Marine Invertebrates in the Plankton

Ooh, look at this!

- heard many times during team sorting last week

Major Taxa
Crustaceans
  Crabs (zoa, megalopae)
  Copepods
  Barnacles (nauplii, molts)
  Cladocerans (brachiopods)
Cnidarians
Ctenophores
Chaetognaths & Larvaceans
Polychaetes (syllids)
Molluscs (snail egg cases, veligers)
Echinoderms (plutei, bipinnaria)

Major Themes
Habitat Description
Sampling Methods
Diversity
Matching Form and Function

Top Ten List
Top “ten” ideas to investigate and understand about this habitat:
5. Plankton as a habitat: spatial and temporal structure
4. Exploring species diversity and abundance in the plankton
3. Functional similarities among taxa
2. Interactions among organisms
1. Links to benthic habitats

Questions
How do the structure and dynamics of the plankton community compare to those in the other habitats we are studying? Should plankton be classified as a ‘habitat’?

Are tidal cycle, depth, and other factors that vary in time and space likely to affect the local plankton assemblage? By which mechanisms, and in which directions?

How do planktonic organisms accomplish tasks such as locomotion, feeding, and defense? Are there functional similarities among taxa? What factors might be operating to conserve these similarities?

What are the consequences to benthic invertebrates of having a planktonic larval stage with respect to dispersal, gene flow, and local adaptation? Do they also apply to organisms that are strictly planktonic (e.g., copepods)?
A Guide to
Marine Coastal Plankton and Marine Invertebrate Larvae
Second Edition

DeBoyd L. Smith
and
Kevin B. Johnson
sections are indicated by the plate numbers underneath the illustrations in the quick flip reference below. Illustrations below will not identify all unknown organisms being investigated, but should give a good indication of where to look in the main body of this text to identify organisms similar in attributes to those illustrated below. If your mystery plankton is morphologically unusual for its group, perhaps telltale characteristics, such as setae or eyespots, will lead you to the correct section. If all fails, flip through the book. Chances are you will quickly find something similar to your organism.

Plate 1. Quick Flip Reference: Diatoms, Foraminiferans & Actinopods
2.1 Tintinnid Ciliates
   Plates 22 & 23

2.2 Ciliates
   Plates 22 & 23

2.3 Dinoflagellates
   Plates 27 & 28

2.4 Dinoflagellates
   Plates 27 & 28

2.5 Ciliated Spheres
   Plates 29, 97, 100, 102

2.6 Medusae
   Plates 29-35

2.7 Branching Organisms
   Plates 36, 36, 97

2.8 Siphonophores
   Plates 38-40

2.9 Zooid Fragments
   Plates 40-41

Plate 2. Quick Flip Reference: Ciliates, Dinoflagellates, Cnidarians & Miscellaneous

17
3.1 Ctenophores
Plate 42

3.2 Pilidida
Plates 43-44

3.3 Unsegmented Worms
Plates 44-48, 50, 97-98

3.4 Rotifers
Plate 48

3.5 Pelagospaera
Plate 49

3.6 Trochophores
Plates 49-51, 53, 55, 89, 107

3.7 Polycheates
Plates 52-58

3.8 Eggs
Plates 54, 89, 100, 109-110

3.9 Mitraria
Plate 57

Plate 3. Quick Flip Reference: Ctenophores, Pilidida, Vermiformes, Eggs

18
Plate 4. Quick Flip Reference: Polygordius, Various Crustaceans

19
5.1 Metanauplius, Similar Forms  Plates 65, 79

5.2 Copepods  Plates 66-70

5.3 Siphonostomatid  Plate 70

5.4 Parasitic Copepods & Similar Forms  Plates 71, 75-76

5.5 Shrimp-Like Forms  Plates 72-73, 80-84

5.6 Cumacean  Plate 74

5.7 Tanaid  Plate 74

5.8 Isopods, Similar Forms  Plates 71, 75-76

5.9 Amphipods  Plates 76-77

Plate 5  Quick Flip Reference: Various Crustaceans

20
Plate 6. Quick Flip Reference: Crustaceans and Molluscs
7.1 Nudibranchs
Plate 94

7.2 Cephalopods
Plate 96

7.3 Actinotroch
Plate 98

7.4 Lingula
Plate 99

7.5 Chaetognath
Plate 99

7.6 Pediveliger
Plate 95

7.7 Late Bipinnaria
Plates 100-102

7.8 Echinoderm Juveniles
Plates 101, 103-104

7.9 Bipinnaria, Similar Forms
Plates 100, 102, 105

Plate 7. Quick Flip Reference: Molluscs and Deuterostomes

22
8.1 Late Echinoderm Larvae
   Plates 101, 104

8.2 Plutei
   Plates 103-104

8.3 Cyphonautes
   Plate 97

8.4 Brachiolaria
   Plate 101

8.5 Pentacula
   Plate 102

8.6 Barrel Forms
   Plates 102, 108

8.7 Tadpole Larva
   Plate 106

8.8 Larvacean
   Plate 107

8.9 Larval Fish
   Plates 109-112

Plate 8. Quick Flip Reference: Deuterostomes