

Environmental analysis with micro shells and environmental education by using shells  
thrown up to the seashore - Osaka Nature Conservation  
Association "Micro Shell Project"

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"Micro shell" is a kind of shell with only a few millimeters even if it has grown up. There are quite a few species in micro shells, but it is not well-known to general people. As a part of activity of "Micro Shell Project" of Osaka Nature Conservation Association, we held nature observation meetings and leader skill up workshops, developed educational programs and web encyclopedia, and surveyed seashores in Japan. Moreover, we have been making effort to survey seashore in various place in Japan and to prevail environmental educational programs by using thrown up seashells.

The shells which live at the bottom of the sea have less motion ability than other organism such as fishes, so they get more influence from natural surroundings and are useful as good environmental barometer. Especially in micro shells, there are various life style, such as floating and adhesiveness, in micro shells. Their feeding habits are also various. Some eat by ripping off ell grasses and seaweeds, others do by filtering plankton, are carnivorous or are carrion feeder. And the population and the species composition are affected by the shape of the seashore, the material type (e.g. rock and sand) of the bottom and the flowing of ocean currents and tides. At the coastal region, ecosystems in various habitat such as shore reefs, sandy beach, seaweed beds and tidal flats intricately interact each other and inhabit together.

So it is necessary for our understanding various biocoenosis and seasonal variation to understand each micro habitat. Quite a few micro shells are often thrown up to the seashore. Wide range of people from children to old persons can observe them because gathering samples is easy and such activity doesn't require any special tools such as a snorkel. Moreover it is useful for understanding the difference of each seashore and the role of natural environment.

The composition of species may vary according to the geographical feature of the research point and the weather even if they are in the same seashore, because the thrown up condition varies by the shape of seashore, surrounding geological feature, the amount of soil from rivers and weather. Regardless of the variety, survey of thrown up shells can be used for the comprehensive environmental evaluation of coastal area. In this presentation, we report the outcome of Micro Shell Project, such as micro shell species list, the feature and the environmental evaluation for each seashore. The surveyed points are following: Suma-kaigan (Hyogo pref.), Ozaki-kaigan (Osaka pref.), Wakaura (Wakayama pref.), Masuhoura (Ishikawa pref.), Yuigahama (Kanagawa pref.), Kotohikihama (Kyoto pref.). And we also refer environmental education by using micro shells.

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