

INTRODUCTION	RATIONALE	PREPAREDNESS	BIOLOGICAL ADVICE	IMPACT ASSESSMENT	LIBRARY	WEB LINKS	TECHNICAL DOCUMENTS	SHOPPING LISTS
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HANDBOOK ON OIL IMPACT ASSESSMENT

4.0 SPILL RESPONSE

4.1 Assessing the damage

Technical document

External observations including biometrics of stranded seabirds

A carcass is first thoroughly examined from the outside and relevant biometrical data are collected when possible. If a standard autopsy can be avoided, that is if age, sex and possible origin can be deduced from external observations, this would save time and costs. In spills where large quantities of oil are found on carcasses, external observations are seriously hindered. Bill and feet may have to be localised 'by touching' and it should be realised that whatever observations are done, a thorough check for the presence of rings (legs, neck), wing tags (forewing) or electronic devices (leg, back) is of the greatest importance.

Standard procedure: carcasses of ringed or tagged birds should be kept aside for later inspection, not matter how incomplete the carcass may be. Ringed or tagged birds, particularly those where the exact age is known (ringed as chicks) are very important to further develop these protocols and to check biometrics and ageing characteristics used in these manuals. As a general rule: birds with a somehow known history are of vital importance for the calibration of ageing techniques and as checks for the analysis of breeding origin. These carcasses should therefore be treated with care.

Identification

The identification of bird carcasses is very different from the identification of birds in field situations. Good birders obviously do not necessarily make good pathologists, but even their ordinary identification skills will be challenged when carcasses are oiled, rotten, partly scavenged, or simply when birds are held dead in the hand rather than in pristine condition some metres distance away. Field guides do not necessarily provide the most relevant characteristics for lab conditions, although it is important to have some copies at hand for consultation. Carcasses can be heavily oiled or utterly incomplete, and vital characteristics may simply not be available for inspection. Field guides do not generally provide basic biometrics that could be helpful to make decisions on the specific identity of a bird in the hand, and hand books are not always readily available.

Technical documents have been provided with this handbook, summarising important information from a variety of sources. Species specific information is provided, arranged per family, focusing on general distribution patterns, geographical variation, biometrics, and identification guidelines (including sex and age from external characteristics). Many of these texts lean heavily on the standard handbooks:

- Cramp S. & Simmons K.E.L. (eds) 1977. *The Birds of the Western Palearctic*, 1. Oxford Univ. Press, Oxford.
- Cramp S. & Simmons K.E.L. (eds) 1983. *The Birds of the Western Palearctic*, 3. Oxford Univ. Press, Oxford.
- Bauer K.M. & Glutz von Blotzheim U.N. 1966. *Handbuch der Vögel Mitteleuropas*, 1. Akad. Verl., Wiesbaden.
- Bauer K.M. & Glutz von Blotzheim U.N. 1969. *Handbuch der Vögel Mitteleuropas*, 3. Akad. Verl., Frankfurt am Main.
- Glutz von Blotzheim U.N., Bauer K.M. 1982. *Handbuch der Vögel Mitteleuropas*, 8/I. Akad. Verl., Wiesbaden.
- Glutz von Blotzheim U.N., Bauer K.M. 1982. *Handbuch der Vögel Mitteleuropas*, 8/II. Akad. Verl., Wiesbaden.
- BWPi 2004. *The birds of the western Palearctic interactive*. DVD Birdguides, Shrewsbury.

- BWPI 2006. The birds of the western Palearctic interactive, 2006 Upgrade. DVD Birdguides, Shrewsbury.
- Baker K. 1993. Identification guide to European non-passerines. BTO-guide 24, Butler & Tanner, London.
- Prater A.J., Marchant J.H. & Vuorinen J. 1977. Guide to the identification and ageing of Holarctic Waders. BTO Guide 17, Brit. Trust Orn., Tring.

but also on numerous papers, other books and unpublished material. Note that the citations of the literature used in these technical documents **will not and cannot replace the original sources!** The technical documents are meant for quick reference only, they will be constantly updated and advice to improve these texts and tables will be greatly appreciated! The following bird families have been described, or are currently under preparation.

Bird families	• Gaviidae	• Phaethontidae
	• Podicipedidae	• Anatidae
	• Procellariidae	• Phalaropodinae
	• Hydrobatidae	• Stercorariidae
	• Sulidae	• Laridae
	• Phalacrocoracidae	• Sternidae
		• Alcidae

Potential co-authors are invited to improve these texts, or contribute to them by adding or replacing chapters, data or illustrations, so that we would end up with the best possible quick-reference information for the most important taxa in case of an oil spill, anywhere in Europe.

Ageing

For all birds in which the age can be deduced from plumage characteristics, autopsies may not be needed. The technical documents on bird families summarise information on external ageing characteristics.

Sexing

For all birds in which the sex can be deduced from plumage characteristics or biometrics, autopsies may not be needed. The technical documents on bird families summarise information on external sexing characteristics.

Biometrics

Different species may have different body parts to measure, but conventional measurements are used and even preferred whenever possible. The standard handbooks normally provide us with bill length, wing length, tarsus length and body mass. Each of these should be measured according to internationally accepted protocols and deviations should be very clearly indicated.

Other common measurements include bill depth, head length, tail-length, and sternum length. Each of these would need an explanation. Even more specific measurements are for example bill width, cutting edge of mandible length, tube length, nail length, toe length, tail streamer length, etcetera. For species-specific measurements, see the technical documents on bird families. The most common measurements are explained here:

Key measurements: bill length, wing length and tarsus



Figure 1. Bill length, tip to feathers, measured in a Red-throated Diver. Exactly where the feathers starts is easy in most species, but hard to judge in some. Avoid measuring wide areas of naked skin around the mandible horn.



Figure 2. Wing length, flattened chord, measured in a Red-throated Diver. A ruler with a stop is required for proper measurements, find out which feather(s) should be the longest (see 'Structure' in the Technical documents on bird families) to confirm that the wing is 'fit' to be measured, stretch and flatten the primaries as shown (this method is also referred to as 'wing length max').



Figure 3. Tarsus length, measured in a Red-throated Diver. Measure from the notch at the back of the intertarsal joint to the distal edge of the last large complete scale at the front of the foot, just before the toes diverge. The foot is gently bent down at right angles to the tarsus to expose the last large scale.

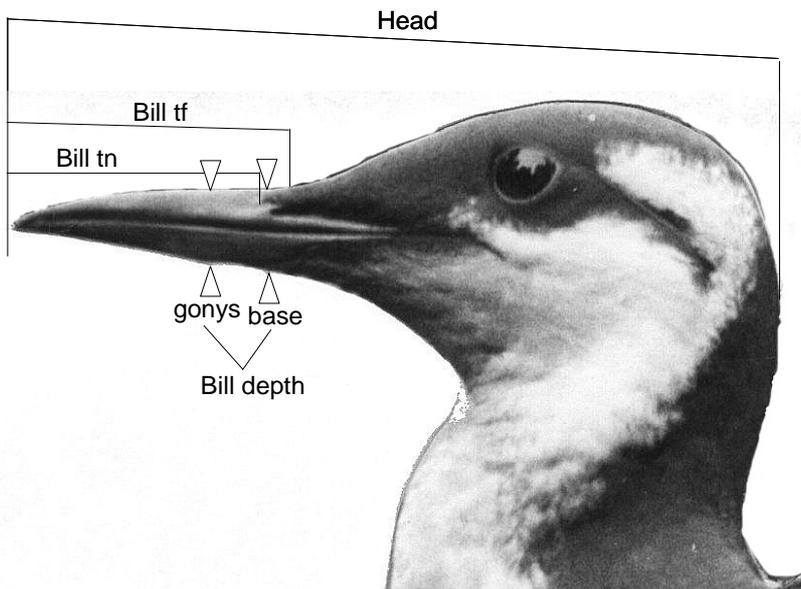


Figure 4. Further common measurements include total head (Head), bill from tip to nostril, bill depth at base, and bill depth at gonys, here illustrated on a Common Guillemot. Callipers are required for each of these, but it should be noted that in Northern Gannets, ordinary callipers may be difficult to use when the total head needs to be measured. Some species do not have a clear gonys, in which case that measurement should be skipped.

For total head (Head), bend the head as illustrated and firmly hold the callipers against the back of the head.

For bill depth (bill gonys and base), make sure the beak is empty (no sand, no dried blood to influence the result).

For nostril to tip (Bill tn), hook the callipers into the nostril and stretch to find the bill tip.

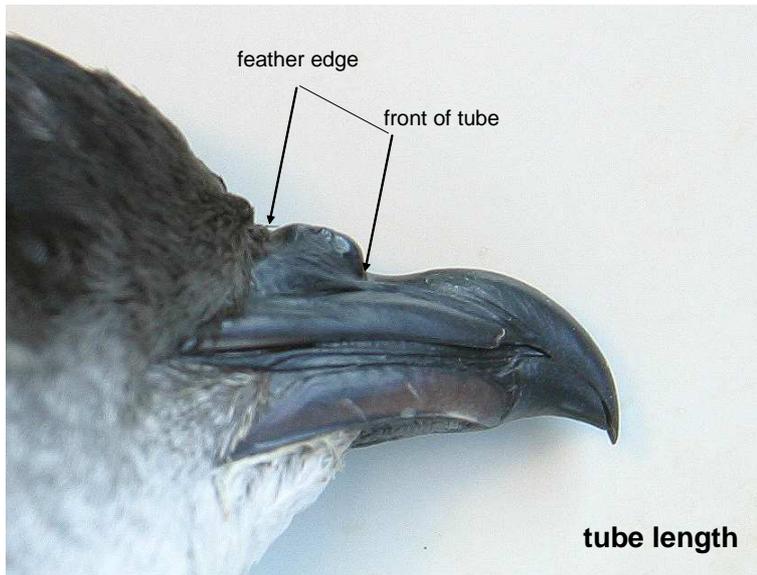


Figure 5. Tube length is a measurement that is commonly used in Procellariidae and Hydrobatidae.

(Measurements are shown on the bill of a Common Diving Petrel *Pelecanoides urinatrix*)

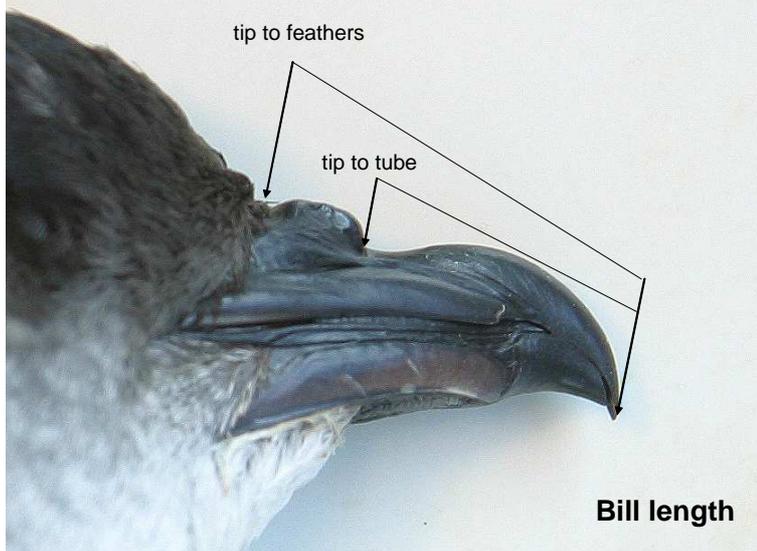


Figure 6. Other common measurements in Procellariidae and Hydrobatidae, from which tube length may in fact be calculated, are bill length tip to feathers (bill tf) and bill length tip to tube.

(Measurements are shown on the bill of a Common Diving Petrel *Pelecanoides urinatrix*)

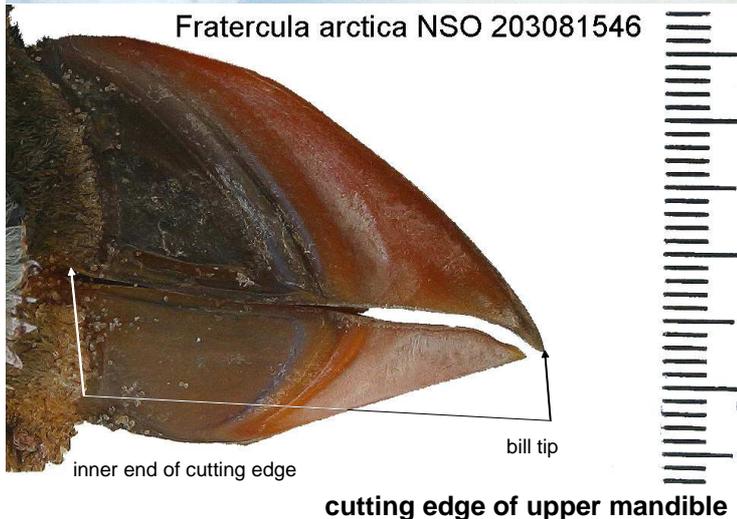


Figure 7. Atlantic Puffins have complicated bills and a rather different bill morphology in winter than in summer.

One of the standard measurements for puffins is the length of the cutting edge of the upper mandible, as shown in this photo, from the inner end of the cutting edge to the bill tip.

Instruments needed

Instruments needed external observations are a few callipers, wing rulers, a balance, disposable vinyl or latex protective gloves, protective clothing and perhaps mouth caps (to avoid inhaling hydrocarbons or pathogens), A4 clip-boards, datasheets, pens, plastic bags for the collection of particular carcasses. Nearby deep-freezing facilities

are strongly recommended. An illustrated shopping list is provided {[external observation shopping list](#)}, in bullet points the following pieces of equipment are essential:

- Wing rulers of 30 cm and a 50 cm length with a stop at 0 cm should both be available. Note that wing rulers of >50cm are required in spills affecting Northern Gannets!
- A balance (electronic or otherwise), should be capable of weighing up to 5 kg with an accuracy of at least 5g. An additional, smaller balance (up to 2 kg, accuracy 2g) would be welcome.
- Electronic callipers are nice to work with, but they have a tendency to give up without prior notice (batteries run typically empty) and don't work when wet or dirty.
- Strong cardboard or plastic labels, with string or tie rips to attach labels to carcasses, permanent marker.
- Plastic bags for storage of carcasses that need to be kept in the deep freezer
- Protective gloves and clothing
- Data sheets and pens

References

- Baker K. 1993. Identification guide to European non-passerines. BTO-guide 24, Butler & Tanner, London.
- Barrett R.T., Peterz M., Furness R.W. & Durinck J. 1989. The variability of biometric measurements. *Ringling & Migr.* 10: 13-16.
- Camphuysen C.J. 2005. Assessing age and breeding origin of wrecked Little Auks *Alle alle*: the use of biometrics and a variable underwing pattern. *Atlantic Seabirds* 7(2): 49-70.
- Kelm H. 1970. Beitrag zur Methodik des Flügelmessens. *J. Orn.* 111(3/4): 482-494.
- Lougheed S.C. Arnold T.W. & Bailey R.C. 1991. Measurement error of external and skeletal variables in birds and its effects on principal components. *Auk* 108: 432-436.
- Prater A.J., Marchant J.H. & Vuorinen J. 1977. Guide to the identification and ageing of Holarctic Waders. BTO Guide 17, Brit. Trust Orn., Tring.

Citation

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