

Agenda Item 4

Special Species Session:
Atlantic White-Sided Dolphin

Introduction and Conservation Status

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**Catch History and Distribution of
White-Sided Dolphin of the Faroe
Islands**

Action Requested

- Take note

Submitted by

Bloch & Mikkelsen



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DELEGATES ARE KINDLY REMINDED
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Secretariat's Note

The Rules of Procedure adopted at the ASCOBANS 8th Meeting of Parties remain in force until and unless an amendment is called for and adopted.

Catch history and distribution of white-sided dolphin (*Lagenorhynchus acutus*) of the Faroe Islands

Veidisøga og útbreiðsla av skjórutum springara (Lagenorhynchus acutus) í Føroyum

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Úrtak

Síðan 1872 siga veiðihagtølini frá, at uml. 9.435 skjórutir springarar hava lagt beinini í 158 grindum, og tað gevur eitt árligt miðaltal á 68.4 hvalir og 1.1 flokkur. Fyri tey árin, har ið dráp var, er talið 168 hvalir og 2.8 flokkar. Tað, ið árliga hevur verið dripið, hevur ligið um 0-774 hvalir á 1-10 flokkar. Støddin á flokkunum hevur ligið um 1-544 (í miðal 60 hvalir) við 74% < 50 hvalir/flokk. Flestir skjórutir springarar vórðu sæddir sunnan fyri Suðuroynna, og 37% av springarunum úr 20 flokkum eru hildnir til í Vági og Hvalba. Raksturin er í hæddini í september, og eingin hevur verið í mars og desember. Úti á havinum hava hvalir verið sæddir alt árið. Ein mislittur hvalur kom fyrri í tveimum drápum.

Abstract

Since 1872, the catch data informs about 9,435 white-sided dolphins taken in 158 drives, an annual average of 68.4 whales and 1.1 pod, and 168 whales and 2.8 pods for only the years containing a catch. The annual catch has ranged 0-774 whales in 1-10 pods. The pod size has ranged 1-544 (avg. 60 whales) with 74% < 50 whales/pod. Most white-sided dolphins were observed south off Suðuroy and 37% dolphins from 20 pods has been killed in Vágur and Hvalba. The drives peak in

September and none has occurred in March and December. Offshore the whale has been reported all year round. A discoloured whale occurred in two catches.

Introduction

The white-sided dolphin (*Lagenorhynchus acutus*) is a widespread dolphin in the North Atlantic Ocean, distributed mainly in the ocean basins and approaching the Faroes all year round (Skov *et al.*, 1995; Reeves *et al.*, 1999; Bloch *et al.*, 2001, Reid *et al.*, 2003). Since the Norse settlement of the Faroe Islands more than one thousand years ago, a drive fishery has been practised on odontocete cetaceans for consumption of the meat and blubber. Previously, taxes on the catch had to be paid to the king, church and landowners for two of the taken species, the long-finned pilot whale (*Globicephala melas*) and the bottlenose whale (*Hyperoodon ampullatus*), and it is the background for the existence of a whaling statistic dating back to

1584 (Bloch, 1996; 1998; 2007; Bloch *et al.*, 1996).

According to Faroese laws, it is allowed to take other smaller dolphin species than pilot and bottlenose whales (Anon., 2000). The species taken are white-sided dolphin (*Lagenorhynchus acutus*), white-beaked dolphin (*L. albirostris*), bottlenose dolphin (*Tursiops truncatus*), and harbour porpoise (*Phocoena phocoena*). For the smaller species, no taxes were paid, and therefore only occasional remarks exist for the catch and none prior to 1872 for the white-sided dolphin. The reporting has improved with time and the catch data from the last 50 years is considered more complete than previous records. The white-sided dolphin occurs often in mixed schools with pilot whales and/or bottlenose dolphins (Bloch, 1998).

The stock identity of the species has been studied by Jacobsen *et al.* (2003) concluding that the Faroese and Scottish white-sided dolphins do not diverse genetically, while Mikkelsen and Lund (1994) seem to find differences in skull measurements between the eastern and western North Atlantic.

The Faroese area is an important feeding and breeding area in summertime for many of the North Atlantic cetacean species (Bloch *et al.*, 2001), but the white-sided dolphin seems to have only feeding area around the Faroes and not a breeding area (Bloch *et al.*, 2003). The white-sided dolphin shows a pelagic distribution in Faroese waters in summertime as well as more south and west in the North Atlantic (Kinze *et al.*, 1997; Northridge *et al.*, 1997), but it occurs more southerly than many other cetacean species (Fig. 1; Skov *et al.*, 1995; Bloch *et al.*, 2001;

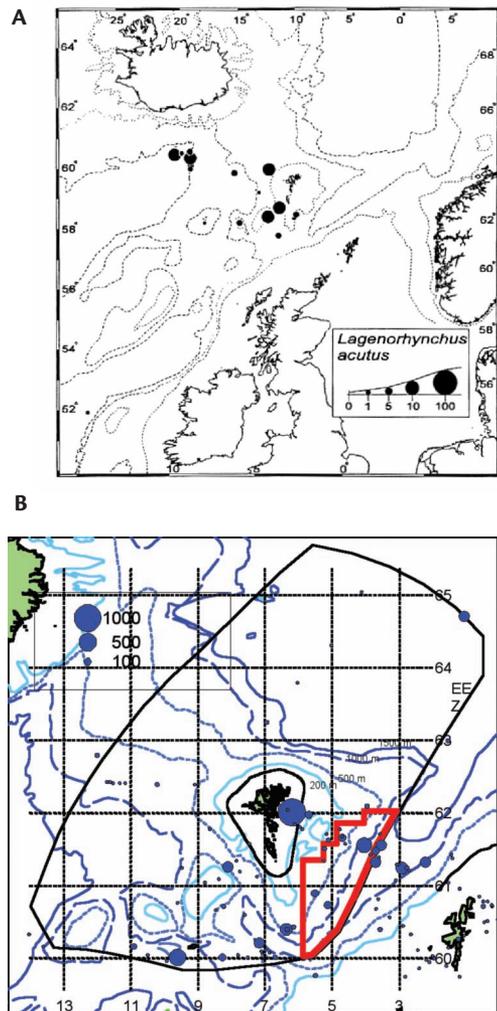


Fig. 1. The North Atlantic distribution of white-sided dolphin pods, *Lagenorhynchus acutus* taken a) from Skov *et al.* (1995) and b) from Bloch *et al.* (2001).

Reid *et al.*, 2003). The drives of white-sided dolphins occur mostly in summertime, but with a tendency to have also a spring peak, which is supported by the fact that most strandings occur in March-April in Ireland



Fig. 2. Faroe Islands with the authorised whaling bays

(Berrow and Rogan, 1997). Supposedly, the dolphins follow their main prey species in their summer distribution (Mikkelsen and Bloch 2003), and their consumption per year is calculated to be about 140.385 tons compound mostly of fish (133.366 tons) and lesser cephalopods (7.019 tons) (Bloch and Mikkelsen, 2000).

The offshore observations of the white-sided dolphins in the North Atlantic show a distribution clustered together with fin whales (*Physalus balaenoptera*) and the two skua species, great skua (*Stercorarius skua*) and arctic skua (*S. parasiticus*) (Skov *et al.*, 1995). This must indicate that large concentrations of krill which is known to concentrate the fin whales obviously also attract the whale and bird species eating of the fishes living of krill. In the Barents Sea it is found

that the white-sided dolphin was associated with the shifting capelin (*Mallotus villosus*) distribution (Skern-Mauritzen *et al.*, 2009).

In connection with recent studies of the biology of smaller dolphin species in the Faroes it has been convenient to look at the information laid down in the catch statistics and sighting data to examine if any pattern is visible which could explain more about the biology of the white-sided dolphin.

The drive fishery of smaller dolphin species

The Faroese drive fishery of all species of odontocete cetaceans is executed in the same way as described for the long-finned pilot whale where a pod is pressed into an authorised whaling bay by boats placed in a half circle behind them (Bloch, 2007; Bloch *et al.*, 1990).

Í FØROYUM

Year	No/yr	drive/yr	1939	?	1	1992	47	3
1872	26	2	1940	226	2	1993	377	6
1889	6	1	1944	156	1	1994	263	7
1892	1	1	1948	440	1	1995	157	4
1902	10	1	1951	20	1	1996	357	7
1904	308	1	1960	137	2	1997	350	10
1905	143	1	1961	27	1	1998	438	4
1907	27	4	1965	176	1	2000	265	3
1910	6	1	1968	9	1	2001	546	7
1911	237	3	1970	59	3	2002	773	10
1918	22	1	1971	50	1	2003	186	5
1920	2	1	1975	5	1	2004	333	5
1924	3	1	1976	14	1	2005	312	4
1928	335	2	1977	30	1	2006	622	8
1929	344	3	1980	8	1	2008	1	1
1930	80	1	1983	10	1	2009	171	5
1931	20	2	1985	32	1			
1932	172	3	1986	185	4			
1933	110	1	Year	No/yr	drive/yr			
1934	30	3	1987	76	2			
Year	No/yr	drive/yr	1988	603	4			
1936	37	3	1990	55	2			

Table 1. Annual number taken of white-sided dolphin (*Lagenorhynchus acutus*) in the Faroe Islands in the period 1872-2009. N = 9,435 whales taken in 158 drives.

It has to be pointed out that in the last about 10 years the following whaling bays in the central part of the islands have mostly been closed for drives of white-sided dolphins: Tórshavn, Hvalvík and Vestmanna at the island of Streymoy, all three whaling bays on the island of Vágur: Sandavágur, Miðvágur, and Bøur, and Streymnes on the island Eysturoy (Fig. 2). Moreover, no drive of white-sided dolphin is conducted during the last years on small pods in any bay (i.e. < about 50 animals) due to difficulties in sharing the catch between the numerous number of participants in the drive. The differences in driving effort may give distorted knowledge of geographical distribution pattern of the dolphins.

Material and methods

The older part (1584-ca. 1960) of the official drive fishery statistics is kept at the Faroese National Archive. A copy is placed at the Faroese Museum of Natural History which has taken over the monitoring and keeps a continuous statistics of the drive fishery to the present date. The official reports from every drive of pilot whales or other species from the different whaling bays normally also contain remarks if any other species have been taken when a mixed school has occurred. The older reports include the name of the species taken, the date, locality, the number of individuals caught, and their prize in the old Norse value named *skinn* (for an explanation and description, see Bloch

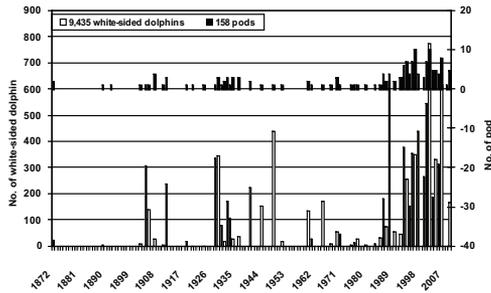


Fig. 3. The number of individuals and pods of white-sided dolphin (*Lagenorhynchus acutus*) taken in the Faroe Islands in the period 1872-2009. N = 158 pods containing 9,435 individuals.

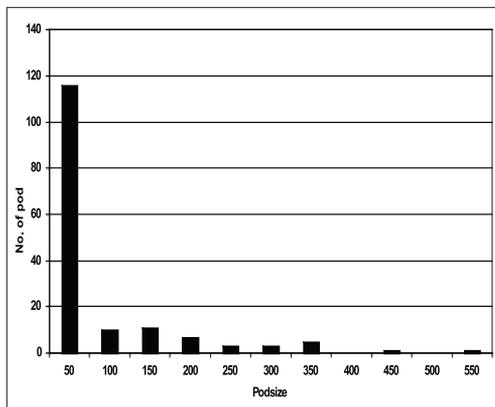


Fig. 4. The pod sizes of white-sided dolphins (*Lagenorhynchus acutus*) taken in the Faroe Islands in the period 1872-2009. N = 158 pods containing 9,435 white-sided dolphins.

and Zachariassen, 1989). Since 1988, also the sex and total body length of the catch, in cm, are included in the reports.

The catch data contains information from 9,435 white-sided dolphins taken in 158 drives from the period 1872-2009 (Table 1). Of those, the locality is known for 146 drives containing 8,929 dolphins and the date for 148 drives with 8,896 dolphins. The

sex is recorded from 39 pods containing 4,133 white-sided dolphins of which 3,177 were sexed (see also Table 2 in Bloch *et al.*, 2003).

To compare with the catch data, simultaneous sightings information are included, made by local fishermen fishing in the Faroese area and send to the Faroese Museum of Natural History all year round (Fig. 1b; Skov *et al.*, 1995; Bloch *et al.*, 2001). The data sampled offshore during the North Atlantic Sightings Surveys (NASS) in 1987, 1989, 1995, 2001 are published by Lockyer and Pike (2009) and Pike *et al.* (2009), while the T-NASS from 2007 will be treated by Mikkelsen (unpubl.). The NASS data were sampled in high summer time, June-August, and in an area in north from Barents Sea to around Greenland and south to Spain, when optimal (Lockyer and Pike, 2009).

Results and discussions

Temporal distribution

During the period 1872-2009, the annual number of white-sided dolphins caught in Faroese waters has ranged from 0-774 with a maximum of 774 whales in 2002 and in average 168 animals and 2.8 pods in the years containing catches, else 68.4 whales and 1.1 pods per year for the period 1872-2009. The number of pods has been 0-10, with the maximum obtained in both 1997 and 2002 (Table, 1; Fig. 3).

Discoloured white-sided dolphins

In two occasions, Fuglafjørður 12. August 2005 (271 whales) and Klaksvík 8. August 2006 (327 whales) one discoloured white-sided dolphin occurred in the pod (Picture 1). Samples were taken of the animals for ge-



Picture 1. Picture of miscoloured white-sided dolphin. Photo: Bjarni Mikkelsen

netic examination to find out if the whales were either discoloured or a cross between a white-sided dolphin and perhaps a bottlenose dolphin (*Tursiops truncatus*). So far, it is known that both had white-sided dolphins as mothers (Wesley Andersen, unpubl.).

Pod size

The pod size in the period 1872-2009 has ranged from 1-544 with an average of 60 dolphins and with 74% containing less than 50 individuals per pod (Fig. 4). It is often mentioned in the official catch reports that the number of individuals taken is only a smaller part of a larger school. Therefore, it is difficult to compare numbers in the drives and offshore sightings, where pod sizes up to 1,000 individuals have been observed (Fig. 1).

Geographical distribution

Two of the whaling bays on Suðuroy: Vágur and Hvalba (Fig. 1) stand for 37% of the

white-sided dolphins, and for 20% of the drives (Fig. 5). As mentioned previously, the geographical distribution of the drives has

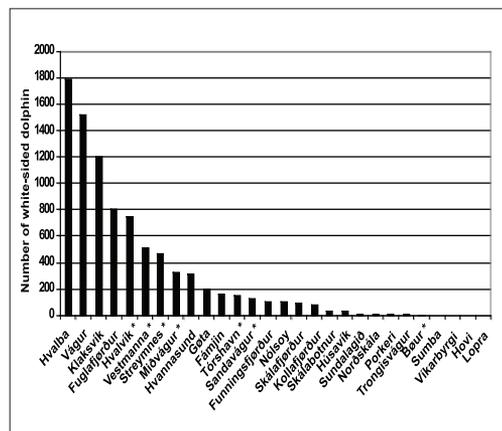


Fig. 5. The geographical distribution of white-sided dolphins (*Lagenorhynchus acutus*) taken in the Faroe Islands in the period 1872-2009. N = 8,929 white-sided dolphins; 146 pods. The whaling bays marked with an * is normally not used during the last about ten years, see text for further explanation.

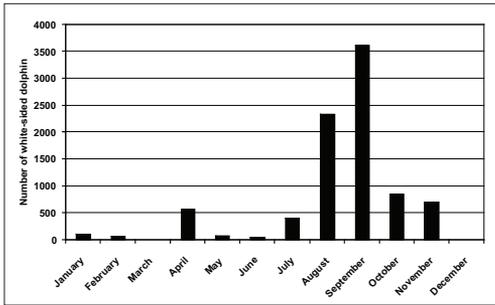


Fig. 6. The annual distribution of white-sided dolphins (*Lagenorhynchus acutus*) taken in the Faroe Islands in the period 1872-2009. N = 8,796 white-sided dolphins; 148 pods.

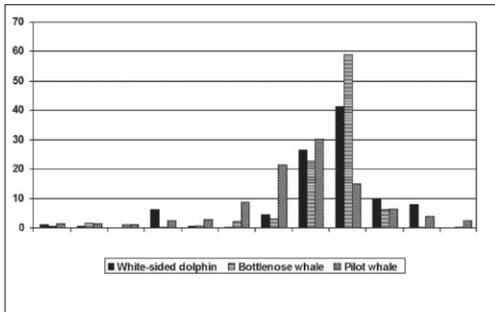
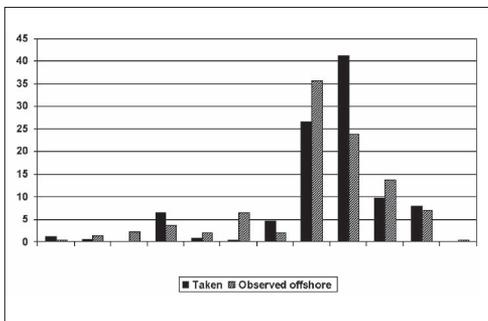


Fig. 7. The percent annual catch distribution of white-sided dolphin pods, *Lagenorhynchus acutus* (1872-2009; N = 8,796 whales; 148 pods) compared with bottlenose whale pods, *Hyperoodon ampullatus* (1584-2009; N = 745 whales; 347 pods) and long-finned pilot whale pods, *Globicephala melas* (1584-2009; N = 256,652 whales; 1,883 pods), all taken in the Faroe Islands.



changed in the most recent years, which also are the years with most catches and/or most reports (Fig. 3). But it may also be influenced by the fact that most white-sided dolphins were observed south of the Faroes (Fig. 1).

Annual distribution

Except March and December, drive fishery for white-sided dolphins has occurred in all months with a maximum in August-September containing 68% of the dolphins and 66% of the pods. The frequency of drives remains low from November-July with a small peak in April indicating a potential migration of white-sided dolphins through Faroese waters in the spring (Fig. 6) as also indicated by the spring occurrence in Irish strandings (Berrow and Rogan, 1997).

Comparison with the whaling statistics of other species

Adequate catch material is available for two of the other harvested species, the long-finned pilot whale and the bottlenose whale. While the pilot whale catch peaks in August with 30%, both the bottlenose whale (59%) and the white-sided dolphin (41%) peak in September. The white-sided dolphin and the bottlenose whale both show a shorter season in September than the pilot whale with a longer peak ranging from July to October (Fig. 7; Bloch *et al.*, 1996).

Fig. 8. The percent annual distribution of the number of white-sided dolphins (*Lagenorhynchus acutus*) taken in the Faroe Islands, 1872-2009 (N = 8,796 white-sided dolphins; 148 pods) compared with the number of white-sided dolphins observed offshore, 1987-2003 (N = 16,924 whales; 392 pods).

Offshore observations

Many observations of white sided dolphins have been made in Faroese offshore waters during the NASS cetacean sightings surveys, all years conducted from end of June to beginning of August (Skov *et al.*, 1995; Bloch *et al.*, 2001; Mikkelsen, unpubl.). Further, simultaneous sightings have been reported all year round from the Faroese fishery research vessel and by fishermen (unpublished data). The offshore observations of the white sided dolphin give information of the pelagic distribution, mostly in summer time.

The drives peaks with 41% in September while the offshore observations peaks (36%) in August, supposedly as a consequence of the restriction in the NASS season. The species was observed all year round offshore opposite the drives which were missing in December and March (Figs. 6 and 8). This gives possibly information about the feeding habits of the white-sided dolphin and the occurrence of their prey species in Faroese waters (Mikkelsen and Bloch, 2003; Mikkelsen unpubl.).

Acknowledgement

We want to thank all the participants in the drivings and on the beach for always to be ready to help with sampling material from the taken species. We also want to thank the local sheriffs and their staff for valuable help. Moreover, we wish to thank our personnel at the Museum of Natural History who with enthusiasm year after year have left everything to sample material from the drives. We also thank Droplaug Olafsdóttir and PH Enckell for valuable comments and remarks on the paper.

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