

## Stomach Content Analysis of a Stranded Specimen of *Tursiops truncatus*

A. VOLIANI and C. VOLPI

Consorzio Regionale di Idrobiologia e Pesca, Livorno (Italia)

**Abstract** - A total of 145 individuals belonging to at least 9 species were found in the analysis of a bottle-nosed dolphin stomach content; fishes represented approximately 90% and the remaining 10% were cephalopods. Most of the preys found have demersal habits.

On the 15th of February 1990 a stranded male bottle-nosed dolphin (*Tursiops truncatus*) was found on the beach of Marina di Donoratico, Livorno, Italia. 1-2 days before the dolphin was found, when the stranding is supposed to have taken place, winds blew from S-SW, with a strength of 30-75 km/h and the sea was very rough (6-7 degrees Beaufort).

The specimen, 2.15 m long, bore no outward signs of the possible cause of the death. A superficial necropsy, carried out on the field, revealed no useful hints as to assess why the animal died. The complete skeleton is deposited at the Natural History Museum of Livorno.

The stomach contained approximately 2 kg (total weight) and 1.3 kg (drained weight) of food at various stages of digestion. The analysis of the gastric contents revealed rests of fishes and molluscs, some of which at the initial stage of digestion, thus indicating that the dolphin had ingested food almost until its death. The remains of the food were analysed in order to determine which species were present. The following table is a detailed list of the body parts used for the identification and of the number of individuals found for each species.

| SPECIES                      | OTHOOLITS |    | OTHER BODY PARTS | BEAKS | SPECIMENS |
|------------------------------|-----------|----|------------------|-------|-----------|
|                              | R.        | L. |                  |       |           |
| <b>FISHES</b>                |           |    |                  |       |           |
| <i>Merluccius merluccius</i> | 62        | 62 | yes              |       | 62        |
| <i>Spicara smaris</i>        | 30        | 30 | yes              |       | 30        |
| <i>Trisopterus minutus</i>   | 22        | 22 | yes              |       | 22        |
| <i>Argentina sphyraena</i>   | -         | -  | yes              |       | 2         |
| <i>Conger conger</i>         | 1         | 1  | yes              |       | 1         |
| <i>Scomber</i> sp.           | 2         | 2  | yes              |       | 2         |
| Clupeidae                    | 1         | 2  | yes              |       | 7         |
| unidentified fishes          | 5         | 7  | -                |       | 7         |
| <b>CEPHALOPODS</b>           |           |    |                  |       |           |
| <i>Eledone cirrhosa</i>      |           |    | yes              | 11    | 11        |
| <i>Illex coindetii</i>       |           |    | yes              | 1     | 1         |

The identification of the species through otholiths and cephalopod beaks was carried out by comparison with those available in the Institute study collections and by using reference books (Clarke 1986). Where it has been possible, other identification keys were used: jaws, vertebrae, etc..

Clupeidae have very small and fragile otholiths and reassembled vertebral columns were used to determine the number of specimens. *A.sphyraena* was identified through its peculiar swimming bladder.

The size and weight of the preys can be approximately inferred from the body parts which have been found. The otholiths length / total length ratio has been estimated and used for *M.merluccius* (N=34  $a=1.91$   $b=2.16$   $r=0.995$   $p<0.001$ ); figure 1 shows the distribution by size obtained by means of this ratio.

Weights varying from 15 to 380 g were estimated by using the L/W relationship (Auteri et al. 1987). The size and weight of *E.cirrhosa* was determined through the beak length / mantle length and beak length / weight ratios indicated by Clarke (1986). The specimens have thus resulted to have mantle sizes that varied from 70 to 95 mm and weights from 50 to 150 g.

For little sized species, with a very reduced size range, single values were given for length and weight. A weight of 25 g per individual was attributed to *T.minutus* and *S.smaris*, usually shorter than 15 cm, and 15 g to *A.sphyraena* and Clupeidae. An evaluation of the weight of the few items of *Scomber* sp., *C.conger* and *I.coindetii*, thanks to their almost integral conditions, was possible: 250, 150 and 25 g respectively.

Figure 2 shows the diagrams of presence respectively by items' numbers and weights per species.

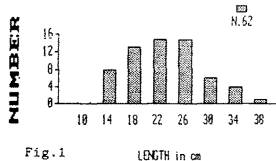


Fig. 1

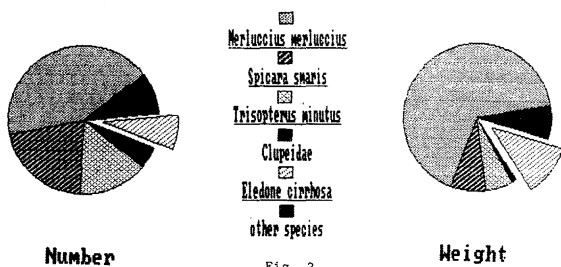


Fig. 2

The preys found totalled 145 individuals and about 9.5 kg; fishes represented approximately 90% in number as well as in weight. Most of the preys are demersal species (*M.merluccius*, *T.minutus*, *C.conger*, *S.smaris*) and even benthic ones (*E.cirrhosa*) confirming that this dolphin is adapted to a catholic diet (Evans, 1987).

The total length of most of the preyed fishes is less than 20 cm, probably because these are the most common sizes in the environment; however *M.merluccius* close to 40 cm long and 400 g weight have been reported.

### REFERENCES

- CLARKE M.R., 1986. A Handbook for the Identification of Cephalopod Beaks. Clarendon press, Oxford 1-XIII+1-273 pp.  
 EVANS P.G.H., 1987. The Natural History of Whales & Dolphins. Helm press, London 136-142 pp.  
 AUTERI R., BAINO R., SERENA F., RIGHINI P., REALE B., VOLIANI A., MANNINI P., VOLPI C., PIRAS A., SILVESTRI R., 1988. Valutazione delle risorse demersali; risultati del presurvey 1985 dalla foce del Magra all'Isola d'Elba. Atti Sem. UU.00. Min. Marina Mercantile: 1105-1165.