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Attention: Rose Prendeville

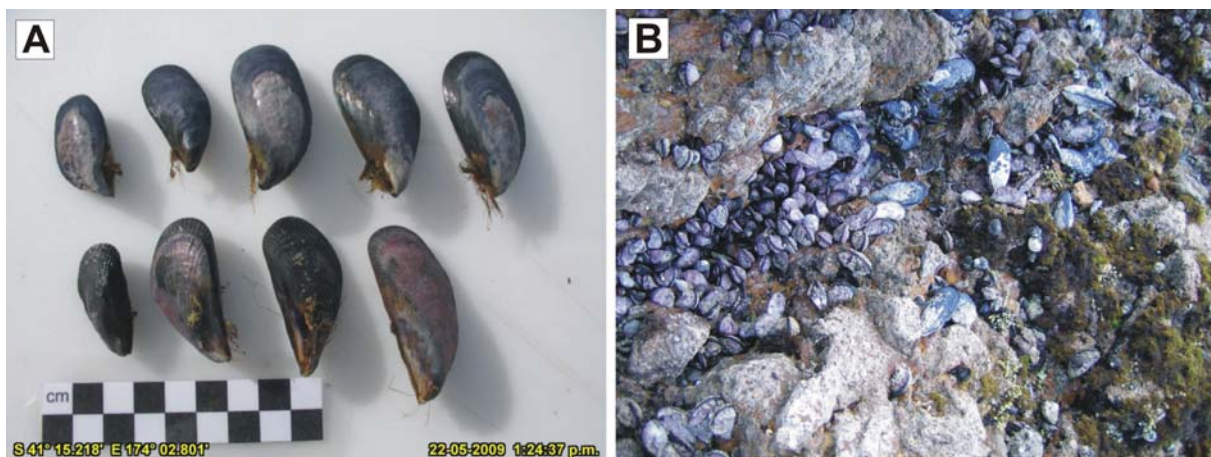
## Occurrence and distribution of the ribbed mussel (*Aulacomya atra maoriana*).

### 1. Introduction

This letter is in response to the emphasis placed upon the bivalve mollusc referred to as *kopakopa* by Te Atiawa at the recent hearing for Plan Change 21 concerning marina zoning in Waikawa Bay. It is our understanding that the name *kopakopa* refers to the ribbed mussel (*Aulacomya atra maoriana*), although its usage appears to be very localised to the region and the term has been used in other areas in reference to both the Chatham Islands Forget-me-not (*Myosotidium hortensia*) and the small subtidal fan shell *Chlamys zelandiae*. The characteristic common to these otherwise disparate species is a strongly ribbed surface texture.

### 2. Description

Ribbed mussels (*A. atra*) are Mytilid bivalves related to Blue mussels (*Mytilus edulis galloprovincialis*) gaining a length of 56-84 mm (Figure 1). Shells are whitish to dull purple but may be covered by a periostracum that varies from sienna to purplish-black (Powell 1979).



**Figure 1** A. Ribbed mussels (*Aulacomya atra maoriana*, bottom row) compared to Blue mussels (*Mytilus edulis galloprovincialis*, top row); Waikawa Bay 2009. B. *A. atra maoriana* co-occurring with *M. edulis galloprovincialis*, Wakawa Bay south-eastern shoreline 2010.

### 3. General distribution

Ribbed mussels are common and widespread throughout southern New Zealand. Powell (1979) states their distribution as the southern part of the North Island, South Island and Stewart, Chatham, Bounty, Auckland and Campbell Islands. Morton (2004) records instances of this species from Castlepoint on the Wairarapa Coast, Oriental Bay and Eastbourne Port Nicholson (Wellington Harbour), Cable Bay (Tasman Bay), Kaikoura and Banks Peninsula. Cawthron intertidal sampling records have documented *A. atra* from the Marlborough Sounds, Lyttelton Harbour and Fiordland.

The species (or closely related sub-species) also occurs within the Magellanic faunal province of southern South America, including the Falkland Islands and is known from the western coast of South Africa.

### 4. Habitat

The species occurs on rocky coastlines in a range of exposure conditions from sheltered harbour areas to moderate to high wave energy situations but is less likely to occur on very exposed high-energy shorelines or within the inner regions of sheltered harbours characterised by high sediment resuspension and loadings. It often co-occurs with the other common mussel species, particularly *M. edulis galloprovincialis*. One of the principal differences in habitat which allows such filter feeders to co-occur is tidal zonation. Mussel species are often observed to occur in distinct bands with the black mussel (*Xenostrobus pulex*) forming dense beds on the high shore, *M. edulis* dominating the mid- to low-tide level and *A. atra* forming dense clusters at low tide and in the shallow sub-littoral zone (Morton 2004). *A. atra* occurs as clusters within otherwise dense beds of *M. edulis*, but tends to occupy vertical surfaces and small over-hangs rather than flat shelf-rock areas favoured by the latter (Figure 1). The green-lipped mussel (*Perna canaliculus*) overlaps *A. atra* at low tide and continues down the profile sub-tidally.

### 5. Distribution within Marlborough Sounds

No survey data was available to allow the establishment of a comprehensive description of *A. atra* distribution within the Marlborough Sounds although it is certainly typical of rocky shore habitats throughout the region. In addition to Waikawa Bay, Cawthron records place the species at Waitata Reach in Pelorus Sound (Keeley *et al.* 2008), Port Gore in the outer Sounds (Keeley *et al.* 2010) and Port Shakespeare in Queen Charlotte Sound (Coutts 2006).

Spot checks carried out along shorelines near Waikawa Bay over low tide on 14 December 2010 revealed that the species was abundant both on the western side of The Snout and within Whatamonga Bay, east of Karaka Point. It was also found to be common on the rocky shore between Kaihikatea Bay and East Bay and in Kaitapeha Bay north of Tory Channel. These single-point surveys indicate the species is widespread in Queen Charlotte Sound where suitable intertidal substrates occur. These and other documented occurrences of *A. atra maoriana* are shown in Figure 2.



**Figure 2** Map showing documented instances of *A. atra maoriana* (as red dots) in Queen Charlotte Sound outside of Waikawa Bay.

The common intertidal mussel species in New Zealand all have a relatively broad tolerance of habitat variability, and this allows them to opportunistically colonise a range of artificial structures and substrates. Within the Marlborough Sounds, *A. atra* has been recorded from rock breakwaters (Waikawa marina), rip-rap seawalls and mooring floats (Shakespeare Bay; Coutts 2006) and wharf piles (Picton Harbour; Inglis *et al.* 2006).

Although *A. atra maoriana* appears to be less abundant than the Blue mussel in the Marlborough Sounds, its occurrence is similarly widespread. Its tolerance of a range of substrates and environmental conditions makes it one of the more commonly-observed molluscs of the rocky shore in this region.

Feel free to contact me if you have any questions or comments regarding this letter.

Yours sincerely

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## References

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