COLLECTING MICROSHELLS FROM WEED WASHINGS
By David W. McKay

Because I was interested in the biogeography of marine molluscs, I have been interested in microshells for almost as long as I have been collecting shells. The commonest way to get microshells is to collect samples of shell sand and examine them in comfort at home, but where I live in Scotland, finding shell sand on the beaches is a rather rare occurrence. At first I collected a few specimens by examining algae in the field, but on many collecting trips I would find few, if any, specimens. On one field trip I observed another collector filling plastic bags full of algae from different localities on the shore. When we left the shore as the tide came in I asked her what she did with the samples of algae, and she explained they were for weed washings. Resisting the temptation to ask the obvious stupid question 'Why would one want to wash algae from the shore? I simply asked her 'Why'. She kindly explained that she soaked the samples in fresh water, usually overnight, removed the algae, and examined what was left in the bucket for microshells. She said she usually took samples of most algal types as the different algal species supported different molluscs.

Next time I went collecting I went armed with an assortment of plastic bags and collected samples of algae from here, there and everywhere. I took them home, soaked them overnight and, low and behold, I was collecting large numbers of microshells. Not all the samples I took had worthwhile numbers of microshells and I was able to refine my collection technique to reduce the number of samples I took from any particular beach, without missing any microshell species.

Now when I get to a beach I collect samples of the small algal species found in rock pools and on the lower parts of the shore. Rock pools are a microcosm of the permanently submerged marine environment, but those higher up the shore are subjected to quite large temperature fluctuations, especially in summer, so generally have a much less diverse fauna, though it does include a small number of species that are adapted to this more hostile environment. I always try to obtain samples of the branched holdfasts of the large kelp species. I always try to collect samples of algae that have lots of encrustations.

Author collecting weed samples on Terrace Beach.

Once I have got them home I put each sample in a different bucket and cover it in cold water and let it stand overnight, in a shady place simply to prevent them being heated up by the sun in warm weather, as this can cause accelerated decomposition of some algal species. When I am collecting away from home I often use a shorter soak time especially if I am moving from place to place. In the morning I remove as much of the algae as possible by hand, waving it about in the water to dislodge any trapped shells. I then wash the bucket contents through a 2mm mesh stainless steel sieve to remove any large pieces of algae, large mollusc etc, collecting the water and fine solids in a clean bucket. I check the contents of the large sieve for any interesting molluscs. I then re-sieve the water and fines through a small mesh nylon flour sieve. I examine the contents of the retained material in a petri dish in some clean water to check for the presence of small nudibranchs that are practically impossible to identify once preserved, then preserve the whole sample until I have time to examine it in detail under the microscope. For preservation I prefer to use a 2% formaldehyde solution as this fixes the animals within the shells as they are far too small to attempt removal. When I am ready to examine the samples I tip them into the sieve and wash them thoroughly to remove the fixative. I then put a small quantity (half a dessert spoonful) in a petri dish and examine it under water. I prefer to carry out my final analysis in water as this is what I am used to doing (I did it for years while examining plankton samples for fish larvae). I have tried examining the samples after drying them out but I have found that the shells tend to stick together while drying and either ping away or get broken when I try to separate the clumps. I use a fairly basic binocular microscope with a 20 times magnification to sort the samples. The microscope also has a 40 times setting which I use when identifying specimens. I pick the individual specimens out with fine-pointed, stainless steel forceps onto a clean petri dish, trying to roughly sort them into types as I go along.

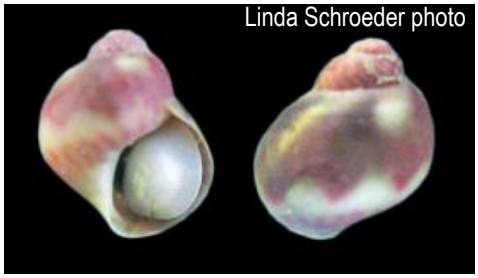
Then it is simply a matter of identifying the animals to species, tube and box the specimens and write the appropriate labels. At first, identification of microshells is difficult; more difficult than identifying macro shells as some samples can contain juveniles of macroshells and if you are not careful you can waste an awful lot of time trying to identify juveniles. I like

to start with those species that I am familiar with, moving on to the more difficult ones. If I come to a specimen I cannot identify, I keep it and try to get assistance from other collectors.

Over the years I have expanded the fresh water soaking technique to habitats other than algae. When shore collecting I routinely collect samples on the mats of small mussels that carpet the rocks, and at sea I soak pieces of debris such as coral, discarded fishing net, etcetera. I have found that I collect many more specimens that way than I did when I simply looked at whatever had been brought up.

I tried weed washings for the first time in North America when I was on the field trip to Port Hardy in 2011 and only had limited success, largely I think because I collected the wrong species of algae. It was also the first time I had done any serious collecting in the Pacific Northwest and I was simply overwhelmed with the differences in the whole experience from those that I had at home. I did not do any weed washing on the field trip I did to Shannon Point as I was aware that the restrictions that apply to shell collecting in Washington State make weed washing very difficult. In 2014, however, when in Ucluelet with Bert Bartleson I was prepared to give weed washing a better try and this time I was rewarded with much more success. I collected one lot of mixed weeds from Little and Terrace Beaches. All the weeds came from the small algae covering the stones on the lower part of the shore. The lack of buckets prevented me looking at individual weed types or collecting samples from tide pools. I got 23 species from the weeds I collected on Little Beach and 12 from those on Terrace Beach. I identified as many of the species that I could myself but for some I had neither the expertise nor access to appropriate reference material, so I use my tried and tested method of asking someone else. I sent examples of most species to Linda Schroeder who confirmed most of my identifications and arranged for others to be identified by other experts. There was a degree of duplication of species but I was still very pleased with what I collected. A detailed list of species is given in Table 1.

Boonea cf. *cincta* (Carpenter, 1864) from Little Beach



Eulithidium pulloides (Carpenter,1865) found on Terrace Beach and Little Beach.

I do not want to appear to want 'to teach my Granny how to suck eggs', but I believe that passing on collection tips to others enhances our knowledge of molluscs. I have been very impressed by what I have heard of the scrapings technique being used by Bill Merrilees and look forward to trying it during my shore collecting in 2015. In my experience, going to familiar places with novel collecting techniques almost always produces interesting finds.

Table 1 – Mollusc species from Ucluelet

Little Beach

Eulithidium pulloides (Carpenter,1865)	1
Margarites pupillus (Gould, 1849)	13 live + 2 dead
Lirularia lirulata (Carpenter, 1864)	2
Lacuna variegata Carpenter,1864	5
Lacuna vincta (Montagu,1803)	20+
Littorina sitkana Philippi, 1846	1
Onoba carpenteri (Weinkauff, 1885)	100+
Barleeia acuta (Carpenter, 1864)	11
Neostylidium eschrichtii (Middendorff, 1849)	2
Lirobittium attenuatum (Carpenter, 1864)	1
Bittium vancouverense (Dall &Bartsch, 1910)	fragment
Lamellaria diegoensis Dall, 1885	1
Alia carinata (Hinds, 1844)	21
Granulina margaritula (Carpenter, 1857)	22
Ocinebrina interfossa (Carpenter, 1864)	1
Unidentified Neogastropod	1
Haminoea vesicula Gould, 1855	2
Brachystomia angularis (Dall &Bartsh, 1907)	1
Boonea cf. *cincta* (Carpenter, 1864)	2
Musculus sp	3
Lasaea adansoni (Gmelin, 1791)	1
Nutricola tantilla (Gould, 1853)	9
Nutricola lordi (W.Baird, 1863)	4
Hiatella arctica (Linnaeus, 1767)	2 live + 1 dead

Terrace Beach

Eulithidium pulloides (Carpenter,1865)	10
Lacuna variegata Carpenter,1864	2
Lacuna vincta (Montagu,1803)	18
Onoba carpenteri (Weinkauff, 1885)	7
Barleeia acuta (Carpenter, 1864)	1
Lamellaria diegoensis Dall, 1885	1
Alia carinata (Hinds, 1844)	7
Granulina margaritula (Carpenter, 1857)	2
Rissoella opalina *	1
Evalea tenuisculpta (Carpenter, 1864)	3
Lasaea adansoni (Gmelin, 1791)	1
Small unidentified bivalve	1

* Neither of the books I have available on NE Pacific seashells give any info on *Rissoella*, but it looks like the *Rissoella* we have in Scotland.

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