

## Turrid snail *Phymorhynchus buccinoides* relies on seep mussel *Bathymodiolus platifrons* in Sagami Bay

# Katsunori Fujikura[1]; Hiromi Watanabe[2]; Gin Kinoshita[3]; Hiroyuki Yamamoto[2]; Takao Yoshida[2]; Takashi Okutani[2]; Toshiro Yamanaka[4]; Takenori Sasaki[5]

[1] XBR, JAMSTEC; [2] JAMSTEC; [3] Biosphere Science, Hiroshima Univ.; [4] Fac. Sci., Okayama Univ.; [5] Univ. Mus., Univ. Tokyo

The turrid whelk *Phymorhynchus buccinoides* is a member of the deep-sea chemosynthesis-based community and aggregates on only outcrops in a grey and black sediment area at a depth of 1180 m at the Off Hatsushima Island seep site, Sagami Bay, Japan. To find out ecological characteristics of this whelk, we investigated dietary food habits and reproduction using ROV Hyper Dolphin of JAMSTEC.

### Dietary food habits:

To determine the dietary food habits of the whelk, we conducted by a combination of in situ observations, stable isotope compositions, symbiotic bacteria in their gills, in situ bait trap experiments, and morphological examinations of radula. The whelks had a  $\delta^{13}C$  value similar to that of the mytilid mussel *Bathymodiolus platifrons*, no symbiotic bacteria, and very small radula (probably useless). In bait trap experiments, the whelk swarmed toward crushed *B. platifrons*. These results suggest that *P. buccinoides* feeds on *B. platifrons*. The ecological niche of the whelk is that of a carnivore or scavenger.

### Reproduction:

To accumulate the reproductive information of the whelk, we analyzed characteristics of their egg capsules and early life history. Numerous egg capsules found on the shell surfaces of *B. platifrons*. The capsule is semicircular in shape and its dimensions average 10.8 mm in length, 5.3 mm in width, and 4.2 mm in height. Capsules contained an average of 1098 eggs or larvae. Some egg capsules contained veliger-like bodies. *P. buccinoides* deposits larger egg capsules that contain a larger number of eggs and larvae than other known cold water turrids.

*P. buccinoides* utilized *B. platifrons* as a bait and deposition substrata. Therefore, to existence of *B. platifrons* is important distribution factor for *P. buccinoides*. *B. platifrons* was distributed on other outcrops at this seep site, but *P. buccinoides* did not occur elsewhere. Thus, the distribution pattern of this whelk have to be considered is not only its dietary habits and spawning substrata but also other factors.