HANDBOOK ON OIL IMPACT ASSESSMENT

4.0 SPILL RESPONSE

4.1 Assessing the damage

Technical document

Technical documents for external examination and autopsies

Carcasses of known date and location should be checked for rings, counted, identified, checked for the amount of oiling, measured if needed and aged. To try and assess the (breeding) origin of affected seabirds will require species-specific observations, and these are outlined in technical documents for autopsies associated with this page (note that actual autopsies may not be needed).

Family	Identification	Ageing	Forms	Library
ANATIDAE	easy*	external		
GAVIIDAE	difficult	external		
PODICIPEDIDAE	easy*	internal		
PROCELLARIIDAE	easy*/difficult	internal		
HYDROBATIDAE	difficult	internal		
SULIDAE	easy*	external		
PHALACROCORACIDAE	easy*	external		
PELECANIDAE	easy*	external		
PHALAROPODINAE	difficult	external		
STERCORARIIDAE	difficult	external		
LARIDAE	easy*/difficult	external		
STERNIDAE	difficult	external		
ALCIDAE	easy*	external/internal		

*For experts

General autopsy

If external characteristics for ageing are either unreliable, absent, or useless because the casualties are heavily oiled, a simple autopsy will shed light on the age composition of the casualties. In a fairly basic laboratory setting, the birds should be opened up to check the condition and development of the gonads and to inspect the presence and size of the bursa Fabricii [Standard autopsy]. The physical condition of the bird can be checked (presence of subcutaneous and deposited fat), the condition of some vital organs

can be superficially inspected (lungs, liver, kidneys, and gut) [Condition manual], and the stomach can be collected for later analysis of the diet. Note that the ageing and sexing routine is part of the impact assessment (need to know data), whereas the dietary work is highly valuable, but not strictly needed. The actual diet study can be postponed, when the stomachs are simply labelled and frozen for later inspection. Details of a general autopsy are described in four technical documents, and the same system applies for all seabirds.

Ageing and sexing	[Ageing manual]
Physical condition	[Condition manual]
Dietary work	[Diet study]

Necessary steps to take

(1) **Make a plan** for the autopsy, in which the goal of the exercise is to be identified. The below protocol is for a standard (quick and dirty) autopsy. For example DNA analysis, oil sampling, chemical analysis of tissues or particular veterinary or parasitological investigations require an additional protocol.

(2) **Identification & labelling** of the corpse, record date and place of finding, condition of the corpse, plumage characteristics, presence and amount of oiling of the feathers, check for rings and particularities that may have caused or influenced death
(birds that died in a rehabilitation centre need to be identified now to allow separation later from those that died out in the open)

(3) **External observations →** Biometrics and primary moult; Standard measurements are:

Bill tip to feathers (0.1mm)
Bill tip to nostril (0.1mm)
Bill height at base (0.1mm)
Bill height at gonys (0.1mm)
Head (mm)
Wing (mm)
Tarsus (mm)

Mass (g) [if clean enough and not scavenged]

Tail and sternum (during dissection) optional. Several species have a different set of measurements; do check in advance! Check and score primary moult before wing length is measured, check breeding patch. Optional: tail and secondary moult. **Note that standard biometrics are different between species, so do consult the Technical documents dealing with your particular bird species or bird family.**

(4) **Internal observations →** Autopsies The following sequence is logic and prevents omissions. The subsequent steps are illustrated in the Technical document [Standard autopsy]

	Technical document
• Place corpse on the back and cut open (top sternum to cloaca)	
• Gently separate skin from breastmuscle and 'open' corpse	
• Record subcutaneous fat (0-3) and breast muscle condition (0-3)	[Condition manual]
• Record body moult (subcut. waxy sheaths): light, moderate, heavy	[Moult score manual]
• Lift sternum and open body cavity	
• Cut ribs, open up and record condition liver (0-3) and guts (0-3)	[Condition manual]
• Record deposited fat (0-3)	[Condition manual]
• Check and record kidneys (0-3) and lungs (0-3)	[Condition manual]
• Sex the bird (testis lgth x br / follicle size (0.1mm) and oviduct (1-4)	[Ageing manual]
• Check bursa Fabricii (+/-) (size indication if present)	[Ageing manual]
• Collect stomach and (optional) guts in a labelled plastic deepfreeze bag	
• Optional: collect and label other items	