

A case for *Tursiops tursio* (Gunnerus, 1768)

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Abstract: Since about 1903 *Tursiops truncatus* (Montagu, 1821) has gradually replaced *Tursiops tursio* (Fabricius, 1780) as the scientific name for the bottlenose dolphin. In 1903, American cetologist Frederick W. True (1858-1914) had rejected Danish scholar Otto Fabricius' (1744-1822) specific name *tursio* on grounds of: 1. dubious features given in the original description and 2. the mere fact that bottlenose dolphins never had been documented from Greenlandic waters. However, Fabricius' name is a homonym and junior synonym of *Delphinus tursio* Gunnerus, 1768. The Norwegian scholar Johann Ernst Gunnerus (1718-1773) had proposed this scientific name to differentiate between the "stourvagn", the orca of the old Norse people, and the "lillevagn", the other and smaller orca of the northern seas. Gunnerus' brief description and his reference to the "Orca" skull depicted in the 1741 work of German scholar Jacob Theodor Klein (1685-1759) immediately determine *Delphinus tursio* Gunnerus, 1768 to *Tursiops truncatus* (Montagu, 1821). To balance between the principles of priority and stability of the International Code of Zoological Nomenclature, I propose to resurrect *Tursiops tursio* as the scientific name of the bottlenose dolphin granting original authorship to Gunnerus (1768) and designate Puck Bay, Poland as the type locality for the species. Further, I propose to preserve *Orcinus orca* (Linnæus, 1758) for the killer whale.

Keywords: nomenclature, *Tursiops tursio*, resurrection.

Introduction

The origin of zoological nomenclature has been set to the 10th edition of Carl Linnæus' *Systema naturae* published by the year 1758. Serving to provide clarity and stability of scientific names, the International Code of Zoological Nomenclature, however, only dates back to 1895. This code recognises the first and oldest available scientific i.e. Latin name published and disseminated by Linnæus himself in 1758 and subsequently by him or others.

Concerning the cetaceans, Linnæus had to draw from the knowledge of other scientists namely the works of Per Artedi (1705-1735) and Jacob Theodor Klein (1685-1759). Within the genus *Delphinus* Linnæus, following Artedi's (1738) and Klein's (1741) division, listed

three species: *Delphinus phocaena* L. 1758 = the *Phocaena* of Klein; *Delphinus delphis* L., 1758 = the *Delphinus* of Klein and *Delphinus orca* L. = the *Orca* of Klein – often also referred to as "Orca Kleinii" and obviously identical with the extant bottlenose dolphin. Linnæus, however, used *Delphinus orca* for a smaller dolphin like species – as he already in 1748 had included a woodcut based on Klein's 1741 orca table for the 6th edition of his *Systema Naturae* (Linnæus 1748: table IV no 1; figure 1).

The three Linnean dolphin species were based on rather poor and somewhat ambiguous descriptions and therefore these species subsequently have been confused with one another on several occasions over time. Early depictions of the exterior features and habitus of the various species were rather crude – except for the well-known harbour porpoise. Klein's (1741) engraving of his *Orca* rather resembles a bottlenose dolphin than a com-

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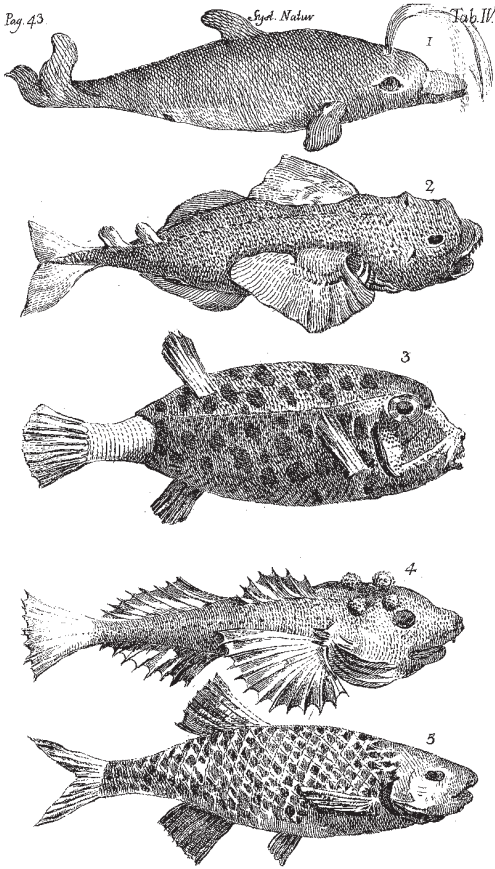


Figure 1. Tabel IV of Linnæus (1748) showing a copy of Klein's Orca as no 1.

mon dolphin (figure 2). In contrast, depictions of the crania match the precision of modern standards allowing an unequivocal species assignment. Klein's depiction of an Orca skull hence exhibits the diagnostic features of a bottlenose dolphin (shape and size of the rostrum, tooth count, shape and size of the face and vertex etc.) (figure 3).

Gunnerus (1768) was the first to point out the existence of two Orca species: a larger and a smaller one and he is, therefore, in nomenclatorial terms considered first reviser. His treatise deals mostly with the orca of the ancient Norse people the *stourvaugn* - which he found to differ significantly from the *Delphinus orca* of Linnæus 1758 - the *lillevaugn*.

In order to differentiate between the two species he reserved *Delphinus orca* for the larger Norse species and proposed the name *Delphinus tursio* for the smaller Linnean species. On page 111 he gave the following description of the species:

Foruden de Gamles rette Orca ere der adskillige andre, som have faaet selsamme Navn. Hid regner jeg Orca Kleinii de pisc Miss II § XXVII sqq p. 22 sqq; thi denne er, saavidt jeg af Beskrivelsen og den Tab. 1 n. 1 hos fœiede Tegning paa Hovedet med Tænderne i samt Fig. 1-4, som afbilde nogle særskilte Tænder, kan skionne, meget forskiellig fra vores Stour-Vagn, og kalder den derfor, til Forskiel Delphinus Tursio dentibus subteretibus, apice planiusculo og er det nok den samme som Schoenewelde i hans Ichthyologie p.53 handler om under det Navn: Orca, paa Tydsk :Grosser Braunfisch, og paa Dansk: Øresvin eller Springer.

[Besides the elders rightful Orca there are several others that have received the same name. Here to I count Orca Kleinii de pisc Miss II § XXVII sqq p. 22 sqq, for it is, as far as I can judge based on the description and the attached Tab. 1 n.1 of the head with teeth in place as well as Fig. 1-4 which depict single teeth, very different from our Stour-Vagn, and I therefore name it *Delphinus Tursio dentibus subteretibus, apice planiusculo* and it is likely the same which Schoenewelde treats in his *Ichthyologie* p. 53 under the Name: Orca, in German *Grosser Braunfisch*, and in Danish: Øresvin or Springer.]

[*dentibus subteretibus* = slightly tapered teeth; *apice planisculo* = flattened beak]

Klein (1741) reported the dolphin to have been captured in Puck Bay near Gdansk ("*In sinu Pucensi prope usque Gdani est capta*"). The skull of the animal was prepared for the town hall library of Gdansk and overseen by Christopher Gottwald. According to Bock (1784) the 11 foot animal had been captured in the early 1700s. Therefore, the referred town hall keeper was Johann Christopher Gottwald (1670-1713) (Pekacka-Falkowska 2017). The skull of the specimen is not known

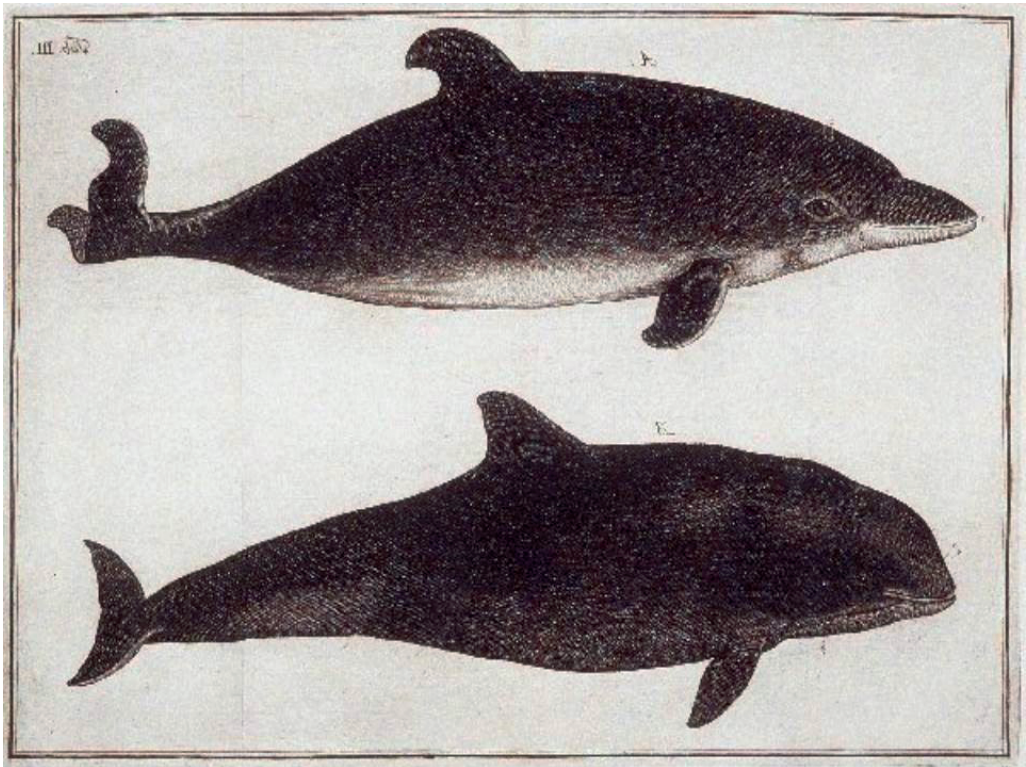


Figure 2. The Orca Kleinii (top) depicted together with the *Phocæna* of Klein (bottom) (1741).

still to exist.

Müller (1776) adopted the Gunnerus orca duality, but listed *Delphinus orca* twice: as no 56 for the smaller species and no 57 for the larger. Fabricius (1780), however, applied Gunnerus' name *Delphinus tursio* – with reference to Gunnerus' treatise but without quoting Gunnerus by name. As a consequence, for many years, the scientific name of the bottlenose dolphin almost undisputedly was *Delphinus tursio* but erroneously with credit to Fabricius' 1780 work on Greenlandic animals and not correctly to Gunnerus. Therefore, as a side effect, the species was believed to dwell in Arctic waters and to be a rarity in European waters.

Hunter (1787), when depicting a bottlenose dolphin from the Scottish North Sea coast also used the scientific name *Delphinus delphis* for this bottlenose with reference to Linnaeus. Along the French coasts bottlenose

dolphins were well known by their vernacular names *souffleur* and *grand marsouin*, but scientifically they were wrongly assigned to *Delphinus delphis*, despite of the many obvious diagnostic features separating common and bottlenose dolphins. Bonnaterre (1789) copied both Hunter's figure, re-naming the dolphin *Delphinus tursio* – the northern dolphin species of Fabricius (1780), and Klein's Orca of 1741 for which he used the name *Delphinus delphis*. Lacépède (1804) proposed to rename the bottlenose dolphin *Delphinus nersernack* as a new name for *Delphinus tursio*, hereby acknowledging the Greenlandic name given by Fabricius, but also quoting Müller (1776) and thereby indirectly Gunnerus. *Delphinus nersernack* antedates *Delphinus truncatus* of Montagu (1821), but has been suppressed by the ICZN based on the proposal of Hershkovitz (1961, 1966).

Billberg (1828), in turn, gave credit to Fab-

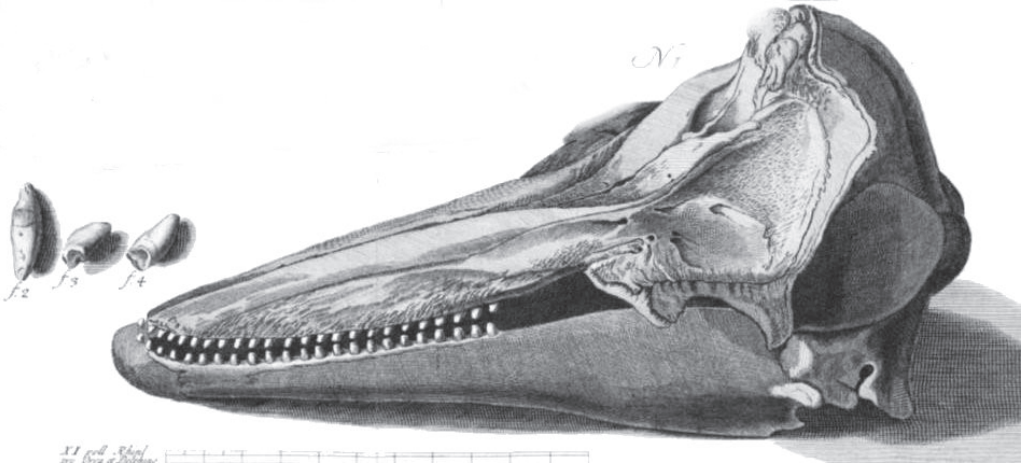


Figure 3. *Tursiops* skull depicted on Tab 1 N 1 in Klein (1741).

ricius by renaming the species *Delphinus fabricii*, a name which has fallen into oblivion. The name *Delphinus tursio* and subsequently *Tursiops tursio* for many years remained unchallenged the scientific name of the bottlenose dolphin, especially on the European continent.

Montagu (1821) described a dolphin taken in 1814 from the British west coast. Due to the very prominent and truncated tooth wear of the type specimen he baptised the species *truncatus*. In the British literature Montagu's species was believed to be a junior synonym of Fabricius' species or maybe a closely allied species of it. As late as 1889 American cetologist Frederick W. True as well held this position in his review of the Delphinidae.

In the second half of the 19th century, doubts had been raised whether Fabricius really had described a bottlenose dolphin or rather - with reference to the Greenlandic name given in his treatise - a pilot whale. Reinhardt (1857) synonymised *Delphinus tursio* Fabricius, 1780 with *Delphinus globiceps* (= *Globicephala melas* (Traill, 1809)) and only listed the white-beaked and the white-sided dolphin among the marine mammals of Greenland. Brown (1868) likewise considered the Fabricius' species a pilot whale as subsequently did Winge (1902) and eventually True (1903).

While True (1903) put emphasis on the

descriptive parts in Fabricius (1780) that indeed cannot refer to a bottlenose dolphin he seems to have neglected the other part that provided much more dolphin-like features:

Cauda minus attenuata, quam in reliquis. Pinna dorsalis ut Balaena rostratae. Totus nigricans, abdomine parum albicante. Pulli etiam pallidiores. Reliqua ut in Phocaena.

[The tail less attenuated than in other cetaceans. Dorsal fin like in the piked whale. The whole body dusky in coloration, belly though a little whitish. Juveniles in general paler. Other features as in the porpoise.]

The dorsal fin shape rather points to a white-beaked dolphin while the coloration could easily match both a pilot whale and a white-beaked dolphin since either of the two species may be termed "porpoise-like".

However, Fabricius did quote the work of Gunnerus (1768) – although only by reference and not by name. Gunnerus is to be considered the first user of this scientific name placing Fabricius' homonym into junior-synonymy. He used the name to tell apart a smaller dolphin species, i.e. *Delphinus tursio*, from the ordinary killer whale (*Delphinus orca*). Gunnerus' rather precise Latin description of the teeth (dentibus subteretibus = slightly tapered teeth) and beak (apice planisculo = flattened beak) seemingly has been overlooked by the

scientific community - presumably not due to lacking language skills, but rather restrains in circulation to a wider scientific community. The original account was published in Danish, but two years later also a German translation was provided (Gunnerus 1770).

White-beaked dolphins remained until their formal description a “hidden species” under a wider bottlenose dolphin umbrella. The two species also subsequently frequently were confused with one another and often remained undifferentiated in decades after with several incorrect determinations, especially on the European mainland. To unravel all these cases, however, is not the purpose of the present paper, but for the nomenclatorial refinement it is mandatory to accept and fix a proper name for the bottlenose dolphin in *sensu stricto*.

Given the fact that no bottlenose dolphin ever has been documented from Greenland, the true identity of *Delphinus tursio* Fabricius, 1780 indeed may lay among the rarer Greenlandic delphinid species which besides the pilot whale could also have been the white-beaked dolphin. In contrast, *Delphinus tursio* of Gunnerus is based on unequivocal evidence of the genus *Tursiops*.

Conclusion

Gunnerus (1768) referred his *Delphinus tursio* to the work of Klein (1741). Here in Klein’s table 1 beyond any doubt a *Tursiops* skull is depicted (figure 3). Since Gunnerus’ scientific name is accompanied by a proper description and further supported by an unambiguous illustration in Klein’s work his name is available and prompts the following nomenclatorial changes:

The *Delphinus orca* described by Linnæus is not the killer whale in the present sense, but possibly a bottlenose dolphin or conglomerate of several dolphin species. Instead, the killer whale (*Orcinus orca* (L., 1758)) fits Linnæus’ description of *Physeter microps*, the “small

eyed sperm whale” for which the presence of a tall dorsal fin (‘pinna altissima’) is given as the key feature. Therefore, the bottlenose dolphin most stringently should be known as “*Tursiops orca* (Linnæus, 1758)” and the killer whale as “*Orcinus microps* (Linnæus, 1758)”, but since this would unnecessarily shatter the present nomenclature, I propose Gunnerus be acknowledged as the first reviser and accept his differentiation: the killer whale would still be *Orcinus orca* (Linnæus, 1758 in sensu Gunnerus 1768) and the bottlenose dolphin would again be *Tursiops tursio*, not of Fabricius (1780) but of Gunnerus (1768):

Tursiops tursio (Gunnerus, 1768)

Delphinus orca Linnæus 1758 sensu originale

Delphinus orca no 57 Müller 1776

Delphinus tursio Fabricius 1780

Delphinus tursio Bonnaterre 1789

Delphinus nersanack Lacépède 1804

Delphinus truncatus Montagu 1821

Delphinus fabricii Billberg 1828

The type locality: Puck Bay near Gdansk (Poland, Baltic Sea).

Type specimen: Depiction of the Orca skull no 1 on Table I in Klein (1741) (Fig 3). An 11 foot animal captured in the early 1700s at the type locality.

A summary table is provided of the changes and proposed changes over time (table 1).

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Table 1. Summary of changes and proposed changes.

Norse people	Klein 1741	Linnaeus 1758	Gunnerus 1768	Müller 1776	Fabricius 1780	Hunter 1787	Lacépède 1804	Montagu 1821	Gervais 1855	True 1889	True 1903	Proposed / current
"lillevagn"	<i>Orca</i> [from Gdansk] [" <i>Orca Kleini</i> " of authors]	<i>Delphinus orca</i> n sp	<i>Delphinus tursio</i> n sp	<i>Delphinus orca</i> no 56	<i>Delphinus tursio</i>	<i>Delphis delphis</i>	<i>Delphinus nersernack</i> n sp	<i>Delphinus truncatus</i> n sp	<i>Tursiops</i> n gen	<i>Tursiops tursio</i> (Fabricius, 1780)	<i>Tursiops truncatus</i> (Montagu, 1821)	<i>Tursiops tursio</i> (Gunnerus, 1768)
"stourvagn"		<i>Physeter microps</i> n sp	<i>Delphinus orca</i>	<i>Delphinus orca</i> no 57	<i>Delphinus orca</i>							<i>Orcinus orca</i> (Linnaeus, 1758) (sensu Gunnerus 1768)

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Samenvatting

Een pleidooi voor *Tursiops tursio* (Gunnerus, 1768)

Sinds ongeveer 1903 heeft *Tursiops truncatus* (Montagu, 1821) geleidelijk aan *Tursiops tursio* (Fabricius, 1780) vervangen als de wetenschappelijke naam voor de tuimelaar. In 1903 had de Amerikaanse walvisdeskundige Frederick W. True (1858-1914) de naam *tursio*, gegeven door de Deense wetenschapper Otto Fabricius (1744-1822), verworpen op grond van 1. twijfelachtige kenmerken in de oorspronkelijke beschrijving; en 2. het feit dat tuimelaars nooit gedocumenteerd waren in Groenlandse wateren. De naam gegeven door Fabricius is echter een homoniem en jonger synoniem van *Delphinus tursio* Gunnerus, 1768. De Noorse wetenschapper Johann Ernst Gunnerus (1718-1773) had deze wetenschappelijke naam voorgesteld om onderscheid te maken tussen de 'stourvagn', de naam die het oude Noorse volk gaf aan de orka, en de 'lillevagn', de naam gegeven aan de andere, kleinere 'orka' van de noordelijke zeeën. De beknopte beschrijving van de soort door Gunnerus, samen met zijn verwijzing naar een afbeelding, uit 1741, van een 'orka'-schedel in een werk van de Duitse wetenschapper Jacob Theodor Klein (1685-1759), tonen echter onmiskenbaar aan dat *Delphinus tursio* Gunnerus, 1768 dezelfde soort betreft als *Tursiops truncatus* (Montagu, 1821). Om een evenwicht te vinden tussen de principes van prioriteit en stabiliteit van de *International Code of Zoological Nomenclature*, stel ik voor om *Tursiops tursio* opnieuw in te stellen als de wetenschappelijke naam van de tuimelaar, waardoor origineel auteurschap verleend wordt aan Gunnerus (1768), en om Puck Bay, Polen, aan te duiden als type-localiteit voor de soort. Verder stel ik voor om de wetenschappelijke naam *Orcinus orca* (Linnaeus, 1758) te behouden voor de orka.

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