BC Benthic Carnivores polychaetes

ALCIOPIDAE

AMPHINOMIDAE they browse on corals and anemones (Ebbs, 1966), on sponges and hydroids (Dales, 1963) or on sponges, hydroids, and ascidians (Day, 1967) . Pherecardia sp. is more active than most amphinomids in that it may hunt and feed on specimens of Marphysa (Polychaeta : Eunicidae) (Day, 1967) . The best investigated species is Hermodice carunculata which may browse on corals (Porites) or feed on sea anemones. Marsden (1963b) reported the gut content of Hermodice carunculata ; she remarked that specimens found on sand contain sand, spines, setae and algal fragments, whereas specimens found on corals contain zooxanthellae, coral fragments, eunicid jaws, radulae and setae, indicating that sand-dwelling specimens may be carrion-feeders . APHRODITIDAE Gut content in Aphrodita aculeata was listed by Blegvad (1914) and Hunt (1925), both of whom examined a number of specimens . Both agree that the most common items in the gut were remnants of other polychaetes, especially terebellids and sabellids . We consider the aphroditids as slow-moving carnivores, taking as prey microscopic animals if nothing else is available, but specializing on sessile or slow-moving animals if encountered .

ARABELLIDAE

DORVILLEIDAE Schistomeringos neglecta and Protodorvillea kefersteini are carnivores

(Pearson, 1971 ; Rasmussen, 1973 ; Wolff, 1973) . Rasmussen detailed the diet of the latter as a "variety of small invertebrates”.

EUNICIDAE Eunice aphroditois is a carnivore (Hempelmann, 1931 ; Evans, 1971) ; its

gut content includes annelids chaetognaths ostracods, copepods, bivalves, a few diatoms, and some detritus (Yonge, 1954a) . E. tubifex will emerge from its tube in search of prey (Day, 1967) and large, free-living species of Eunice from various tropical beaches will feed on carrion (Mortensen, 1922) . free-living or tubicolous species of Eunice are primarily carnivores, feeding on all kinds of small invertebrates .

EUPHROSINIDAE Gustafson (1930) who investigated their anatomy in detail, indicated that they feed mainly by scraping sponges off rocks, but will also feed on bryozoans and corals. Both Euphrosine foliasa and E. cirrata have been found with sponge spicules and chitin fragments as major components of the gut content (McIntosh, 1894) and Euphrosine sp. from South Africa lives on sponges (Day, 1967). A deep-water species of Euphrosine from the Atlantic Ocean feeds exclusively on foraminiferans (Sanders, Grassle & Hampson, pers .

comm.) ; the exact mechanism is under investigation (K . Fauchald, in prep .)

GLYCERIDAE (Ockelmann & Vahl (1970) found G. alba to prefer moving prey, such as small polychaetes and amphipods ; it is less interested in sessile prey and will not attack animals encased in tubes. These results were generally confirmed for G. robusta by Ronan (1978).

GONIADIDAE

HESIONIDAE The larger hesionids (Hesionides maxima, Kefersteinia cirrata, Nereimyra punctata, and Syllidia armata) are carnivores (Westheide, 1967 ; Pearson, 1971 ; Rasmussen, 1973) ; they feed on a variety of small invertebrates.

LUMBRINERIDAE Blegvad (1914) listed the gut content for Lumbrineris fragilis as consisting of other polychaetes (Pherusa plumosa and tube-worms), the ophiuroid Amphiura sp ., nemerteans, small crustaceans and bivalves . Zibrowius et al. (1975) showed that Lumbrineris flabellicola is a commensal with cnidarians of the genera Caryophyllia and Flabellum, feeding on the food of its hosts, and Gardiner (1903) claimed that lumbrinerids might drill in newly formed coral .

LYSARETIDAE Yonge (1954a) reports the gut content of Halla parthenopeia, which is less strictly tropical than Oenone fulgida, as consisting of algae, diatoms, and copepods, perhaps indicating a scraping mode of life on hard substrata .

NEPHTYIDAE Nephtyids are usually considered vagile carnivores, feeding on small invertebrates including molluscs, crustaceans, and other polychaetes (Rauschenplat, 1901 ; Blegvad, 1914 ; Hunt, 1925 ; Yonge, 1928, 1954a; Hempel- ' mann, 1931 ; Thamdrup, 1935 ; Linke, 1939 ; Mare, 1942 ; Smidt, 1951 ; Southward, 1957 ; Clark, 1962; Jepsen, 1965 ; Day, 1967 ; Retiere, 1967 ; Hartmann-Schroder, 1971 ; Pearson, 1971 ; Schafer, 1972 ; Rasmussen, 1973 ; Wolf, 1973 ; Ronan, 1978) .

ONUPHIDAE Opinion on the feeding biology of onuphids is more than usually divided. Hartmann-Schr6der (1971) characterized them as carnivores and Schafer (1962) gave evidence of this. Hempelmann (1931) called Diopatra neapolitana a herbivore ; Yonge (1954a) listed its gut content as algae, sponges, bryozoans, crustaceans, and detritus, indicating a rather more catholic taste . D. ornate feeds largely on kelp, according to evidence gathered by Emerson (see below), but Rosenthal, Clarke & Dayton (1974) called it a scavenger .

PHYLLODOCIDAE Khlebovich (1959) reported that E. longa feeds exclusively on the spionid Spio filicornis; Michaelis (1971) found that the same species would feed exclusively on another spionid, Scolelepis squamata . A related species, Eteone heteropoda feeds on the nereid polychaete, Nereis (Neanthes) succinea and cannibalistically (Simon, 1965) . Retiere (1967) found E. Tonga to be less selective than indicated by either Khlebovich or Michaelis, feeding on a variety of small metazoans .

PILARGIIDAE

POLYNOIDAE The polynoids are considered carnivores, feeding on small crustaceans, echinoderms, polychaetes, gastropods, sponges, and hyroids (Darboux, 1899 ; Rauschenplat, 1901 ; Blegvad, 1914 ; Meunier, 1930 ; Hoop, 1941 ; Korringa, 1951 ; Ebbs, 1966 ; Streltzov, 1966 ; Hartmann-Schroder, 1971 ; Pearson, 1971 ; Sarvala, 1971 ; Schafer, 1972 ; Rasmussen, 1973 ; Wolff, 1973 ; Hughes, 1975) . The most common prey, amphipods, made up 65 .6 % by weight and occurred in 87 % of the specimens. Sarvala listed dietary items in detail and related a shift in the diet from smaller to larger arthropods with increasing size of the worm .

POLYODONTIDAE

SIGALIONIDAE Yonge (1954a) gives the gut content of Psammolyce arenosa as polychaetes and detritus.

SPINTHERIDAE They are carnivorous or ectoparasitic on sponges (McIntosh, 1894 ; Hartmann-Schroder, 1971) .

SYLLIDAE Members of the subfamily Autolytinae feed largely on hydroids (Okada, 1928 ; Hamond, 1969 ; Hughes, 1975) each species is more or less a specialist on a single kind of hydroid or on a few related kinds . Other syllids feed on hydroids or bryozoans and other colonial invertebrates (Malaquin, 1893 ; Okada, 1928). We postulate that all members of the subfamilies Autolytinae and Syllinae are carnivores feeding on hydroids, bryozoans, and other colonial invertebrates.

Carnivores are found in 19 families. All holoplanktonic polychaetes, with the exception of Poeobiidae, are carnivores; we have no clear explanation for this pattern . Among the benthic families, all or nearly all species of Amphinomidae, Aphroditidae, Euphrosinidae, Polynoidae, and Sigalionidae are carnivores . The amphinomids and euphrosinids (order Amphinomida) feed by everting a strongly muscular, chitinized lower lip and rasping sessile or hemisessile prey such as cnidarians. and sponges. Deep-water cuphrosinids may feed mainly on foraminiferans . One genus of amphinomids, Hipponoa, falls outside the pattern in that its species are commensals associated with lepadid barnacles . The three other families listed are the largest scaleworm families (superfamily Aphroditacea) . The hesionids and nereids (in their guise as carnivores) feed on crustaceans, bivalves, and other polychaetes, while syllids feed mainly on hydroids and sponges . Most of the symbiotic (sensu latu) polychaetes are members of otherwise carnivorous groupings . Commensals are also present in Ctenodrilidae and Flabelligeridae, neither of which have carnivorous members. In these two families, the commensal relationship appears to be informal, and both commensals appear to feed on the food collected by the host (sea urchins in both cases) or use the host for a ride.

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| **prey item** | **probability of consuming** |
| coral COR | 0.3 |
| sponges BFF | 0.3 |
| polychaetes BC | 0.2 |
| detritus DR | 0.2 |
| DL | 0.2 |
| BAC | 0.2 |
| zooplankton ZME | 0.2 |
| diatoms PL | 0.2 |
| carrion DC | 0.2 |
| small invertebrates BG | 0.2 |
| ophiuroid/echinoderms BD | 0.2 |
| algae MA | 0.1 |

Reference

Kristian Fauchald, Peter A . Jumars 1979 The diet of worms : a study of

polychaete feeding guilds Oceanogr. Mar. Biol. Ann. Rev ., 1979, 17, 193-284