

and hence effective management and conservation policies may be seriously considered to further reduce the mortality of olive ridley as well as marine mammals. The Forest and Fisheries Department, Government of Orissa and West Bengal may enforce restriction in the fishing activity during *arribada* seasons which will prevent large scale killing of the nesting population. Fishermen may also be advised to haul their fishing gears (especially trawl and gill nets) in frequent intervals during the

nesting season so that the entangled turtles and marine mammals, if any, may be released to increase the chances of their survival. Another possibility is the introduction of 'turtle excluder net', which has been developed in the U.S.A. for shrimp trawling; in this device, the entangled turtles are allowed to escape and the shrimps are retained in the cod end. Attempts can be made off Gahirmatha with similar design trawl nets to ascertain its efficiency in allowing the turtles to escape.

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TABLE 8. Details of four carcasses of marine mammals in different states of decomposition observed at Gahirmatha, Orissa on 16th January 1987

| Measurements (cm) | <i>S. chinensis</i> | | <i>N. phocaenoides</i> | |
|--|---------------------|---------|------------------------|-------|
| | No. 1 | No. 2 | No. 1 | No. 2 |
| Tip of upper jaw | | | | |
| " to deepest part of fluke notch .. | 99.85+ | 201.0 | 165.0 | 160.0 |
| " to top of dorsal .. | — | 105.0 | — | — |
| " to anterior insertion of flipper (rt) | 37.5 | — | 38.0 | 37.0 |
| " to centre of eye .. | 24.0 | — | 18.0 | 18.0 |
| " to angle of gape .. | 20.0 | — | 14.3 | 13.0 |
| Rostrum (max. width) .. | — | — | 18.5 | 7.5 |
| Projection of lower jaw beyond upper .. | — | — | 2.5 | 3.0 |
| Length of eye .. | 1.7 | — | 3.2 | 3.5 |
| Blowhole length .. | — | — | — | — |
| Blowhole width .. | — | — | — | — |
| Flipper length tip to anterior insertion | Damaged | Damaged | — | — |
| Dorsal fin height .. | — | 12.3 | — | — |
| Dorsal fin base .. | — | 29.1 | — | — |
| Tooth count | | | | |
| Rt upper .. | 30 | 31 | 17 | — |
| Rt lower .. | 30 | — | 11+ | 10 |
| Lt upper .. | 31 | 31 | 17 | 10+ |
| Lt lower .. | 30 | — | 13+ | — |

TABLE 9. Details of three carcasses of marine mammals in different state of decomposition observed at Gahirmatha, Orissa on 7.3.1987 and 8.3.1987

| Measurements (cm) | <i>S. chinensis</i> | <i>O. brevirostris</i> | Specimen No. 3 |
|--|---------------------|------------------------|----------------|
| Tip of upper jaw | | | |
| " to deepest part of fluke notch .. | 188.0 | 201.0 | 142.0 |
| " to top of dorsal .. | — | 121.0 | — |
| " to anterior insertion of flipper (rt) | 52.5 | 36.0 | — |
| " to centre of eye .. | 33.0 | 11.5 | — |
| " to angle of gape .. | 29.0 | 9.0 | — |
| Rostrum (max width) .. | — | — | — |
| Projection of lower jaw beyond upper .. | 2.0 | — | — |
| Length of eye .. | 2.9 | 3.0 | — |
| Blowhole length .. | 3.5 | 4.0 | — |
| Blowhole width .. | 1.2 | 1.0 | — |
| Flipper length (tip to anterior insertion) | 23.0 | 21.0 | — |
| Dorsal fin height .. | — | 6.0 | — |
| Dorsal fin base .. | — | 17.5 | — |
| Fluke span .. | 42.0 | 56.0 | — |
| Notch of fluke to anus (centre) .. | 94.0 | 62.0 | — |
| Girth at anus .. | 94.0+ | 77.0 | — |
| Girth at eye .. | 68.0+ | 64.0 | — |
| Tip of lower jaw to genital opening .. | 112.0 | 109.0 | — |
| Tooth Count | | | |
| Rt upper .. | 34 | 13 | — |
| Rt lower .. | 32 | 13 | — |
| Lt upper .. | 33 | 11 | — |
| Lt lower .. | 32 | 12 | — |

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TABLE 6. Details of two carcasses of *Neophocaena phocaenoides* observed at Gahirmatha Beach, Bhitarkanika Wildlife Sanctuary, Orissa on 4-2-1986

| Measurements (cm) | No. 1 | No. 2 |
|--|--------------|------------|
| Tip of upper jaw | | |
| .. to deepest part of fluke notch | 180 | 163 |
| .. to anterior insertion of flipper (rt) | 42.5 | 36 |
| .. to centre of eye | 9.5 | 7.0 |
| Flipper length | 33.0 | 17+ |
| Tooth count | | |
| Rt upper | — | — |
| Rt lower | — | — |
| Lt upper | 17 | 10+ |
| Lt lower | 15 | 12+ |
| Condition | ..Decomposed | Decomposed |

REMARKS

Large scale mortality of nesting females of *L. olivacea* during *arribada* could have an adverse effect on the breeding population and thereby the total stock. The mortality of olive ridley *L. olivacea* and marine mammals in the incidental catch is caused due to entanglement in the fishing gears. Thanks to the stringent measures taken by the Forest officials of Orissa and West Bengal State Governments, the mortality of olive ridley declined from 7500 in 1983 to 392 in 1984. However mortality has not reduced since 1984

TABLE 7. Details of freshly stranded male Humpback dolphin *Sousa chinensis* (30.5 kg) observed at Gahirmatha, Orissa on 16th January 1987

| Details | Straightline parallel to the body axis (cm) | Point to point (cm) |
|---|---|---------------------|
| Tip of upper jaw to deepest part of fluke notch | 127 | 137 |
| .. to centre of anus | 97 | 99 |
| .. to centre of genital slit | 70 | 78 |
| .. to end of ventral grooves | 45 | 46 |
| .. to top of dorsal fin | 78.5 | 82 |
| .. to anterior insertion of flipper (rt) | 38 | 39 |
| .. to centre of blow hole | 22.7 | 25.5 |
| .. to centre of eye (rt) | 23.7 | 23.8 |
| .. to angle of gape | 20.3 | 24.0 |
| Rostrum (maximum width) | 5 | 8 |
| Projection of lower jaw beyond upper | 1 | — |
| Length of eye (rt) | 1.6 | — |
| Centre of eye to angle of gape (rt) | 4.0 | — |
| Centre of eye to angle of gape (left) | 4.2 | — |
| Blowhole length | 1.5 | — |
| Blowhole width | 2.5 | — |
| Flipper length | | |
| (a) tip to anterior insertion (rt) | 22.0 | 22.2 |
| (b) tip to anterior insertion (lt) | 22.5 | 23.0 |
| Dorsal fin height | 11.5 | 11.5 |
| Dorsal fin base | 28.5 | 28.5 |
| Fluke span | 32.0 | — |
| Notch of flukes to centre of anus | 42.0 | 43.0 |
| Notch of flukes to centre of genital aperture | 60.0 | 61.5 |
| Girth at anus | — | 46.0 |
| Girth at eye | — | 59.0 |
| Tooth count : | | |
| Rt upper | — | 33 |
| Rt lower | — | 29 |
| Lt upper | — | 33 |
| Lt lower | — | 28 |
| Genital slit length | 12.5 | — |
| Anal slit length | 3.5 | — |

Colour : Dorsal dark grey, ventral greyish white, caudal dark grey and flipper dark grey.

Remarks : Since the specimen was freshly washed ashore, it was cut open and examined. Weight of intestine, lungs, stomach, pancreas, kidney, heart, liver, testis taken.

Parasites : Nil.

Gut : Empty.

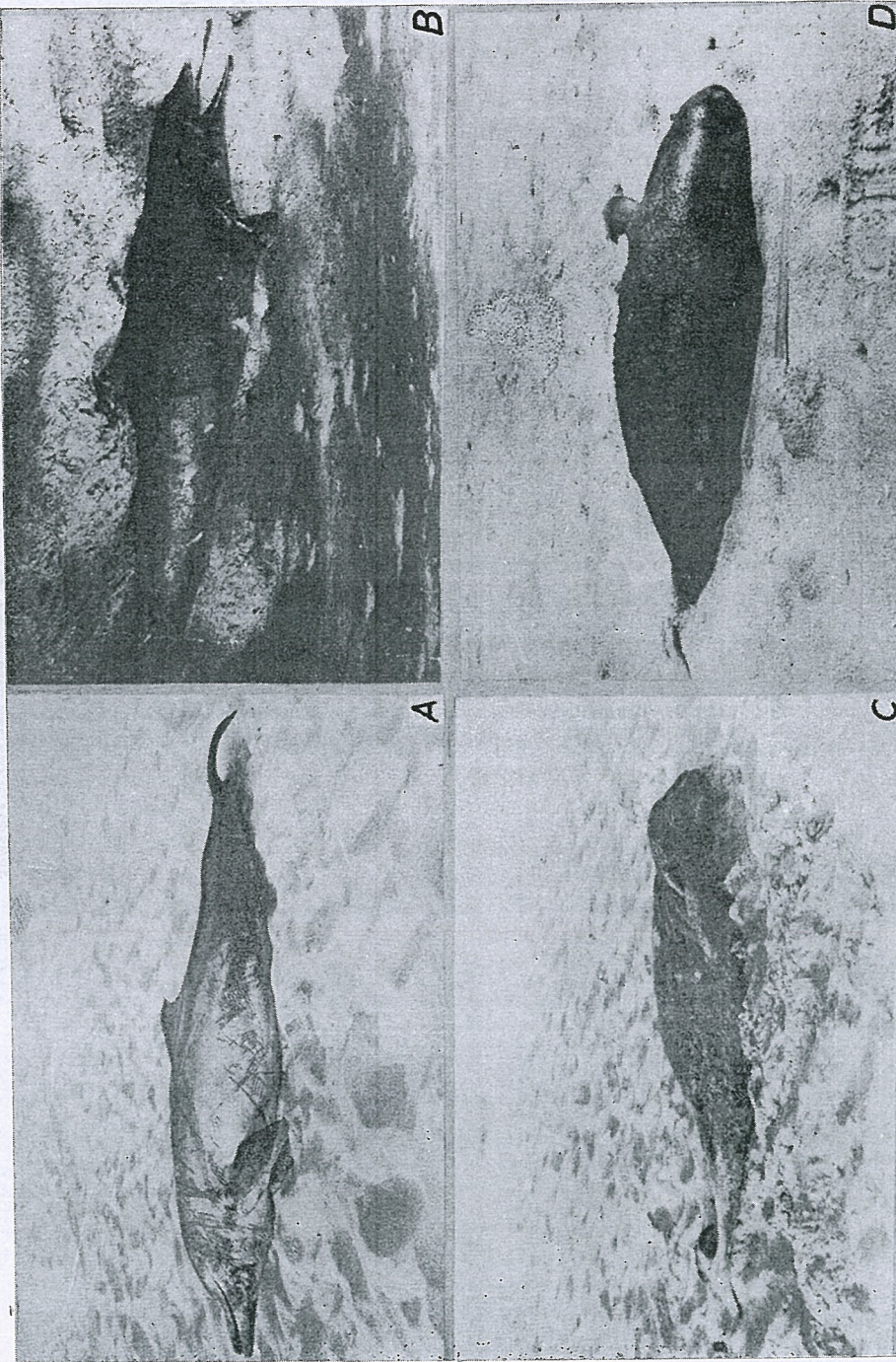


PLATE II A. Freshly washed ashore Humpback dolphin *Sousa chinensis* at Gahirmatha in January 1987; B. Carcass of *S. chinensis* at Gahirmatha in March 1987; C. Carcass of Finless black porpoise *Neophocaena phocaenoides* at Gahirmatha in February 1986 and D. Carcass of Snubfin dolphin *Orcaella brevirostris* at Gahirmatha in March 1987.

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