The Angelic Imposter. The False angel wing clam *Petricolaria pholadiformis* (Lamarck, 1818), of Willapa Bay, Washington.

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Bill Merilees and I met up with George Holm and Linda Schroeder at Bay Center, Willapa Bay, Washington, May 5-6, 2015, to look for the unique population of the Atlantic False angel wing, *Petricolaria pholadiformis* (Lamarck , 1818). This species was unintentionally introduced with Atlantic oysters, *Crassostrea virginica*. There are only two known surviving populations of the False angel wings on our coast, one in San Francisco Bay, California, first reported in 1927 and the other in Willapa Bay, Washington, first reported in 1943 (Carlton, 1992; Chace, 1951). This clam is a world traveller, being native to the western Atlantic and then introduced in the eastern Atlantic, North Sea, Mediterranean Sea, Arctic, and various sites on the western Pacific coast (WoRMS 2015-05-27). It is puzzling why this species has spread widely on the Atlantic coast but has survived only as isolated populations on the Pacific coast, perhaps limited by habitat or predators. The False angel wings burrow in hard shale, stiff clay, mud and peat at the high intertidal zone.

We narrowed the search by reviewing past reports of surveys of introduced species in Willapa Bay (Cohen et. al. 2001) and drove to Bush Pioneer County Park, Bay Center, Washington. Please remember to check in at the Chinook Tribal Office, Bay Center, before sampling on the beach. The beach dries for some distance at low tide and is not accessible from the water (fig. 1).


Fig. 1


Fig. 2

We quickly found a specimen of the False angel wing in the high intertidal clay. We noticed that the telltale "siphon shows" are two holes created by the split siphons (fig. 2), making them different from other clam shows at this site. Other species in the clay we found were small specimens of the Flap-tip piddock, *Penitella penita*; Pilsbry piddock, *Zirfaea pilsbryi*; Boring softshell, *Platyodon cancellatus* and the California datemussel, *Adula californiensis*.


Fig. 3


Fig. 4

The common names "False angel wing" and "American piddock" and the scientific name *pholadiformis*, like a pholad or piddock, highlight that this boring clam is an imposter. It is not in the piddock Superfamily Pholadidea , but instead, the False angel wing, is a member of the Superfamily Veneroidea, which includes the common littleneck, butter and Manila clams. The False angel wing has cardinal teeth in the hinge that differ from the typical spoon-like projection of the pholads, including the Angel wing clam, *Cyrtopleura costata* and the Fallen angel wing or Atlantic mud piddock, *Barnea truncata.*

The oval, elongated *Petricolaria* shell, to 71 mm (2.8 in.) long, has a sculpture of comarginal rings, crossed by about 40 ribs that have prominent spines at the anterior end (Fig. 3). The off-white shell, with a partial dark brown periostracum, is thin and fragile. The siphons are split and form two holes ("show") at the surface of the substrate (figs.2, 4).

We found six introduced mollusc species at this site, *four* from the Atlantic: False angel wing, *P. pholadiformis*; Softshell clam, *Mya arenaria*; Eastern mudsnail, *Ilyanassa obsoleta* and the Atlantic Slipper snail, *Crepidula convexa* [see Linda Schroeder's article in this edition of *the Dredgings* on page 5], all likely introduced with Atlantic oysters. Two non-native species from the NW Pacific were the Pacific oysters, *Crassostrea gigas* and Manila clams, *Venerupis philippinarum*, the latter unintentionally introduced with the Pacific oysters. Notable by their absence were the Japanese mudsnail, *Batillaria attramentaria.* Other notable introduced species from the NW Pacific were the Lined anemone, *Diadumene lineata* and Japanese eelgrass, *Zostera japonica.*

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