

Agenda Item 3

Special Species Session: White-beaked
dolphin

Introduction and Conservation Status

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White-beaked dolphin review (2008)

Action Requested

- Take note

Submitted by

Secretariat



**NOTE:
DELEGATES ARE KINDLY REMINDED
TO BRING THEIR OWN COPIES OF DOCUMENTS TO THE MEETING**

Secretariat's Note

The Rules of Procedure adopted at the 19th Meeting of the ASCOBANS Advisory Committee remain in force until and unless an amendment is called for and adopted.

captures reported only in bass and tuna fisheries, with <c.1000 dolphins/year, c.95% identified as common dolphins [859]. Also reported bycaught in following fisheries in NE Atlantic: French, Irish and GB hake fisheries [813, 1161]; Dutch horse-mackerel fishery [279]; and also in Spanish trawls, gillnets and seine nets [720]; and Portuguese gill, beach seine and trawl nets [1087]; consequent bycatch mortality rates not determined.

Numerous contaminants investigated in NE Atlantic, including mercury [533], cadmium [295, 667], lead [232], hexabromocyclododecane [1264], DDT and PCBs [10, 30, 163, 164, 663]. A Σ -PCB level of 17 $\mu\text{g/g}$ lipid reported as threshold level for effects on reproduction in bottlenose dolphin [1051]. However, in W European waters, 40% of the *D. delphis* sample exceeded this threshold value [928]. Highest PCB concentrations in blubber were generally in resting mature females with high numbers of corpora albicantia on their ovaries; unclear whether high contaminant burdens prevented them from reproducing, and inhibited ovulation, or females not reproducing for some other reason, either physical or social, and therefore accumulated high contaminant levels, as unable to pass burdens on to their offspring via placenta or through lactation.

Legally protected in European, British and Irish waters (Table 12.1).

LITERATURE

Worldwide review [363]; overview [913].

AUTHORS

S. Murphy, P.G.H. Evans & A. Collet

GENUS *Lagenorhynchus*

Conventionally a genus of about 6 species of slender dolphins with fewer, larger teeth than *Delphinus* or *Stenella*. However, taxonomy uncertain, molecular data suggest that may not be monophyletic on current taxonomy [962], and *L. acutus* certainly belongs in a different genus from *L. albirostris* (see below).

White-beaked dolphin *Lagenorhynchus albirostris*

Lagenorhynchus albirostris Gray, 1846; Great Yarmouth, England.

Deilf-gheal-ghobach (Scottish Gaelic); *deilf na ngoba bána* (Irish Gaelic).

RECOGNITION

Large, very stout dolphin (Plate 16) with short (5–8 cm) beak (often white in colour), black back except behind dorsal fin, where pale grey to whitish area extends from flanks, forming a distinctive pale ‘saddle’; also grey to whitish blaze on flanks forward of dorsal fin. Black and whitish pattern very distinctive in the field, less obvious in dead animals. Large, often erect, sickle-shaped dorsal fin, centrally placed. Flippers larger, less clearly sickle-shaped than in white-sided dolphin, with fairly straight front margin. Adult skull distinguished from that of white-sided dolphin by being larger and broader, with wider and clearly tapering rostrum and with fewer and larger teeth.

DESCRIPTION

Very stout torpedo-shaped body, rounded snout



Fig. 12.27 Dorsal view of a white-beaked dolphin, showing both the beak and the characteristic black/white pattern on the flanks (photo D. Burn).

White-beaked dolphin

with short, fairly stubby beak and 22–28 pairs of small (*c.*7 mm diameter), sharp-pointed teeth in each jaw. Dark grey or black on back, tail and top of head; dark flank patch of varying extent below dorsal fin, separated from dark back by paler grey coloration of flanks. Pale grey to whitish area extending from flanks over dorsal surface behind fin and back to tail stock ('saddle': less distinct in young animals); pale grey to whitish blaze extending from below dorsal fin forward, sometimes forming pale 'chevron' over head or back (and sometimes passing over the blowhole) (Fig. 12.27). Beak generally white (not always easy to see in the field), but often blotched or spotted with dark grey; sometimes nearly all grey, always paler and contrasting with blackish dorsal surface. Pale eye ring, sometimes connected to beak by thin, white line. Flippers and tail blackish; front edge of flippers near base and lower surface of tail

often freckled with white. Ventral surface white; on central part of abdomen restricted to narrow band between greyish flank patches. Centrally placed, tall (*c.*15% body length), sickle-shaped dorsal fin. Thick tail stock, gradually tapering towards the slightly notched tail flukes, with concave trailing edges.

Adult skull larger, broader, than Atlantic white-sided dolphin, with wider, clearly tapering rostrum, fewer and larger teeth (Fig. 12.20). Lachrymal short and thick, not extending backward below frontal; ramus of lower jaw high, upper margin ascending behind tooth row, ending in a prominent coronoid process. Scapula much wider than high, more or less mushroom-shaped, with clearly concave hind margin. Upper process (acromion) directed nearly horizontally forward; ventral margin of lower process (coracoid) clearly projecting downward below glenoid fossa. Front

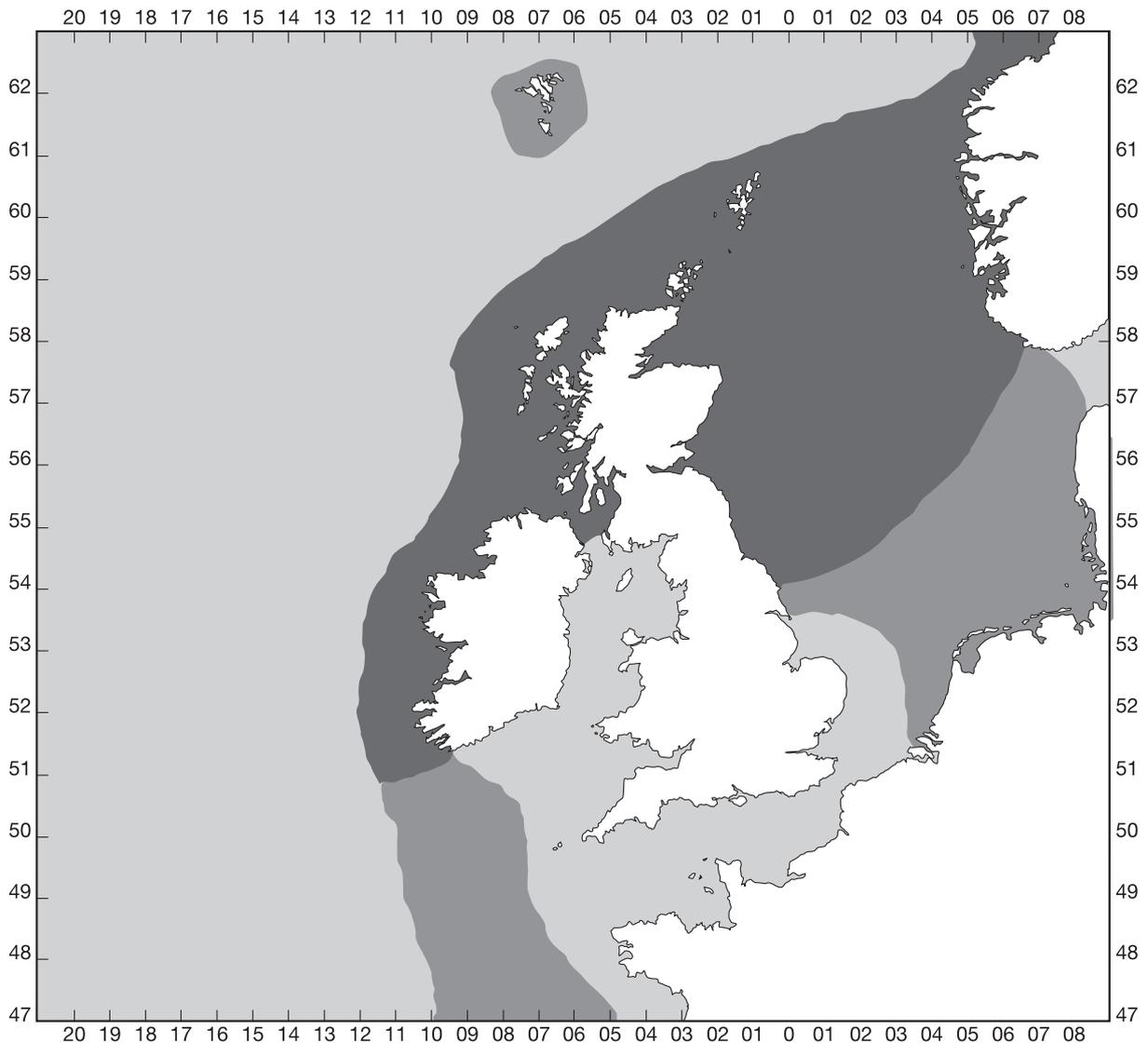


Fig. 12.28 White-beaked dolphin *Lagenorhynchus albirostris*: distribution around British Isles.

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margin of flipper skeleton nearly straight, particularly the radius; combined width of radius/ulna at their distal end about equal to length of radius. These skeletal characters more similar to bottlenose dolphin than to Atlantic white-sided dolphin [1, 112, 800, 969].

RELATIONSHIPS

Analysis of cytochrome *b* [684], osteological characters including skeletal pathology (see below) and occurrence of apparently unique ectoparasite (see below) evidence that white-beaked dolphin not closely related to Atlantic white-sided dolphin, best placed in different genus. Generic name *Lagenorhynchus* thereby restricted to *L. albirostris*, type species for the genus.

MEASUREMENTS

Length: newborn 110–120 cm; at sexual maturity 230–250 cm (female), 250–260 cm (male); adults generally 240–270 cm (female), 250–280 cm (male); max. *c.*3.0 m (female), 3.1 m (male). Weight: newborn *c.*40 kg, adult max. 306 kg (female) (although one pregnant female, Netherlands, weighed 387 kg), 354 kg (male) [413, 630, 970].

VARIATION

Specimens from E and W Atlantic differ in skull characters [783]. Animals in British waters and North Sea may be partially separated from other populations [857, 858]; see also [876].

DISTRIBUTION

Restricted to northern N Atlantic, from SW and CE Greenland, Svalbard and Barents Sea, S to about Cape Cod (USA) and Bay of Biscay. Occurs over much of N European continental shelf; common in British and Irish waters, most abundantly in C and N North Sea across to W Scotland and Ireland; occasional off S Ireland, in the Irish Sea, W Channel, and N Bay of Biscay [97, 340, 345, 346, 360, 481, 857, 858, 973, 1236] (Fig 12.28). Similar distribution to the Atlantic white-sided dolphin, though less pelagic, generally more abundant on the continental shelf [340, 346, 360, 481, 857, 858, 973].

General decline (numbers sighted per unit effort), NW Scotland, since early 1980s; may reflect distributional change [346, 360]. Strandings significantly increased in S North Sea since 1960s, now regularly occur in S Bight [91, 630]. Other important concentrations occur off N Norway [876].

Recorded throughout the year in British waters, but largest numbers seen in late summer, July–September. May move offshore in winter, though poorer coverage may explain lower numbers seen

then in nearshore waters [340, 341, 360, 857, 858].

HISTORY

No fossil or archaeological material known.

HABITAT

Found in cool and subarctic waters, usually over the continental shelf in waters 50–100 m deep. From Sea Watch database, 75% of sightings in NW European waters occurred at SSTs of 11–13 °C (total range including outliers 3–17 °C) [54].

SOCIAL ORGANISATION AND BEHAVIOUR

Most groups <10 individuals, but herds up to 50 not uncommon off NW Scotland, and a few sightings of groups numbering 100–500. Some segregation by age and sex, and, within larger aggregations, subgroups of 2–5 individuals commonly observed. Strandings of small groups (2–7 animals) not uncommon [970]. Otherwise, social structure poorly known. Groups of juveniles may be separated from groups of adults with calves [970]. Apparently adult males generally stay further offshore: of white-beaked dolphins stranded in the Netherlands, juveniles (<2.2 m) show a sex ratio of 1:1, but larger animals predominantly females. Predominance of females among stranded animals also found Denmark, Germany [630].

Moderately fast swimmer, usually travels at 6–12 km/h, attains bursts of 30 km/h [353]. Frequently approaches boats and bow-rides. Often breaches clear of the surface, leaping vertically, falling back into the water usually on its back or side, sometimes directly on to belly [97, 353]. Sometimes associates with fin, sei, and humpback whales, as well as with long-finned pilot and killer whales. Sometimes mixed herds with Atlantic white-sided dolphins, occasionally also with bottlenose dolphin, Risso's dolphin or common dolphin [148, 213, 340, 353, 467, 586, 970].

Vocalisations: Poorly known. Include whistles of 6.5–15 kHz (often *c.*8 kHz), with average source levels (SL) of 180 dB re 1 μ Pa @ 1 m. Echolocation clicks up to at least 325 kHz, with click bursts of 100–750 pulses/s, and maximum SL of 214 dB re 1 μ Pa @ 1 m (mean SL = 204 dB, mean inter-click interval = 51 ms) [795, 796, 957, 970, 1204].

FEEDING

Diet: Great variety of fish (including *Clupea*, *Mallotus*, *Gadus*, *Merlangius*, *Melanogrammus*, *Trisopterus*, *Eleginus*, *Merluccius*, *Trachurus*, *Scomber*, various species of *Ammodytidae*, *Gobiidae*, *Soleidae*, *Pleuronectidae* and *Bothidae*), snow crab *Chionoecetes opilio* and octopus *Eledone cirrhosa*.

Analyses of stomach contents, North Sea and Newfoundland, reveal cod *Gadus morhua*, whiting *Merlangius merlangus* and hake *Merluccius merluccius* as dominant prey [1, 340, 630, 970, 1032] [324, 428, 1101].

Feeding methods: Herds fish cooperatively. Groups seen hunting in a broad front, dolphins swimming parallel to each other at regular distances; fish shoals then encircled and trapped near the surface. Seabirds, particularly northern gannet, kittiwake, and other gull species often closely associate with feeding white-beaked dolphin groups [1, 341, 342].

BREEDING

Data limited. Births mainly in late spring-summer (May–August), with some in September–October [340, 346, 360, 408, 630, 970]. Gestation period c. 10–11 months. Lactation period, calving interval and age at sexual maturity unknown. 3 pregnant animals, Newfoundland, at least 7 years old [324].

POPULATION

SCANS I survey, North Sea and adjacent waters, June–July 1994, gave estimate of 7856 (95% CI 4032–13 301) white-beaked dolphins, or of 11 760 (95% CI 5587–18 528) combining white-beaked and unidentified *Lagenorhynchus* (great majority probably white-beaked). All records were from North Sea and directly NW of Scotland, between c. 54–60° N, 6° W–7° E [481]. Repeat survey (SCANS II), July 2005, covering a wider area (continental shelf seas from SW Norway, S to Atlantic Portugal), gave estimate of 22 700 (CV = 0.42) [478].

MORTALITY

Observed fleeing from pod of killer whales; frequently have scars thought to be caused by sharks and killer whales, but direct evidence of predation lacking [340, 970, 353]. Longevity at least 32 years (males) and 39 years (females) [413]. No information on mortality rates.

PARASITES AND PATHOGENS

2 whale-lice recorded: *Scutocyamus parvus* found on animals from North Sea; unknown from other dolphin species; a few records of *Isocyamus delphinii*, also from North Sea [1, 401].

Endoparasites: Nematodes *Anisakis simplex* (digestive tract) and *Halocercus lagenorhynchi* (bronchi) [170, 324, 441, 1065]; also *Pseudoterranova* sp. (stomach) [64], with trematode *Pholeter gastrophilus* also found [442].

Dystocia (birth trauma in mother, rather uncommon in other dolphins) found several times

[424, 631]. Pneumonia occasional [424, 631]; in 1 animal stranded on Dutch coast, dystocia was associated with morbillivirus, in another with rhabdovirus [630, 885]; morbilli- and rhabdovirus also found in other animals from Dutch coast; 1 stranded in Suffolk had antibodies to morbillivirus [173]. Poxvirus in the skin reported [88]. Diseased jaws and teeth frequent in older animals [646, 970]. Discarthrosis (spondylosis deformans) and spondyloarthritis (spondyloarthropathy: reactive arthritis of the vertebrae) much more common in white-beaked dolphins than in other cetaceans; in one study, discarthrosis reported in 54% of 22 adult females and in 42% of 7 males [646–648]. A few animals found with kyphosis (S-shaped vertebral column) [646, 970]

RELATIONS WITH HUMANS

Organochlorine levels in blubber, kidney and muscle of 27 white-beaked dolphins from Newfoundland were high, considering that all <7 years old; also high levels of lead in kidney, liver and muscle. May have been overwintering in highly polluted Gulf of St. Lawrence [817]. Organochlorine levels in animals from GB generally low [770], as also in Denmark [50], E USA [619], although sample sizes small. Except for lead, heavy metals examined in an adult female, Liverpool Bay, also low [671a, 672]; same true for 7 stranded along Belgian and N French coasts [294].

Other threats poorly known, although small numbers reported bycaught from midwater trawls and driftnets set mainly for cod, mackerel, salmon or herring [347, 855].

Legally protected in European, British and Irish waters (Table 12.1).

LITERATURE

Most recent scientific review [970].

AUTHORS

P.G.H. Evans & C.S. Smeenk

GENUS *Leucopleurus*

Included in *Lagenorhynchus* by most authors, but molecular and genetic evidence argue for separation (see below). Since *L. albirostris* is type species for *Lagenorhynchus*, the generic name *Leucopleurus* (Gray 1866) is applicable to *L. acutus*.

Atlantic white-sided dolphin *Leucopleurus acutus*

Delphinus (*Grampus*) *acutus* Gray, 1828; type locality probably North Sea.

Deilf-chliathaich-ghil (Scottish Gaelic); *deilf le cliathán bán* (Irish Gaelic).