1963 #4

BREEDING SEASONS OF LOCAL MARINE INVERTEBRATES

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The breeding habits for a number of marine invertebrates have been reported by D. P. Costello et al. (Methods for Obtaining and Handling Marine Eggs and Embryos; MBL 1957) for the Woods Hole area. As the breeding habits in the considerably colder MDI area differ, as is to be expected, substantially from those found at Woods Hole, and as knowledge of the breeding seasons is essential to the planning of embryological work, a study of these properties was undertaken at the MDIBI during June - August 1963. Conditions are reported below for each consecutive 15 days of the summer.

R = ripe gonoproducts; experimental fertilization achieved

E = embryos or larvae observed in mother animal (or sexual structures)

C = egg capsules with developing young obtained

U = Unripe gonoproducts; experimental fertilization unsuccessful, or embryos or larvae in mother animal not present

S = animals spent

(EB) = from Eastern Bay localities

(SS) = from southern shore localities (exposed to sea)

(BH) = from Blue Hill Bay localities

	JUN 1	JUN 2	JUL 1	JUL 2	AUG 1	AUG 2
Tubularia crocea (EB)[2]	U	U	(E)	E	E	E
Clava leptostyla (EB)[2]	U	(U)	(E)	(E)		E
Hydractinia echinata (EB)[2]	(U)	R	R	R	R	R
Sertularia pumila (SS)[1]	E	E	(E)	S	S	S
Campanularia flexuosa (SS)	-	E	E	E	E	-
Campanularia amphora (BH)[7]	-	-	E	E	E	-
Obelia geniculata (SS)	-	E	E	E	E	-
Aurelia aurita (EB)	U	(E)	E	E	E	E
Metridium dianthus (EB)[2]	-	-	U	R	R	R
Cerebratulus fuscus (EB)[3]	-	R	R	(S)	S	R
Micrura affinis (EB)	-	-	-	-	-	R
Acmaea testudinalis (EB)	R	R	R	R	R	(R)
Lacuna vincta (EB & SS)	C	C	C	C	C	C
Littorina littorea (EB)[2]	-	C	C	C	C	C
Littorina obtusata (EB & SS)	C	C	C	C	C	-
Littorina saxatilis (EB & SS)	E	E	E	E	E	E
Crepidula fornicata (EB)	-	C	C	C	C	(C)
Polinices heros (EB)	-	C	C	C	C	-
Polinices triseriata (EB)	-	C	C	C	C	C
Buccinum undatum (EB)	C	C	S	S	S	S

	JUN 1	JUN 2	JUL 1	JUL 2	AUG 1	AUG 2
Thais lapillus (EB)[4]	C	C	C	(C)	S	S
Nassarius obsoletus (EB)	-	C	C	(C)	S	S
Trachydermon ruber (SS)	U	U	U	U	(U)	
Haminoea solitaria (BH)[6]	-	-	C	C	C	C
Aeolidia papillosa (EB)	C	C	C	C	-	-
Dendronotus frondosus (SS)	-	C	C	C	-	-
Onchidoris bilamellata (SS)	-	C	C	C	-	-
Nucula proxima (EB)	-	R	R	R	(R)	
Mytilus edulis (EB)[2]	R	R	R	(R)	S	
Modiolus modiolus (SS)[3]	U	R	U	U	U	(R)
Pecten magellanicus (EB)	U	(R)	R	R	(R)	
Anodonta cataracta[5]	E	E	S	S	S	(E)
Elliptio complanatus[5]	-	E	E	S	S	S
Ensis directus (BH)	-	R	R	R	S	S
Mya arenaria (EB)	R	(R)	S	S	S	
Saxicava arctica (EB)[2]	U	R	R	R	S	S
Gemma gemma (BH)[6]	-	-	-	-	-	E
Ommastrephes illecebrosa[7]	-	-	C	C	C	-

	JUN 1	JUN 2	JUL 1	JUL 2	AUG 1	AUG 2
Lepidonotus squamatus (SS)	R	R	R	R	R	R
Amphitrite brunnea (EB)	-	U	U	U	U	R
Spirobis broealis (SS)	-	-	E	E	E	E
Balanus balanoides (EB)[8]	x	S	S	S	S	S
Mysis stenolepis (BH)	-	U	U	U	U	U
Idothea baltica	U	E	E	E	(E)[6]	
Idothea phosphorea (EB)	-	-	E	E	-	-
Orchestia agilis	E	E	E	E	E	E
Marinogammarus finmarchicus (EB)	U	E	E	E	E	E
Marinogammarus obtusatus (EB)	U	E	E	E	E	E
Hyperia galba (EB & BH)	-	-	-	E	E	E
Crago septemspinosus (EB)	-	E	E	E	E	-
Pagurus acadianus (SS)	-	E	E	S	S	S
Cancer borealis (EB & SS)	-	E	E	S	S	S
Carcinides maenas (BH)	-	E	E	-	-	-

	JUN 1	JUN 2	JUL 1	JUL 2	AUG 1	AUG 2
Henricia sanguinolenta (BH)	R	R	S	S	S	S
Asterias vulgaris (BH)[9]	R	R	R	S	S	S
Asterias forbesi (BH)[1]	U	(R)	R	R	S	
Ophiopholis aculeata (EB)[2]	U	(R)	R	R	(S)	S
Strongylocentrotus droebachiensis (R in April-May)			S	S	S	(R)
Echinarachnius parma (EB)[3]	U	U	(R)	R	R	R
Cucumaria frondosa (EB)	U	U	U	U	U	U
Chirodota laevis (EB)	U	U	U	U	(R)	R
Ascidia callosa (SS)	E	E	E	E	(E)	
Halocynthia pyriformis[10]	-	E	E	E	E	E
Boltenia echinata (EB)	-	-	-	R	E	E
Boltenia ovifera (SS)	-	-	-	E	E	-
Molgula retortiformis (EB)	-	E	E	E	E	E
Dendrodoa carnea (EB)	-	E	E	-	S	-
Amaroucium glabrum (SS)	-	-	E	E	E	(E)

1 = ripen approx. 2 weeks earlier in Eastern Bay

2 = ripen approx. 2 weeks later and continue longer on exposed southern shores

3 = seems to show several sexual periods per season

4 = small numbers of capsules with embryos available throughout season on exposed southern shores

5 = from Echo Lake

6 = from warm tidal lakes

7 = from Pretty Marsh Hb.

8 = newly settled young on stones

9 = are spent earlier in Eastern Bay

10 = from Somes Sound

1963 #5

POST-GLACIAL RELICTS IN TIDAL LAKES

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During the Tertiary glaciation the ice scooped out a number of narrow north-southerly valleys through the central granitic formation of the Mount Desert Island, depositing ice-carried debris at their southern ends and so forming the many present long lakes as well as Somes Sound, a fjord. Similarly, many smaller, narrow and shallow tidal lakes, now connected with the sea over tidal sills only during a part of the tidal cycle, were left behind, especially in the diorite and Bartlett L formations on the western side of the island. In these tidal lakes the water rapidly warms up during the summer, reaching 20 - 25°C during late July and early August, when the