

Meet the ocean parasite that inspired the movie *Alien*

February 3 2014, by Katie O'dwyer



Inspiring aliens since 1979, Phronima means business. Credit: JesseClaggett

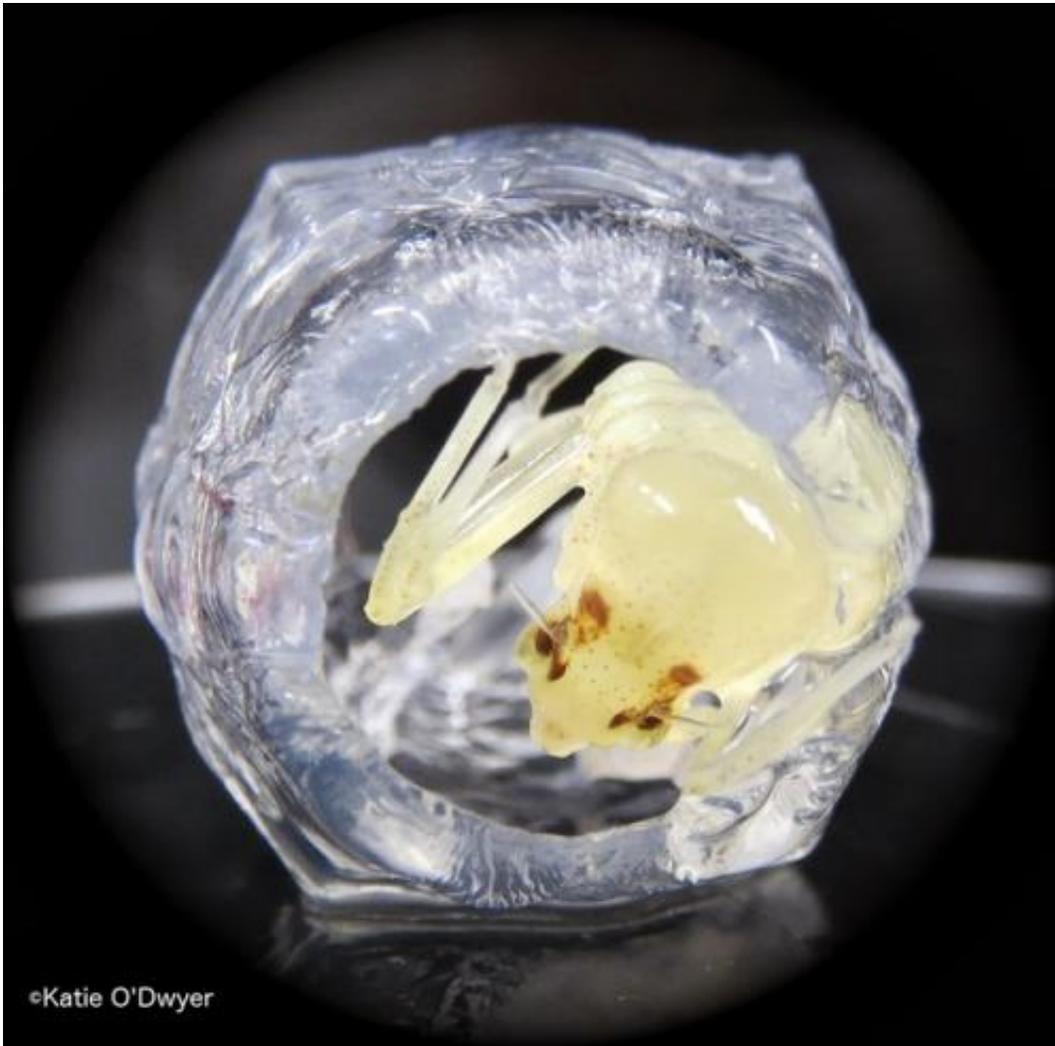
Meet a parasite that can create its own mobile nursery for its young, a parasite that is thought to be the [inspiration](#) behind the chest-bursting xenomorph in the film *Alien*. Meet *Phronima*, the pram-pushing, barrel-riding parasite.

These tiny creatures are found throughout the world's oceans, except

polar regions, swimming in open water. This sets them apart from their relatives, crabs for example, which typically stick to the safe confines of the seabed. *Phronima* has broken free of the sea floor, taking advantage of another sea creature, the salp, to survive in the open water.

Salps are barrel-shaped, gelatinous zooplankton which drift throughout our oceans. They may occur individually or in huge chains composed of individual salps linked together. *Phronima* attack these vulnerable creatures and make them their hosts. Equipped with impressive front claws, *Phronima* carves away their insides to leave an empty barrel structure. It then climbs inside and sails the sea from within, feeding off food and water on the go.

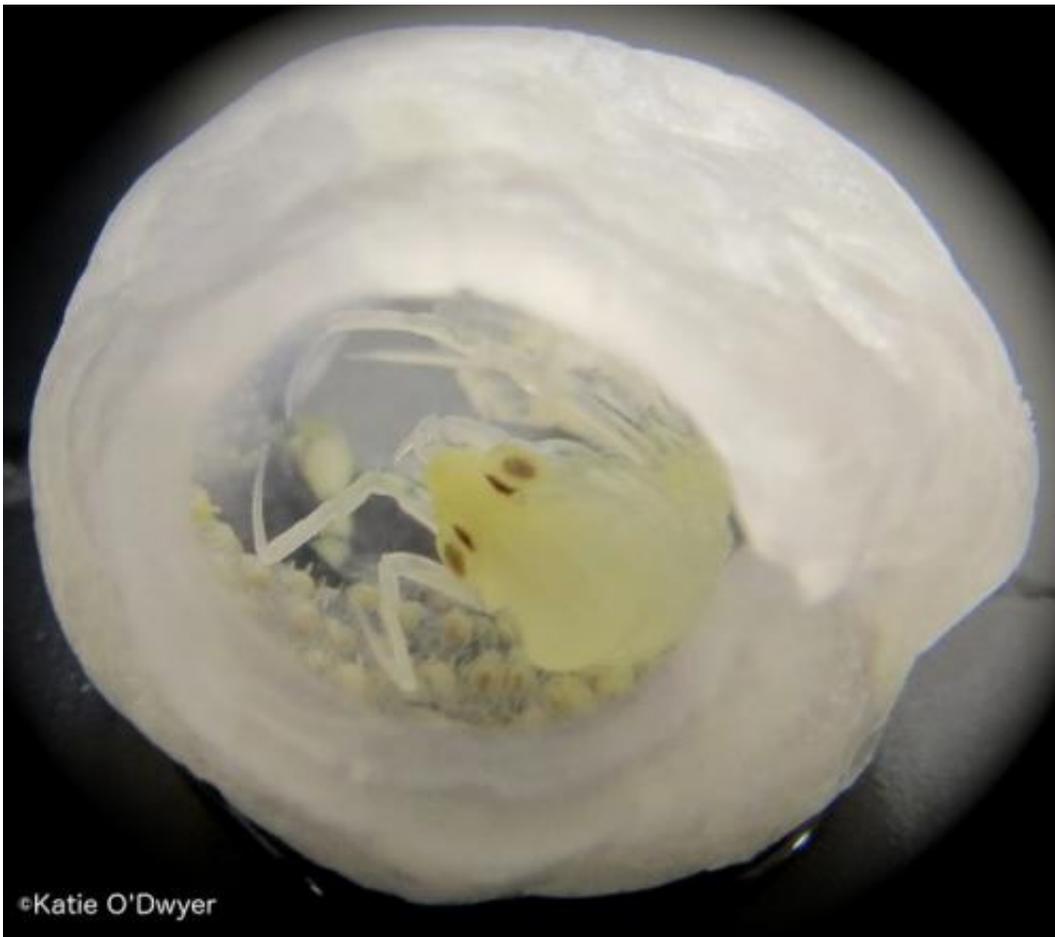
The *Phronima*-salp symbiosis poses a couple of key questions: has the *Phronima* killed the salp in the process of colonising it (in which case it would be classed a parasitoid and not a parasite)? And, why is sailing in this barrel an energy efficient enterprise for *Phronima*?



Phronima doing the barrel roll. Credit: Katie O'Dwyer

While *Phronima* has been difficult to study because it needs to be studied alive, before the salp structure is affected by air, and because it lives in the [open ocean](#), studies of salps that have been hollowed out by *Phronima* show that they still contain live cells. This helps the barrel maintain its structure and gives the *Phronima* a sturdy home. But the hollowed out salp barrels hardly resemble a living salp, with just the tissue remaining. This being the case, *Phronima* should really be considered as a parasitoid rather than a parasite.

As for the energy involved in carrying around this barrel, the structure's size and shape actually enables the *Phronima* to be more buoyant in the water. Some energy is still required to carry this jelly barrel. Overall energy usage by *Phronima* is higher than that of its relatives inhabiting the seabed, but less than other open water cousins who aren't using such buoyancy devices. This suggests that *Phronima* have adapted to a unique niche which enables them to travel in the [open water](#) with their young and access new food resources without their behaviour being too energetically costly.



Babies snug in their jelly prams. Credit: Katie O'Dwyer

Although the barrel provides a safe home for *Phronima*'s offspring, the male pram bugs carry a barrel too. Maybe it helps to have a superior [barrel](#) when finding mates, we currently don't know. Such unknowns leave us ever more curious about this, difficult to study, open ocean dwelling, creature.

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