

SOME ASPECTS ON THE FEEDING HABITS OF TWO SPECIES OF MID-WATER FISHES  
STRANDED ON THE SHORES OF THE STRAIT OF MESSINA

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Summary. The gut contents of 103 shore stranded specimens of *Hygophum benoiti* and *Myctophum punctatum* have been analyzed.

Résumé. Le contenu stomacal de 103 exemplaires de *Hygophum benoiti* et *Myctophum punctatum* échouées sur le littoral du Détroit de Messina a été analysé.

The shore stranding of pelagic, deep-sea organisms is a peculiar characteristic of the Strait of Messina. *Hygophum benoiti* and *Myctophum punctatum* are the two most quantitatively important species of Myctophid fishes to be found stranded along the shores of this region. The opportunity to sample numerous specimens of both species, in all of their developmental stages, has allowed us to study their feeding habits and the causes which lead to their stranding.

This preliminary note summarize the data pertaining to the gut contents of a total of 103 specimens in the 40-60 mm size range. They were collected in March 1972, '74, '77 and October 1973, '76. When possible, the prey items have been identified to the species level. We intend to amplify the present study to include all size categories of both species for all twelve month of the year and, at the same time, to correlate the gut contents with the faunistic composition of the zooplankton of this region.

Copepods were by far the major dietary constituent of both species of Myctophids in the two periods sampled, followed by Euphausiids and Amphipods (Table 1). Other minor constituents were Decapod larvae, Appendicularians, Mysids and Polychaete fragments.

Our first results seem to indicate that:

- *H. benoiti* and *M. punctatum* have similar diets;
- they are non-preferential feeders having varied diets, the composition of which seems to be dependent on the faunistic spectrum in any one particular season;
- the size range of the prey items is between 1.5 mm and 1.0 cm, though both larger and smaller specimens have occasionally been found;
- the prey items include both surface species (*Nannocalanus minor*, *Temora stylifera*, *Centropages typicus*, *Clausocalanus lividus*, etc.) and

	March		October	
	<i>H. benoiti</i>	<i>M. punctatum</i>	<i>H. benoiti</i>	<i>M. punctatum</i>
Total Copepods	83.0	67.7	87.6	89.8
<i>Nannocalanus minor</i>	5.3	10.6	8.2	18.7
<i>Euchirella messinensis</i>	0.6	1.9	0.9	8.8
<i>Euchaeta marina</i>	1.3	1.5	5.5	3.1
<i>Temora stylifera</i>	0.1	0.8	20.5	14.5
<i>Pleuromamma abdominalis</i>	58.0	23.3	3.2	17.6
<i>Pleuromamma gracilis</i>	7.7	16.7	5.9	5.8
<i>Paracandacia simplex</i>	0.7	1.5	4.1	4.8
Others (57 species)	26.3	46.7	51.7	26.7
Total Euphausiids	14.9	24.9	10.0	3.7
<i>Euphausia krohnii</i>	7.8	-	76.0	1.0
<i>Meganictyphanes norvegica</i>	67.5	97.9	-	71.6
<i>Nematoscelis megalops</i>	1.3	-	12.0	14.6
Others (5 species)	23.4	2.1	8.0	12.8
Total Amphipods (14 species)	0.7	0.8	0.8	1.5
Other Groups	1.4	7.4	1.6	4.9

Table 1. Relative percentage composition of species which comprise the gut contents of *Hygophum benoiti* and *Myctophum punctatum* in March and October.

sub-surface species that are known to carry out extensive diel vertical migrations (*Pleuromamma abdominalis*, *P. gracilis*, *Euchirella messinensis*, *Candacia longimana*, *Euchaeta acuta*, *Euphausia krohnii*, *Meganictyphanes norvegica*, etc.). Therefore, the faunistic association within the stomachs of both species is typical of that which can normally be found in surface waters at night. However, due to their preference for prey items of a certain size range, the faunistic association within the stomach is less varied than that which occurs in nature; - between individuals of a species collected on any sampling date, there is high variability in the composition of prey items in the stomachs. On occasion individual Myctophids sampled simultaneously have had prey items of a single species and at times of a single sex within their guts. We believe that this does not indicate preferential feeding but rather that the fish has fed in a monospecific or even unisexual patch. Consequently the study of the gut contents at the specific level may be a useful tool in interpreting the distribution and behaviour of zooplankton species. The above observations imply that the stranding of these two species of mid-water fish is not exclusively due to upwelling currents in the Strait. Rather, these organisms carry out regular diel migrations, being found in more surface waters at night, at which time particularly hydrodynamic conditions in certain areas of the Strait can lead to their stranding.