1948 while blue and humpback whales were still severely depleted.

Figure 1 shows the CPUE series for the early modern whaling in Icelandic waters. Although the series is crude there should be no doubt about the main conclusion that there was a severe decline in abundance during 1883-1915.

Stock trajectories based on stock structure hypothesis IV, (Fig. 2) have to start off from unrealistically large initial stock to fit the catch data and they also fail to show any significant recovery of the stock from 1915 to 1948 when the Hvalfjörður whaling station started and operated with ease. This failure is most pronounced with MSYR of 1%(mature) assumed. There is no appreciable sign of recovery after 1915, densities are just as low when whaling resumed in 1948, as when whaling was abandoned in 1915 due to lack of whales on the grounds. In this case the initial stock in this small area is estimated to have been over 15,000 fin whales in addition to the several thousand blue and humpback whales in the area at that time.

No trial runs were done with hypothesis IV where cpue data was included. Hypothesis IV with 1%msyr should have been given low plausibility on the qualitative cpue basis. This is in addition to the points raised in the main text of SC/61/RMP9..

Research clarification

Although recaptures from biopsies are not expected to be many based on recoveries from discovery markings, these data will be an addition to the Discovery marking data which today shows a clear trend with time (recoveries from outside the area show up later) but this is at present marginally not significant. If Dsicovery mark loss and mark shedding is of the order of magnitude suggested by some members of the SC, then recoveries from biopsies will be considerably more likely, in particular late recoveries from other areas.

Recoveries from biopsies in relatedness studies should be at least 4 times as likely as direct recoveries (from the same individual). The exact number depends on the life history parameters of fin whales in the area and in particular inhomogeneity in the number of offspring (assuming an average of two). If many whales produce no offspring while others have many the average number of siblings could be substantially higher than two (in addition to the two parents or two offspring assumed here). With time the grand parentage of biopsied animals adds to this.

REFERENCE

SIGURJÓNSSON, J. AND GUNNLAUGSSON, TH. Revised catch series and CPUE for fin whales taken from the early modern whaling land stations in Iceland. Paper SC/58/PFI4 presented to the IWC Scientific Committee, June 2006, St Kitts and Nevis, WI. 21pp.

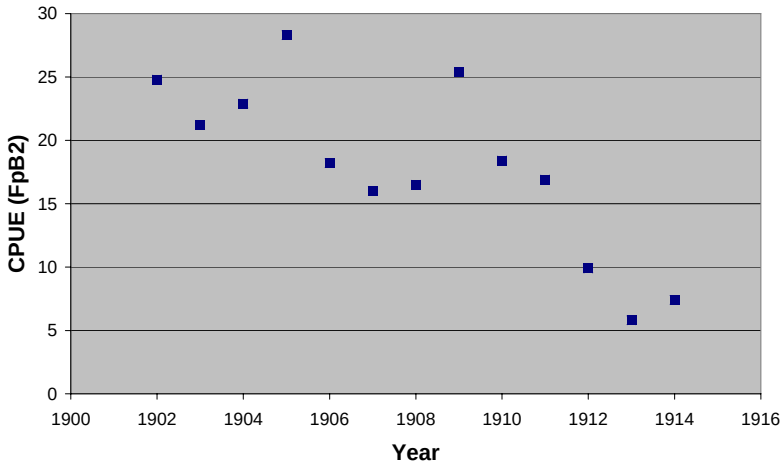

Figure 1. Early CPUE series

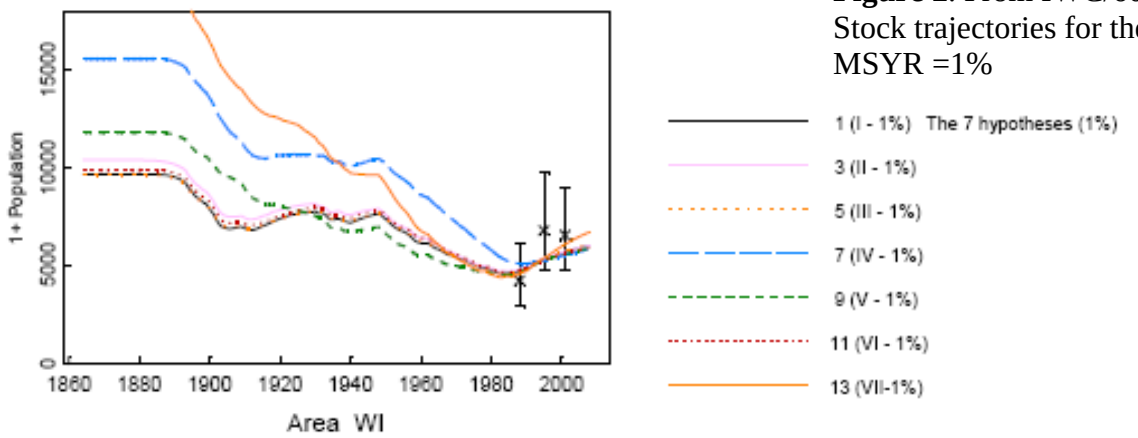

Figure 2. From IWC/60/Rep1 Fig 3a Stock trajectories for the 7 hypotheses, MSYR =1%