

# Press release WoRMS



## Celebrating a Decade of the World Register of Marine Species

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**Contacts: Tammy Horton: +44 7795804581; +442380596352; [tammy.horton@noc.ac.uk](mailto:tammy.horton@noc.ac.uk)**

**Leen Vandepitte: [leen.vandepitte@vliz.be](mailto:leen.vandepitte@vliz.be)**

*Advance interviews are available. Please contact authors of individual species for information on these, and Tammy Horton or Leen Vandepitte for information on the top-ten lists and the World Register of Marine Species.*

*High-resolution photos available online. See section "Additional photo(s) & video available at:" with each individual species*

- [Ten astounding marine species of the last decade \(2007-2017\)](#)
- [Ten remarkable new marine species from 2017](#)

2017 marked a decade since the World Register of Marine Species ([WoRMS](#)) was established.

In that time, 21,554 marine species new to science have been described and added to the register. The oceans cover over 70% of the surface of our planet, and yet they still include the least

explored regions (<http://theconversation.com/how-many-undiscovered-creatures-are-there-in-the-ocean-86705>).

After 250 years of describing, naming and cataloguing the species we share our planet with, we are still some way off achieving a complete census. However, we now know that at least 242,500 marine species have been described because their names are managed in the World Register of Marine Species (WoRMS) by almost 300 scientists located all over the world.

Since the WoRMS was founded in 2007, the number of species on the list has doubled from [120,000 to 242,500](#). Interestingly, the number of names in the database is actually almost double this figure (477,500), because many names are no longer valid. This can be for a variety of reasons including synonymy (more than one name for the same species), homonymy (more than one species given the same name) and changes to the classification of a species (reflected by a changed combination of species and genus name). The number of new synonyms and homonyms created is likely now far less than in the past due to faster publication and easier access to data. Still, every year around 20,000 unaccepted names are added to WoRMS, each linked to the valid name in the database ([Vandepitte et al., 2018](#)).

Every year almost 2,000 marine species new to science are added to the register. This includes species from relatively well-known groups such as fish, almost 1,300 of which were described in the last decade. Yet, it is among the least studied and most diverse animal groups (molluscs & crustaceans) and in the least explored habitats (tropical shallow seas & deep oceans) that most undiscovered creatures likely remain. Just over 6,000 new marine crustaceans and almost 8,000 marine molluscs have been discovered in the past decade.

With the task of gathering the names for all marine species approaching completion, the focus has shifted to improving the consistency and quality of data, while still keeping pace with the addition of the > 2000 new marine species described annually. As part of our 10-year celebration, we redefined the priorities and longer-term aims for the WoRMS database and have shown users how names are input and why they are represented as they are ([Horton et al., 2017](#)).

Keeping an up-to-date list of the world's marine species is not just for interest but also increasingly important for the protection of our oceans. Extinctions from habitat loss and climate change are progressing at alarming rates. Around [20% of marine species are at risk of extinction](#) and we urgently need to document what species are present, and what is happening to them in order to better understand the causes and develop possible prevention measures. Biodiversity also underpins many features of the environment that humans depend on. Each new species discovered could provide opportunities for advances in [medicine](#) or agriculture.

In 2018, to celebrate a decade of WoRMS' existence, it was decided to compile a list of our top marine species, both for 2017 and for the previous decade in order to highlight the fascinating discoveries of the numerous new marine species being made every year. A list of the 'Top Ten Species' described from ALL habitats and taxa has been announced annually since 2008 (<http://www.esf.edu/top10/>). Although this list often contains one or two marine species, we decided to pay homage to the '[largest habitat on earth](#)' by producing our own list of the top marine species. We hope some of our favourites will make it to global list.

## How were the species chosen?

All editors of WoRMS were given the opportunity to nominate their favourite marine species from both the last year (2017) and the previous decade (2007-2017). A small committee (including both taxonomists and data managers) was brought together to decide upon the final candidates. The final decisions reflect the immense diversity of animal groups in the marine environment (fish, crustaceans, molluscs, corals, sponges, jellies, worms) and highlight some of the challenges facing the marine environment today (e.g. invasive species, fragile reef ecosystems threatened by climate change, deep-sea environments impacted by resource extraction).

The final candidates also feature particularly astonishing marine creatures, notable for their interest to both science and the public. Each of these marine animals has a story. It may be the among the deepest living or largest fish known, be considered a 'living fossil', an invasive species, the most abundant organism in a habitat, or have remained hidden in plain sight, hoodwinking researchers for decades...

## Ten astounding marine species of the last decade (2007-2017)

- [Deep-sea lyre sponge - \*Chondrocladia lyra\*](#)
- [Palauan primitive cave eel - \*Protanguilla palau\*](#)
- [Deep-sea acochliacean slug - \*Bathyhedyle boucheti\*](#)
- [Tree syllid worm - \*Ramisyllis multicaudata\*](#)
- [Starry sea wanderer jelly - \*Marivagia stellata\*](#)
- [The Hoff crab - \*Kiwa tyleri\*](#)
- [Squidworm - \*Teuthidodrilus samae\*](#)
- [Jesse Ausubel's 'terrible claw' lobster - \*Dinochelus ausubeli\*](#)
- [The 'living fossil' octocoral - \*Nanipora kamurai\*](#)
- [Scaly-foot snail - \*Chrysomallon squamiferum\*](#)

## Deep-sea lyre sponge

*Chondrocladia lyra* Lee, Reiswig, Austin & Lundsten, 2012

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=710164>

*Chondrocladia lyra*, also known as the lyre sponge or harp sponge, is a species of carnivorous deep-sea sponge first discovered off the Californian coast living at depths of 3,300 - 3,500 m by researchers from the Monterey Bay Aquarium Research Institute (MBARI).

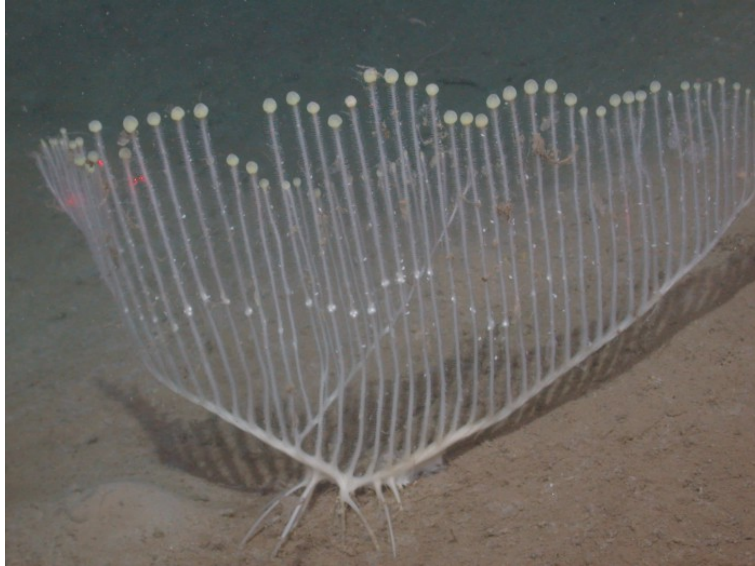
This species is a beautiful member of the family Cladorhizidae, where all species are carnivorous. This group of sponges is astonishing in that they no longer look or function like sponges. Typical sponges are suspension feeders, filtering bacteria and microscopic organisms from the surrounding water. *C. lyra* and other carnivorous sponges, however, capture much larger prey, such as small crustaceans, using their skeletal elements like Velcro. The spicules stick out of the sponge's surface and hook plankton out of the water. Once the hooks have ensnared the sponge's prey, the sponge engulfs it with mobile cells and digests it.

*C. lyra* is known as the lyre or harp sponge because its basic structure resembles a harp or lyre. It is a sessile organism and anchors itself to the soft muds using a root-like structure, which embeds into the sea floor. The vertical branches give *C. lyra* its harp-like structure and these are covered in Velcro-like hooks and spines, which it uses to snare prey that drift past it in currents. Of the specimens found, the largest recorded is nearly 60 cm in length.

*C. lyra* has been found in the northeast Pacific Ocean, off the coast of northern California at the Escanaba Ridge and the Monterey Canyon. It lives in soft abyssal sediment at depths between 3,316 and 3,399 m. They have been seen rooted on the sides of slopes and bottom of the Monterey Canyon, where its prey is funnelled into the narrow crevasses the sponges inhabit. While it has only been observed off northern California, it likely has a much wider latitudinal range.

**Further information:**

- Lee, W.L.; Reiswig, H.M.; Austin, W.C.; Lundsten, L. (2012). An extraordinary new carnivorous sponge, *Chondrocladia lyra*, in the new subgenus *Symmetrocladia* (Demospongiae, Cladorhizidae), from off of northern California, USA. *Invertebrate Biology*. 131(4): 259-284. <https://doi.org/10.1111/ivb.12001>
- <https://www.nature.com/news/new-carnivorous-harp-sponge-discovered-in-deep-sea-1.11789>
- <https://www.wired.com/2014/06/absurd-creature-of-the-week-harp-sponge/>



[click on image for more information]

Additional photo(s) & video available at:

- <http://www.marinespecies.org/aphia.php?p=taxdetails&id=710164#images>
- <https://www.youtube.com/watch?v=VC3tAtXdaik>

## Palauan primitive cave eel

*Protanguilla palau* Johnson, Ida & Sakaue, 2012

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=588639>

This exciting discovery was chanced upon in an underwater cave at 35 m depth on the western fringing reef of Ngemelis Island, Republic of Palau, in 2010. The eel is very different from all other living eels, and scientists estimate it must have diverged from others around 200 million years ago, during the Mesozoic era. It is so distinct that in order to classify the new animal, the researchers had to create a new family, genus and species, bestowing on the animal the name *Protanguilla palau*. This name comes from the Greek '*protos*' meaning first, and Latin '*anguilla*' for eel; referring to the early divergence of the genus.

Genetic analysis confirmed that the fish was a 'true' eel - albeit a primitive one. In some features it is more primitive than recent eels, and in others, even more primitive than the oldest known fossil eels, suggesting that it represents a 'living fossil' without a known fossil record. The results suggest this new family has been evolving independently for the last 200 million years, placing their origins in the early Mesozoic era, when dinosaurs were beginning their domination of the planet.

The eel exhibits many primitive features unknown in the other 19 families and more than 800 species of living eels, resulting in its classification as a new species belonging to a new genus and family. Many of the physical features of this new genus and species of eel, *Protanguilla palau*, reflect its relationship to the 19 families of Anguilliformes (true eels) currently living. Other, more primitive physical traits, such as a second upper jaw bone (premaxilla) and fewer than 90 vertebrae, have only been found in fossil forms from the Cretaceous period (140 million to 65 million years ago). Still other traits, such as a full set of bony-toothed 'rakers', in the gill arches are a common feature in most bony fishes, but are lacking in both fossil and living eels. The team's DNA analyses indicate that *P. palau* represents an ancient, independent lineage with an evolutionary history comparable to that of the entire order of living and fossil eel species.

"The equivalent of this primitive eel, in fishes, has perhaps not been seen since the discovery of the coelacanth in the late 1930s," said Dave Johnson, ichthyologist at the Smithsonian's National Museum of Natural History and lead author of the team's research. "We believe that such a long, independent evolutionary history, dating back to the early Mesozoic (about 200 million years ago), retention of several primitive anatomical features and apparently restricted distribution, warrant its recognition as a living fossil."

"The discovery of this extraordinary and beautiful new species of eel underscores how much more there is to learn about our planet," Johnson said. "Furthermore, it brings home the critical importance of future conservation efforts; currently this species is known from only 10 specimens collected from a single cave in Palau."

#### **Further information**

- Johnson, G. D.; Ida, H.; Sakaue, J.; Sado, T.; Asahida, T.; Miya, M. (2012). A 'living fossil' eel (Anguilliformes: Protanguillidae, fam. nov.) from an undersea cave in Palau. *Proceedings of the Royal Society B: Biological Sciences*. 279(1730): 934-943. [doi: 10.1098/rspb.2011.1289](https://doi.org/10.1098/rspb.2011.1289)
- [https://www.eurekalert.org/pub\\_releases/2011-08/s-sdt081711.php](https://www.eurekalert.org/pub_releases/2011-08/s-sdt081711.php)
- <http://www.bbc.co.uk/news/science-environment-14547942>
- <http://www.earthtimes.org/green-blogs/green-opinions/living-fossil-eel-takes-200-million-years-08-Feb-12/>



*[click on image for more information]*

Contact:

- Dave Johnson ([johnsond@si.edu](mailto:johnsond@si.edu)), ichthyologist at the Smithsonian's National Museum of Natural History and lead author of the team's research.

Additional photo(s) and video available at:

- [https://www.youtube.com/watch?time\\_continue=51&v=aZrZ-fkflgo](https://www.youtube.com/watch?time_continue=51&v=aZrZ-fkflgo)
- <http://www.marinespecies.org/aphia.php?p=taxdetails&id=588639#images>

## Deep-sea acochliid slug

*Ba thyhedyle boucheti* Neusser, Jörger, Lodde-Bensch, Strong & Schrödl, 2016

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=890430>

Two specimens of this slug were trawled off Mozambique in 2009 on the Spanish Institute of Oceanography's R.V. Vizconde de Eza, at depths of 261-264 m and 437-445 m. These two specimens had all the external characteristics of an acochliid slug, but it struck the researchers on board that it was from distinctly deeper water than acochliids previously known - all from shallow subtidal to a maximum of 50 meters - and was also remarkably large - although a mere 10 mm - for this group of otherwise microscopic slugs. Because their



importance was immediately understood, one specimen was preserved in ethanol for DNA sequencing, and the other one was preserved in glutaraldehyde for microanatomical sectioning, which was carried out in München and resulted in a detailed computer-based 3D reconstruction of all major organ systems.

Morphological and molecular results confirmed that this slug represented not only a new genus and species, but even a new family of acochliid slug. The genus has been named *Bathyhedyle*, coined from the Greek *bathus*, meaning ‘deep’ and *Hedyle*, the first genus of the Acochliiida.

Information about the food sources of Acochliiida is patchy, but the authors speculate that *Bathyhedyle boucheti* feeds on the egg masses of other gastropods.

#### Further information

- Neusser TP, Jörger KM, Lodde-Bensch E, Strong EE & Schrödl M (2016). The unique deep sea—land connection: interactive 3D visualization and molecular phylogeny of *Bathyhedyle boucheti* n. sp. (Bathyhedylidae n. fam.)—the first panpulmonate slug from bathyal zones. PeerJ 4:e2738; [DOI 10.7717/peerj.2738](https://doi.org/10.7717/peerj.2738).



*[click on image for more information]*



## Contacts:

- Philippe Bouchet ([pbouchet@mnhn.fr](mailto:pbouchet@mnhn.fr)), Muséum National d'Histoire Naturelle, Paris; Principal Investigator of the expedition that discovered the new species.
- Ellen Strong ([stronge@si.edu](mailto:stronge@si.edu)), National Museum of Natural History, Smithsonian Institution, Washington DC; scientist on board the research vessel that discovered the new species.

## Additional photo(s) and video available at:

- <http://www.marinespecies.org/aphia.php?p=taxdetails&id=890430#images>

## Tree syllid worm

*Ramisyllis multicaudata* Glasby, Schroeder & Aguado, 2012

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=596208>

Plants branch, it is fundamental to how they live, but aren't branching animals only imaginary, as in the story of the multi-headed Hydra slain by Heracles? That was the common belief until an unusual worm was discovered in tropical northern Australia. *Ramisyllis multicaudata* is a syllid polychaete worm, which lives in strict symbiosis within shallow water marine sponges. Behind the single head of the worm a remarkable branching tree-like body develops. Each branch occupies a branch of the canal system within their sponge host, and continues to grow larger and produce new branches. The posterior ends emerge from the sponge openings, actively scouring the sponge surface. Why they do this is unknown.

Each sponge usually houses just one worm, which is either a female or a male. Eventually sexual units full of gametes develop at the end of the terminal branches, detach from the terminal branches and swim out of the sponge through its canals and pores. These male and female units (called stolons) have heads with large eyes, and special swimming chaetae.

Some specimens have been found with more than 500 ramifications and each terminal branch may have as many as 120 segments, while interbranch sections may range from 3 to 30 segments. If the branches were joined end-to-end the final length could exceed those of the longest known worms. Molecular studies have suggested that *Ramisyllis* is allied to a group of flattened (unbranched) syllid polychaetes.

The discovery of *Ramisyllis multicaudata* in 2012 has stimulated many lines of research both within and outside of the field of systematics. *Ramisyllis multicaudata* lives in shallow water and is easily collected, but a deepsea branching syllid was discovered by the 19th Century Challenger Expedition and later dubbed *Syllis ramosa*. It is rare and not thought closely related, so possibly branching has developed twice in the evolution of syllids. The species name is derived from the Latin, '*multus*' for 'many', and '*caudata*', for 'tailed'.

### Further information

- Glasby, C., Schroeder, P. & Aguado, M.T. (2012). Branching out: a remarkable new genus and species of parasitic annelid, *Ramisyllis multicaudata* (Polychaeta: Syllidae: Syllinae). *Zoological Journal of the Linnean Society*, 164: 481-497. <https://doi.org/10.1111/j.1096-3642.2011.00800.x>
- Aguado, M.T., Glasby, C., Schroeder, P., Weigert, A., Bleidorn, C. (2015). The making of a branching annelid: an analysis of complete mitochondrial genome and ribosomal data of *Ramisyllis multicaudata*. *Scientific reports: srep*: 12072. [doi:10.1038/srep12072](https://doi.org/10.1038/srep12072)
- Schroeder, P., Agudo, M.T. Malpartida, A. & Glasby, C. (2017). New observations on reproduction in the branching polychaetes *Ramisyllis multicaudata* and *Syllis ramosa* (Annelida: Syllidae: Syllinae). *JMBA*, 97: 1167-1175. <https://doi.org/10.1017/S002531541700039X>
- <https://www.newscientist.com/article/dn21535-zoologger-the-worm-that-looks-like-a-tree/>



*[click on image for more information]*

### Contact:

- Chris Glasby ([chris.glasby@nt.gov.au](mailto:chris.glasby@nt.gov.au)), co-author of the description of the species.
- Maite Aguado ([maite.aguado@uam.es](mailto:maite.aguado@uam.es)), co-author of the description of the species.

### Additional photo(s) and video available at:

- Video: <http://www.marinespecies.org/aphia.php?p=image&tid=596208&pic=130292>
- images: <http://www.marinespecies.org/aphia.php?p=taxdetails&id=596208#images>

## Starry sea wanderer jelly

*Marivagia stellata* Galil & Gershwin, 2010

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=766645>

*Marivagia stellata* is a beautiful jellyfish species and its description from the eastern Mediterranean Sea in 2010 highlights several important marine conservation issues. These include the increasing 'jellification' of our seas; problems of invasive marine species; the introduction and spread of tropical species into warm-temperate seas stemming from sea surface temperature rises; and the massive introduction of marine species into the Mediterranean Sea through the Suez Canal. See also the newly instituted [World Register of Introduced Marine Species](#).

*Marivagia stellata* was described as a new genus and species to science after collections of specimens were made from its introduced range in the south eastern Mediterranean Sea. The genus name is derived from the Latin 'mari', meaning 'sea', and 'vagus' meaning 'wanderer'; the species name, 'stella' meaning 'star', for the dots and star-burst pattern on the exumbrella.

The species has since been recorded from the Arabian Sea (India and Pakistan). It is highly probable that it was introduced through the Suez Canal, as have more than half of the non-native species recorded in the Mediterranean Sea. The Starry Sea Wanderer has since established a population along the South Eastern Levant Sea and its clusters appear each summer.

### Further information:

- Galil, B.S.; Gershwin, L.A.; Douek, J.; Rinkevich, B. (2010). *Marivagia stellata* gen. et sp. nov. (Scyphozoa: Rhizostomeae: Cepheidae), another alien jellyfish from the Mediterranean coast of Israel. *Aquatic Invasions* 5: 331–340. [doi: 10.3391/ai.2010.5.4.01](https://doi.org/10.3391/ai.2010.5.4.01)



[click on image for more information]

Contact:

Bella Galil ([galil@post.tau.ac.il](mailto:galil@post.tau.ac.il)), first author of the description of the species

## The 'Hoff' crab

*Kiwa tyleri* Thatje, 2015

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=850310>

The 'Hoff' crab is a species of deep-sea squat lobster in the family Kiwaidae, which lives on hydrothermal vents near Antarctica. The crustacean was given its nickname in 2010 by UK deep-sea scientists aboard the RRS James Cook, owing to resemblance between its dense covering of setae on the ventral surface of the exoskeleton and the hairy chest of the actor David Hasselhoff. The scientific name honours the renowned British polar and deep-sea biologist Paul Tyler from the University of Southampton. The 2010 expedition to explore hydrothermal vents on the East Scotia Ridge was the second of three expeditions to the Southern Ocean by the UK-led research consortium, ChEsSo (Chemosynthetic Ecosystems of the Southern Ocean).

This species – the only member of its genus found outside the Pacific Ocean- is known from two hydrothermal vent sites in the East Scotia Ridge of the South Atlantic Ocean at about 2,394 m

and 2,608 m depth. The crabs were found living in close proximity to fluid emanating from the chimneys at temperatures greater than of 350 °C, and densities of the crabs were observed in excess of 600 per square metre.

Unlike the related species, *Kiwa hirsuta* and *Kiwa puravida*, which are notable for having a dense covering of setae on their elongated chelae, this species has shorter chelae, with most of the setae concentrated instead on the ventral surface of the crab.

Filamentous bacteria were found on the setae and similar-looking sulphur-oxidising bacteria have been found amongst the setae of other *Kiwa* species. It has been hypothesised that these sulphur-oxidising bacteria, which fix carbon from the water by oxidising sulphides in the hydrothermal fluid, are a significant source of nutrition to the crabs.

#### Further information

- Thatje, S., Marsh, L., Roterman, C. N., Mavrogortdato, M. N. & Linse, K. (2015). Adaptations to hydrothermal vent life in *Kiwa tyleri*, a new species of yeti crab from the East Scotia Ridge, Antarctica. Plos One. <https://doi.org/10.1371/journal.pone.0127621>
- Rogers AD, Tyler PA, Connelly DP, Copley JT, James R, et al. (2012) The Discovery of New Deep-Sea Hydrothermal Vent Communities in the Southern Ocean and Implications for Biogeography. PLOS Biology 10(1): e1001234. <https://doi.org/10.1371/journal.pbio.1001234>
- <http://www.bbc.co.uk/news/science-environment-33263621>



[click on image for more information]

#### Contact:

- Sven Thatje ([Sven.Thatje@noc.soton.ac.uk](mailto:Sven.Thatje@noc.soton.ac.uk)), first author of the description of the species.

Additional photo(s) and video available at:

- <http://www.marinespecies.org/aphia.php?p=image&tid=850310&pic=130245>

## The Squidworm

*Teuthidodrillus samae* Osborn, Madin & Rouse, 2011

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=556107>

That some usually secretive crawling polychaete annelids on occasion like to swim in the open sea is long known by marine biologists, but probably this is an unexpected ability in the view of most people. However, the new era of deepsea ROVs with real time video recording has led to the discovery of new pelagic polychaete forms with a lifestyle and body adaptation for swimming in the waters just above the sea bottom and intermittently settling to feed. The squidworm, a member of the usually benthic burrowing Acrocirridae, is one such now being seen more often, including in livestreaming video. It was first found in the Celebes Sea, a deep basin between the Philippines and Indonesia.

The name comes from the impression given by this animal, when seen underwater, of being a chimera of squid (10 elongate, arm-like appendages) and worm. The Greek roots of '*teuthid*' ('squid') and '*drilos*' ('worm') are combined.

### Further information

- Osborn, K.J.; Madin, L.P.; Rouse, G.W. (2011). The remarkable squidworm is an example of discoveries that await in deep-pelagic habitats. *Biology Letters* 7(3): 449-453. DOI: [10.1098/rsbl.2010.0923](https://doi.org/10.1098/rsbl.2010.0923)
- <https://news.nationalgeographic.com/news/2010/11/101124-squid-worm-new-species-science-teuthidodrillus-biology/>
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- <http://wmmorrisfanclub.blogspot.be/2010/12/ode-to-newly-discovered-squidworm.html>



*[click on image for more information]*

Contact:

- Geoffrey Read ([Geoffrey.Read@niwa.co.nz](mailto:Geoffrey.Read@niwa.co.nz)), taxonomic expert and WoRMS chief editor on Polychaetes.

Additional photo(s) and video available at:

- <http://www.marinespecies.org/aphia.php?p=taxdetails&id=556107#images>
- [https://www.youtube.com/watch?time\\_continue=21&v=Z3lWskwhl\\_Y](https://www.youtube.com/watch?time_continue=21&v=Z3lWskwhl_Y)

## Jesse Ausubel's 'terrible claw' lobster

*Dinochelus ausubeli* Ahyong, Chan & Bouchet, 2010

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=531112>

Although the Philippines are celebrated as a center of marine biodiversity, the explorations of their deep water fauna had fallen in backwater after the expeditions carried out in 1907-1910 by the U.S. Bureau of Fisheries research vessel Albatross and in the 1970s-80s by the French research vessels Vauban and Coriolis. Both endeavours generated descriptions of numerous new



species of fish and invertebrates, but many parts of the Philippines, especially the Pacific seaboard, had never been surveyed for their off-shore benthic fauna. In 2007, as part of the the Census of Marine Life, the AURORA 2007 expedition was conducted on board MV DA-BFAR, the research vessel of the Philippine Bureau of Fisheries and Aquatic Resources. Between May 20 and June 4, 2007, 111 hauls were conducted at depths between 100 and 2300 m., off the provinces of Quezon and Aurora in east Luzon.

A single specimen of this extraordinary, blind, small deep-water lobster, with a carapace length of about 30 mm, was trawled at a depth of 250 meters. It belongs in the family Nephropidae, which includes the otherwise familiar (and commercially important) European mud lobster *Nephrops norvegicus*. This was one of the iconic discoveries of the decade long Census of Marine Life (2000-2010), and was named after Jesse Ausubel, the programme officer and patron of the Census and Marine Barcoding of Life initiatives.

The name of the genus is based on the Greek words '*dinos*', meaning 'terrible, fearful' (as in "dinosaur"), and '*chela*', meaning 'claw', alluding to the massive, spinose major claw of the new genus.

**Further information:**

- Ahyong S. T., Chan T.-Y. & Bouchet P. (2010). Mighty claws: a new genus and species of lobster from the Philippine deep sea (Crustacea, Decapoda, Nephropidae). *Zoosystema* 32 (3): 525-535. <https://doi.org/10.5252/z2010n3a11>
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- <https://news.nationalgeographic.com/news/2010/10/photogalleries/101004-census-of-marine-life-mr-blobby-new-species-photos-science-pictures/>



FIG. 4. — *Dinohelus ausubeli* n. gen., n. sp., ♂ holotype, pcl 26.1 mm (NMCR), abdomen slightly damaged and causing the posterior part of abdomen to bend right: A, left lateral view; B, dorsal view.

[click on image for more information]

#### Contacts:

- Shane Ahyong ([Shane.Ahyong@austmus.gov.au](mailto:Shane.Ahyong@austmus.gov.au)), The Australian Museum, Sydney. First author of the description of the new species.
- Philippe Bouchet ([pbouchet@mnhn.fr](mailto:pbouchet@mnhn.fr)), Muséum National d'Histoire Naturelle, Paris; Principal Investigator of the expedition that discovered the new species.
- Tin-Yam Chan, National Taiwan Ocean University, Keelung; crustacean specialist who collected the only specimen known

## The 'living fossil' octocoral

*Nanipora kamurai* Miyazaki & Reimer, 2015

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=850462>

Research conducted in 2015 in Okinawa, Japan, by graduate student Yu Miyazaki and associate professor James Davis Reimer from the University of the Ryukyus found a very unusual species of octocoral from a public swimming area on a shallow coral reef in Okinawa, Japan. This octocoral species can be considered a 'living fossil', and is related in many ways to the unusual blue coral.

Unlike scleractinians, most octocorals lack a hard skeleton, and therefore many have the common name 'soft coral'. One exception is the endangered genus *Heliopora*, known as blue coral, which is found in tropical locations in the Pacific Ocean. Blue coral forms a massive skeleton of aragonite calcium-carbonate. Due to this unique feature, blue corals have long been placed within their own special order inside the octocorals.

This new species, named *Nanipora kamurai*, also has an aragonite calcium-carbonate skeleton, and molecular analyses show the two groups are most closely related to each other among all octocorals. As fossils show that blue coral and their relatives were globally distributed during the Cretaceous period, *Heliopora* and this new species can be considered 'living fossils'.

In the past, another octocoral species with an aragonite skeleton, *Epiphaxum*, was discovered in 1977. Since 1977, several recent and fossil *Epiphaxum* specimens from the deep sea have been recorded. Although this new species seems to be morphologically close to *Epiphaxum*, it is classified in a separate genus inside the same family (Lithotelestidae) due to many structural differences.

Perhaps most surprisingly, *Nanipora kamurai* was found from a public swimming area on a very shallow coral reef of <1 m depth. "Most living fossils from the ocean seem to come from deeper, more stable environments" stated Miyazaki, "suggesting that there are important discoveries on coral reefs even in shallow areas still awaiting us."

"The diverse and pristine reefs of Zamami Island, which was recently included in a new national park, need to be investigated even more", he added.

The discovery of *Nanipora kamurai*, undoubtedly will give new insight on octocoral taxonomy. Since its initial discovery in Okinawa, additional populations have been reported from the South China Sea and Thailand that are much larger than the small population consisting of only 8 colonies on Zamami Island.

**Further information:**

- Miyazaki Y, Reimer JD (2015) A new genus and species of octocoral with aragonite calcium-carbonate skeleton (Octocorallia, Helioporacea) from Okinawa, Japan. ZooKeys 511: 1-23. [doi:10.3897/zookeys.511.9432](https://doi.org/10.3897/zookeys.511.9432)



[click on image for more information]

Contact:

- James Reimer ([jreimer@sci.u-ryukyu.ac.jp](mailto:jreimer@sci.u-ryukyu.ac.jp)), one of the authors of the description of the species.

Additional photo(s) available at:

- <http://www.marinespecies.org/aphia.php?p=taxdetails&id=850462#images>

## Scaly-foot snail

*Chrysomallon squamiferum* Chen, Linse, Copley & Rogers, 2015

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=736932>

Deep beneath the ocean surface, where no sunlight can penetrate, there are areas so hot, volatile and toxic that it is hard to believe life can exist...but it does, and often in abundance. The spectacular marine snail, known as the 'scaly-foot snail' lives in this kind of hostile environment. It is found at depths around 2785m, living on the edge of hydrothermal vents and black smokers that reach temperatures of 300-400°C. This is certainly not your average snail..

It was in 2000 that the first hydrothermal vent field was discovered in the Indian Ocean, known as Kairei field, and a year on that Woods Hole surveyed the area in the RV Knorr 162-13 and encountered this new species. It was immediately obvious that something unique had been discovered. The 'foot' of this snail, which is the fleshy soft part that snails move around on, displayed hundreds of hardened tags, almost like an armour. These tags are called sclerites; fleshy in the centre and hard on the exterior due to a layer of conchiolin (a protein secreted as a

part of shell formation) covered by a layer of iron sulphide that gives it a black metallic appearance. The iron sulphide exists in two forms in the snail: greigite, which is highly magnetic, and pyrite, which is commonly known as fool's gold. The presence of the metallic sclerites is not totally understood but researchers at the Extremobiosphere Research Center in Japan suggest the snail may control the mineralization of the iron sulphides for protection from crab predation or perhaps for detoxification purposes.

The scaly-foot gastropod was officially christened *Chrysomallon squamiferum* by Chong Chen and his associates in 2015. This snail is so different to any others known that Chen *et al.* needed to describe a new genus to put this new species in. The genus name '*Chrysomallon*' means 'golden fleece', giving reference to the metallic coating often containing fool's gold. The species name '*squamiferum*' means 'scale-bearing', making obvious reference to the sclerites covering the foot of the snail. The two specimens donated to the National Museum of Wales form part of the incredibly important 'type' series and even came with a note ensuring they were stored in 100% alcohol as any water in the preservative would cause them to rust over time!

#### Further information

- Chen C., Linse K., Copley J.T. & Rogers A.D. (2015). The 'scaly-foot gastropod': a new genus and species of hydrothermal vent-endemic gastropod (Neomphalina: Peltospiridae) from the Indian Ocean. *Journal of Molluscan Studies*. [doi:10.1093/mollus/eyv013](https://doi.org/10.1093/mollus/eyv013).
- <https://museum.wales/blog/2015-07-17/Under-Armour-the-amazing-new-scaly-foot-snail/>
- <https://www.wired.com/2015/02/absurd-creature-of-the-week-scaly-foot-snail/>
- <https://www.newscientist.com/article/dn18404-deep-sea-snail-shell-could-inspire-next-gen-armour/>



*[click on image for more information]*

Contacts:

- Chong Chen from the Japan Agency for Marine-Earth Science and Technology (JAMSTEC) ([cchen@jamstec.go.jp](mailto:cchen@jamstec.go.jp))
- Jon Copley at the University of Southampton ([jtc@soton.ac.uk](mailto:jtc@soton.ac.uk))

## Ten remarkable new marine species from 2017

- [The Mariana snailfish - \*Pseudoliparis swirei\*](#)
- [The Harry Potter 'hero' crab - \*Harryplax severus\*](#)
- [Bob Marley's intertidal spider - \*Desis bobmarleyi\*](#)
- [The invasive 'spiderman' worm-snail - \*Thylacodes vandyensis\*](#)
- [The Californian box jelly - \*Carybdea confusa\*](#)
- [Palau president's colonial anemone - \*Antipathozoanthus remengesau\*](#)
- [The necklace foraminiferan - \*Aschemonella monilis\*](#)
- [The hoodwinker sunfish - \*Mola tecta\*](#)
- [The fiery-red dragon amphipod - \*Epimeria pyrodrakon\*](#)
- [The Solomon Islands pyramidellid snail - \*Eurathea solomonensis\*](#)

## The Mariana snailfish

*Pseudoliparis swirei* Gerringer & Linley, 2017

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1047485>

Meet the deepest fish in the ocean, a new species named the Mariana snailfish by an international team of researchers that discovered it. The Mariana snailfish (*Pseudoliparis swirei* Gerringer & Linley, 2017) thrives at depths of up to about 8,000 m along the Mariana Trench near Guam. “This is the deepest fish that’s been collected from the ocean floor, and we’re very excited to have an official name,” said lead author Mackenzie Gerringer, a postdoctoral researcher at the University of Washington’s Friday Harbor Laboratories. “They don’t look very robust or strong for living in such an extreme environment, but they are extremely successful.”

Snailfish are found at many different depths in marine waters around the world. In deep water, they cluster together in groups and feed on tiny crustaceans and shrimp using suction from their mouths to gulp prey. Little is known about how these fish can live under intense water pressure; the pressure at those depths is similar to an elephant standing on your thumb. This new species appears to dominate parts of the Mariana Trench, the deepest stretch of ocean in the world that is located in the western Pacific Ocean. During research trips in 2014 and 2017, scientists collected 37 specimens of the new species from depths of about 6,900 to 8,000 m. DNA analysis and 3-D

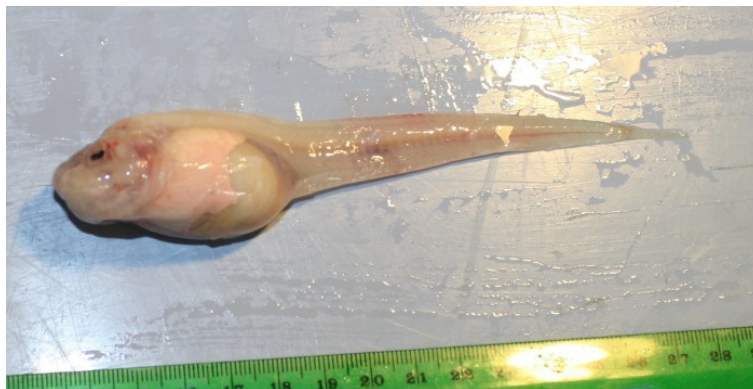
scanning to analyse skeletal and tissue structures helped researchers determine they had found a new species.

Since then, a research team from Japan has recorded footage of the fish swimming at depths of 8,178 m, the deepest sighting so far.

*Pseudoliparis swirei* is named for an officer on the HMS Challenger, the 1870s British expedition that discovered numerous new species and led to the initial discovery of the trench. Challenger officer Herbert Swire, a navigational sub-lieutenant, published journals from the journey. "We named this fish after him in acknowledgment of the crews that serve on oceanographic research vessels," Gerringer says. "It takes a lot of people to keep a ship running and we wanted to sincerely thank them."

#### *Further information*

- Gerringer, M. E.; Linley, T. D.; Jamieson, A. J.; Goetze, E.; Drazen, J. C. (2017). *Pseudoliparis swirei* sp. nov.: A newly-discovered hadal snailfish (Scorpaeniformes: Liparidae) from the Mariana Trench. *Zootaxa*. 4358(1): 161-177. doi: [10.11646/zootaxa.4358.1.7](https://doi.org/10.11646/zootaxa.4358.1.7)
- <http://www.washington.edu/news/2017/11/28/theres-a-deeper-fish-in-the-sea/>
- <http://www.sci-news.com/biology/mariana-snailfish-pseudoliparis-swirei-05481.html>



[click on image for more information]

#### Contacts:

- Mackenzie Gerringer ([mgerring@hawaii.edu](mailto:mgerring@hawaii.edu)), co-author of the new species
- Thom Linley ([thomas.linley@newcastle.ac.uk](mailto:thomas.linley@newcastle.ac.uk)), co-author of the new species

#### Additional photo(s) & video available at:

- <https://flic.kr/s/aHsm9MFvVy>
- <http://bit.ly/2zP0eon>
- <https://www.youtube.com/watch?v=Fxkun3DpBno&feature=youtu.be>



# The Harry Potter ‘hero’ crab

*Harryplax severus* Mendoza & Ng, 2017

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=951873>

While not much is known about the animals living around coral reefs, ex-Marine turned researcher Harry Conley would often take to the island of Guam, western Pacific Ocean, and dig deep into the rubble to find fascinating critters as if by magic learnt at Hogwarts. Almost 20 years after his discoveries and his death, a new species and genus of crab, *Harryplax severus* was described in his honour.

Having dug as deep as 30 m into Guam’s coral reef rubble, Harry Conley collected many specimens which stayed in his personal collection until the early 2000’s when Dr. Gustav Paulay, currently affiliated with the [University of Florida](#), handed the specimens to the second author of the present study, Dr. Peter Ng, [National University of Singapore](#), which resulted in many discoveries and publications. Among the lot, however, were two unusual specimens which were not studied until much later. Only recently did Dr. Peter Ng and his colleague at the National University of Singapore and lead author of the paper, Dr. Jose Christopher E. Mendoza, discover that they represent not only a new species, but also a new genus.

Having chosen the name *Harryplax* for the new genus, the two authors pay tribute to the crab’s original collector Harry Conley, who they describe as a “soft-spoken ex-Marine with a steely determination and a heart of gold,” and whose endeavours “have substantially advanced the cause of marine science”. The name is also meant to allude to the main protagonist in J. K. Rowling’s famous fantasy novel series, whose magical abilities the scientists liken to Conley’s knack for finding rare or new species. Of the two authors, Dr. Mendoza is the self-confessed ‘Potterhead’, who was not about to pass up the chance of naming a new crab after his favourite fictional characters. In his turn, Dr. Ng, who knew Harry Conley personally, was quite amused and happy to agree.

The crab’s species name, *severus*, is inspired by another ‘Harry Potter’ character – Professor Severus Snape, who despite being a central character in the series, keeps his background and agenda mysterious until the very end, when he reveals a key secret. Showing his real identity, the character, to the authors, is “just like the present new species which has eluded discovery until now, nearly 20 years after it was first collected”.

The new species is a tiny crab measuring less than a centimeter in both length and width and can be found deep in coral rubble or under subtidal rocks, perhaps also in cavities. To survive in the dark depths, the species has evolved with reduced eyes, well developed antennae, and long, slender legs. For the time being it is known only from the island of Guam.

**Further information:**

- Mendoza, J.C.E.; Ng, P.K.L. (2017). *Harryplax severus*, a new genus and species of an unusual coral rubble-inhabiting crab from Guam (Crustacea, Brachyura, Christmaplacidae). *ZooKeys* 647: 23-35. <https://doi.org/10.3897/zookeys.647.11455>
- <https://blog.pensoft.net/2017/01/23/new-crab-species-shares-name-with-2-harry-potter-characters-and-a-hero-researcher/>



*[click on image for more information]*

Contacts:

- Jose Christopher Escano Mendoza ([jcmendoza@nus.edu.sg](mailto:jcmendoza@nus.edu.sg)), co-author of the new species
- Peter Ng ([peterng@nus.edu.sg](mailto:peterng@nus.edu.sg)), co-author of the new species

Additional photo(s) available at:

- <http://www.marinespecies.org/aphia.php?p=taxdetails&id=951873#images>

## Bob Marley's intertidal spider

*Desis bobmarleyi* Baehr, Raven & Harms, 2017

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1053408>

At 2am on the 11th of January 2009, the sea along the coastline of Australia's "Sunshine State" of Queensland receded to such an extent that it exposed a population of water-adapted spiders. The observant researchers, who would later describe these spiders as a species new to science, were quick to associate their emergence with reggae legend Bob Marley and his song "High Tide or Low Tide".

Unlike the spiders which people are familiar with, the intertidal species, whose representative is Bob Marley's namesake, are truly marine. They have adapted to underwater life by hiding in barnacle shells, corals or kelp holdfast during high tide. To breathe, they build air chambers from silk. Once the tide recedes though, they are out and about hunting small invertebrates that roam the surfaces of the nearby rocks, corals and plants.

The new species, listed under the scientific name of *Desis bobmarleyi*, is described based on male and female specimens spotted and collected from brain coral on that night in January. Both sexes are characterised by predominantly red-brown colours, while their legs are orange-brown and covered with a dense layer of long, thin and dark grey hair-like structures. The females appear to be larger with the studied specimen measuring nearly 9 mm, whereas the male was about 6 mm long.

While the exact distribution range of the newly described species remains unknown, it is currently recorded from the intertidal zones of the Great Barrier Reef on the north-eastern coast of Queensland.

"The song 'High Tide or Low Tide' promotes love and friendship through all struggles of life," explain the authors for their curious choice of a name. "It is his music that aided a field trip to Port Douglas in coastal Queensland, Australia, to collect spiders with a highly unique biology."

Apart from reporting their research, the scientists use their paper to pay tribute to a German naturalist from the late 19th century Amalie Dietrich, as well as the famous Jamaican singer and songwriter. The authors see both admirable figures, even if representative of very different fields, as examples of "the adventurous and resilient at heart" human nature in pursuit of freedom and independence.

***Further information:***

- Baehr, B.C.; Raven, R.; Harms, D. (2017). "High Tide or Low Tide": *Desis bobmarleyi* sp. n., a new spider from coral reefs in Australia's Sunshine State and its relative from Sāmoa (Araneae, Desidae, *Desis*). *Evolutionary Systematics* 1: 111-120. <https://doi.org/10.3897/evolsyst.1.15735>
- <https://phys.org/news/2017-12-species-marine-spider-emerges-tide.html#jCp>



*[click on image for more information]*

**Contact:**

- Barbara Baehr ([barbara.baehr@qm.qld.gov.au](mailto:barbara.baehr@qm.qld.gov.au)), co-author of the new species

## The invasive 'spiderman' worm-snail

*Thylacodes vandyensis* Bieler, Rawlings & Collins, 2017

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=989965>

A strange new marine worm-snail species with an interesting story. The species is described from an artificial reef (a deliberately scuttled shipwreck) off Florida - a new species, with interesting morphology and biology (a sessile gastropod that looks like a tube worm), certainly not native to the type locality, with high invasive potential, and presenting a potential threat to the local coral reefs.

Scientists have identified this new species of worm-snail named *Thylacodes vandyensis* after the General Hoyt S. Vandenburg, a sunken, retired naval ship where tens of thousands of the snails now live. If they spread elsewhere, the worm-snails could damage the region's living coral.

The Vandy, as divers have nicknamed it, is among a number of large, retired ships sunk in the Florida Keys National Marine Sanctuary to provide new homes for ocean creatures and alternative diving spots.

Researchers like Rüdiger Bieler, a curator at the Field Museum in Chicago and the lead author of the paper, monitor these artificial reefs to see what is settling in. In 2014, during two 20-minute dives, he and his colleagues found three of these worm-snails. Now there are thousands.

### *Further information*

- Bieler, R.; Granados-Cifuentes, C.; Rawlings, T.A.; Sierwald, P.; Collins, T.M. (2017). Non-native molluscan colonizers on deliberately placed shipwrecks in the Florida Keys, with description of a new species of potentially invasive worm-snail (Gastropoda: Vermetidae). PeerJ 5:e3158 <https://doi.org/10.7717/peerj.3158>
- Inspired a cartoon hero in the "Sherman's Lagoon" series (a popular marine-themed newspaper cartoon strip in the US).



[click on image for more information]

Contact:

- Rudiger Bieler ([rbieler@fieldmuseum.org](mailto:rbieler@fieldmuseum.org)), co-author of the new species

Additional photo(s) available at:

- <http://www.marinespecies.org/aphia.php?p=taxdetails&id=989965#images>

## The Californian box jelly

*Carybdea confusa* Straehler-Pohl, Matsumoto & Acevedo, 2017

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=994784>

*Carybdea confusa* is a species of box jellyfish. The authors note that the sting of this species is "not severe".

A lot of confusion (over the last 90 years) surrounds the naming of the Californian carybdeid population, sighted near La Jolla and Santa Barbara, since its first description by Stiasny in 1922. The specimens were first identified as *Carybdea rastonii* and later as *Carybdea marsupialis* but the identification was doubted by several scientists. To clear up the confusion, specimens of the Californian population were compared to specimens of all known carybdeid species. This comparison revealed that the Californian population represents an undescribed carybdeid species, named *Carybdea confusa*.

*C. confusa* lives in the kelp forests of the cold temperate North Eastern Pacific along the Californian coast.

**Further information:**

- Straehler-Pohl, I., Matsumoto, G.I. & Acevedo, M.J. (2017). Recognition of the Californian cubozoan population as a new species *Carybdea confusa* n. sp. (Cnidaria, Cubozoa, Carybdeida). *Plankton & Benthos Research* 12(2): 129–138. <https://doi.org/10.3800/pbr.12.129>



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## Palau president's colonial anemone

*Antipathozoanthus remengesaui* Kise, Fujii, Masucci, Biondi & Reimer, 2017

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1054036>

Zoantharians, or colonial anemones, include species popular in the pet trade, but this species is much more cryptic, living on coral reefs in marine caves, cracks, or at depths below most recreational SCUBA diving (>20 m). Coral reefs, which are widely threatened by rising temperatures from global warming, are generally believed to harbour very high numbers of species, including yet many undescribed or unknown species.

This new species of zoantharian was discovered by researchers from the University of the Ryukyus and Kagoshima University, Japan, and the Palau International Coral Reef Center. Despite not being previously known, this species was found widely across the Indo-Pacific; in the Red Sea, the Maldives, Palau, and southern Japan.

*Antipathozoanthus remengesau* is named after the current president of Palau, Tommy Remengesau.

"Much of our work was based in Palau", said senior author Dr. James Reimer, "and we wished to acknowledge the fantastic support we have received from the nation. Palau is considered at the forefront of marine conservation, and much of this is thanks to President Remengesau's vision."

While the new discoveries shed more light on our understanding of coral reef biodiversity, this work is far from done. In fact, the researchers themselves estimate they still have up to ten more zoantharian species to describe from the waters of Palau and Okinawa.

"Marine diversity of coral reefs is amazing, with new surprises all the time", said Kise, "and biodiversity scientists still have a lot more work to do."

**Further information:**

- Kise, H.; Fujii, T.; Masucci, G. D.; Biondi, P.; Reimer, J. D. (2017). Three new species and the molecular phylogeny of *Antipathozoanthus* from the Indo-Pacific Ocean (Anthozoa, Hexacorallia, Zoantharia). *ZooKeys*.725: 97-122. <https://doi.org/10.3897/zookeys.725.21006>
- <https://phys.org/news/2018-01-species-zoantharians-coral-reefs-indo-pacific.html#iCp>



*[click on image for more information]*

Contact:



- James Reimer ([jreimer@sci.u-ryukyu.ac.jp](mailto:jreimer@sci.u-ryukyu.ac.jp)), one of the authors of the description of the new species.

Additional photo(s) available at:

- <http://www.marinespecies.org/aphia.php?p=taxdetails&id=1054036#images>

## The necklace foraminiferan

*Aschemonella monilis* Gooday & Holzmann, 2017

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1245654>

*Aschemonella monilis* is a kind of xenophyophore. These are giant deep-sea protozoans that belong to a group called the foraminifera. Most foraminifera are less than a millimetre in size but xenophyophores can grow to 10 cm or even larger, making them some of the largest single-celled organisms on the planet.

*Aschemonella monilis* lives at a depth of more than 4 km in the eastern Pacific Ocean and, like many deep-sea foraminifera, it constructs a ‘test’ or shell made of foreign particles that it picks up off the seafloor.

These shells consist of strings of spherical chambers, up to 8 cm in length and the species name comes from the Latin word for necklace and refers to the appearance of the string of chambers that make up the shell.

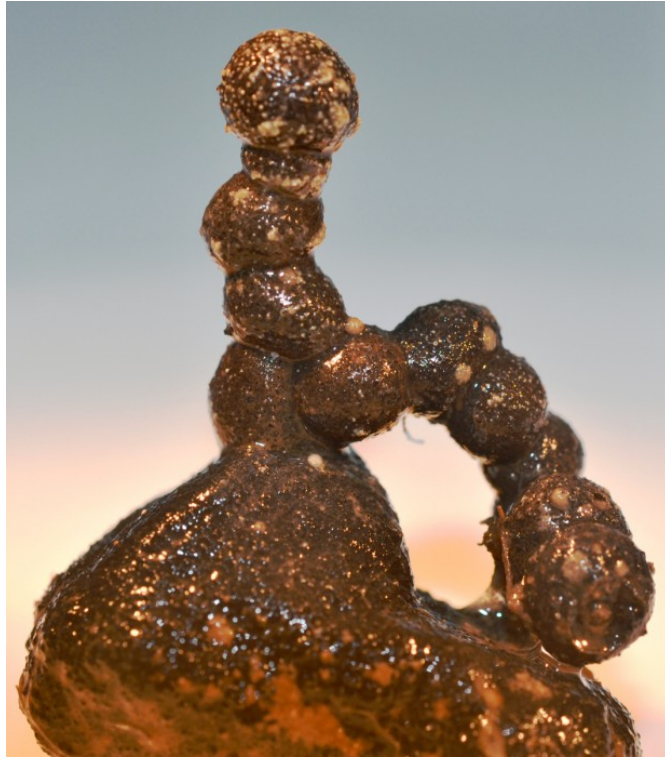
Many of the specimens were attached to polymetallic nodules, which are abundant on the seafloor in this region. They are clearly visible in photographic images of the seafloor, which means that they are part of the megafauna.

In fact, they are the dominant megafaunal organisms in this part of the Pacific, so it is quite surprising that they were first recognised only a few years ago and were described scientifically only in 2017. *Aschemonella monilis* was the most abundant organism visible in imagery covering an area of 14,206 m<sup>2</sup> of seafloor. A total of 21,992 individuals of this xenophyophore were identified, making it the most abundant megafaunal organism, either protistan or metazoan, seen in the surveyed area.

### Further information:

- Gooday, A.J.; Holzmann, M.; Caille, C.; Goineau, A.; Jones, D.O.B.; Kamenskaya, O.; Simonlledó, E.; Weber, A. A.; Pawlowski, J. (2017). New species of the xenophyophore genus *Aschemonella* (Rhizaria: Foraminifera) from areas of the abyssal eastern Pacific licensed for polymetallic

nodule exploration. Zoological Journal of the Linnean Society.  
<https://doi.org/10.1093/zoolinnea/zlx052>



*[click on image for more information]*

Contact:

- Andrew Gooday ([ang@noc.ac.uk](mailto:ang@noc.ac.uk)) at the National Oceanography Centre, Southampton, first author of the description of the new species

Additional photo(s) available at:

- <http://www.marinespecies.org/aphia.php?p=taxdetails&id=1245654#images>

# The fiery-red dragon *Epimeria*

*Epimeria pyrodrakon* d'Udekem d'Acoz & Verheye, 2017

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1042455>

Amphipods (small crustaceans) in the genus *Epimeria* are considered as one of the most iconic taxa of the Southern Ocean, where it is unusually abundant and diverse. The new species are very diverse and spectacular. Their body is often adorned with large spikes, reminiscent of mythological dragons. Some have vibrant colourations. This species is just one of 27 new Antarctic *Epimeria* species, almost doubling the number in the group, which are among the morphologically most spectacular amphipod species.

It was unexpected to find so many new species within a group that was supposed to be already well known. “This shows that we still have so much to learn about Antarctica and its biodiversity”, says author Cédric d'Udekem d'Acoz. “The continent may look like a biological desert on land, but the surrounding sea is full of unknown fauna.”

The species is named *Epimeria pyrodrakon* from a combination of two Greek words meaning, 'flame-coloured, yellowish red' and 'dragon'. The name alludes to the Great Red Dragon of the Book of Revelation, because its highly intricate ornamentation is not unlike that of a dragon and its colour accurately matches with the description given: “Then another sign appeared in heaven: There was a great fiery red dragon having seven heads and ten horns, and on his heads were seven diadems”.

These beautiful amphipod crustaceans are found at the Tip of Antarctic Peninsula, on the eastern shelf of the Weddell Sea, and the Princess Ragnhild Coast at depths between 170–490 m. The species is believed to be an opportunistic feeder or an opportunistic predator.

## Further information:

- d'Udekem d'Acoz, C.; Verheye, M. L. (2017). *Epimeria* of the Southern Ocean with notes on their relatives (Crustacea, Amphipoda, Eusiroidea). *European Journal of Taxonomy*. 359: 1-553. <https://doi.org/10.5852/ejt.2017.359>



[click on image for more information]

Contact:

- Cedric d'Udekem d'Acoz ([cdudekem@naturalsciences.be](mailto:cdudekem@naturalsciences.be)), first author of the description of the new species.

Additional photo(s) available at:

- <http://www.marinespecies.org/aphia.php?p=taxdetails&id=1042455#images>

## The hoodwinker sunfish

*Mola tecta* Nyegaard, Sawai, Gemmell, Gillum, Loneragan, Yamanoue & Stewart, 2017

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1042750>

It's not every day that someone discovers a new species of 8-foot-long (2.4 meters) fish, but new research reveals that an unknown species of huge, pancake-shaped sunfish has been hiding out in the oceans of the Southern Hemisphere. The fish, named *Mola tecta* (which is Latin for 'hidden'), is also known as the 'hoodwinker' sunfish because scientists were unaware of its existence despite decades of research on these strange animals.

Sunfish are enormous: As the world's largest bony fish, they can weigh up to about 1,000 kilograms. They have extremely round bodies with strange, foreshortened ruffles on their back ends instead of true tails. (This body part is called a 'clavus', which is Latin for 'rudder', Nyegaard said.)

The precise number of sunfish species and their relationships to one another have long been difficult to pin down, in part because of the difficulties in transporting and storing a fish that can grow to be more than 8 feet long. Genetic testing has helped to clarify; in fact, the researchers only discovered *Mola tecta* because a 2009 genetic study on sunfish tissue by Japanese researchers revealed gene sequences that didn't match those of any known species.

Nyegaard ran across these mystery genes while analysing tissue samples from sunfish that were accidentally hooked (and then thrown back) by commercial fishers. "I still didn't know what the fish looked like, as I only received tiny skin samples from the fisheries observers," she said. "But now that I knew where the sample had come from, the hunt was on."

Fortunately, a break came when three sunfish stranded themselves on a beach in Christchurch, New Zealand. Nyegaard couldn't get to New Zealand from Perth, Australia, where she works at Murdoch University, in time to sample the fish, but a "kind local" went out and collected tissue for her, she said. Just 10 days later, another specimen washed ashore at the same beach. This time, she hopped on a plane, arriving just before dark.

"I got out and just stood there, under the stars with the ocean rolling in and the huge fish just lying there on the beach — a stranded, lost behemoth, both sad- and lonely-looking but also beautiful in the weirdest way, like a precious gift from the sea, a long-kept secret," she said.

She knew she had her mystery fish. The new species has a distinctive stripe of skin dividing its body from its clavus. It also has fewer bony formations called ossicles on its clavus than other sunfish species, Nyegaard said, and it has a rounded, rather than protruding, snout.

Nyegaard and her colleagues shored up their analysis with studies of old museum specimens as well as more fishery bycatch. *M. tecta* lives in the waters around southeastern Australia, New Zealand, South Africa and perhaps Chile, they found. Because these sunfish are so elusive, little is known about whether they are in danger of extinction, Nyegaard said. The International Union for Conservation of Nature has designated one other sunfish species, *Mola mola*, as "vulnerable".

Likely the biggest threats to the fish are climate change and warming oceans, Nyegaard said. Like all marine wildlife, she added, sunfish are threatened by plastic pollution in the oceans. Reducing plastic use, she said, could be one way to ensure these huge fishy pancakes keep swimming.

#### **Further information**

- Nyegaard, M.; Sawai, E.; Gemmell, N.; Gillum, J.; Loneragan, N. R.; Yamanoue, Y.; Stewart, A. L. (2017). Hiding in broad daylight: molecular and morphological data reveal a new ocean sunfish species (Tetraodontiformes: Molidae) that has eluded recognition. *Zoological Journal of the Linnean Society*, 182(3): 631-658. <https://doi.org/10.1093/zoolinnean/zlx040>
- <https://www.livescience.com/59982-new-sunfish-looks-like-giant-pancake.html>



[click on image for more information]

Contact:

- Marianne Nyegaard ([m.nyegaard@murdoch.edu.au](mailto:m.nyegaard@murdoch.edu.au)), first author of the description of the new species.

Additional photo(s) & video available at:

- <https://vimeo.com/129499857>
- <http://www.marinespecies.org/aphia.php?p=taxdetails&id=1042750#images>

## The Solomon Islands pyramidellid snail

*Euratheia solomonensis* Peñas & Rolán, 2017

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=956396>

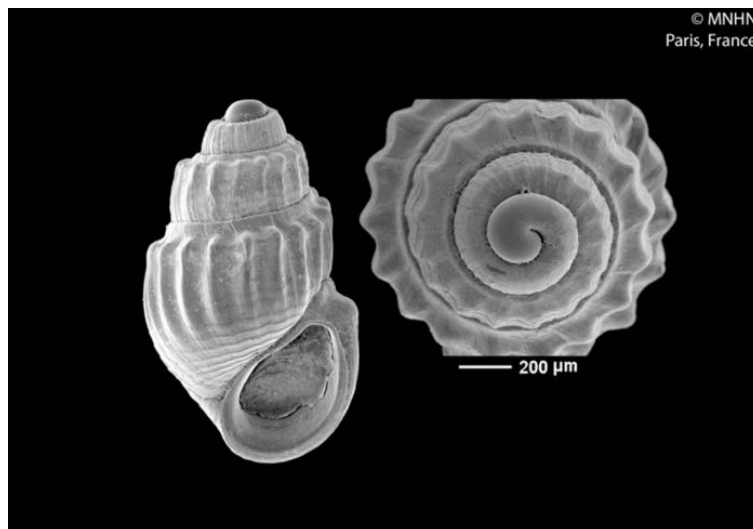
This gastropod species, here given the common name of the Solomon Islands pyramidellid snail, is actually a rather "anonymous" species of gastropod, measuring a mere 2.25 mm. However, beyond this anonymous façade lies a fascinating story. The two co-authors of the publications are both "citizen scientists", and the publication where the new species is named altogether contains 212 new species! *Euratheia solomonensis* was selected for the Top Ten from among this amazing diversity because the type locality is a single dredge haul at a depth of 98-200 meters taken off the island of Malaita in the Solomon Islands, which contained an astonishing 110 new species of pyramidellid gastropods (53 described in a previous monograph and 57 in the present one). This illustrates the amazing diversity still to be found in our oceans, especially in deep

water in tropical seas, one of the last frontiers in biodiversity exploration. This is precisely the target of the Tropical Deep-Sea Benthos programme, during which the Solomon Islands were surveyed during three research cruises conducted on board Nouméa-based Research Vessel *Alis* between 2001 and 2007, that generated literally thousands of new species. Anselmo Peñas had a business in industrial weighing and dosing machinery, and Emilio Rolán was a medical doctor; both are now retired and actively engaged in gastropod systematics. As many as 57% of the new species of marine molluscs described since 2000 have been described by citizen scientists, highlighting their key role in biodiversity description, just like citizen scientists are responsible for the discovery and description of many new beetles or plants.

Like all other pyramidellids, it is assumed that *Euratheia solomonensis* is an ectoparasite on other benthic invertebrates, probably a polychaete (worm) or another mollusc (snail or bivalve).

#### Further information

- Peñas A. & Rolán E. (2017). Deep water Pyramidelloidea from the central and South Pacific. The tribe Chrysallidini. ECIMAT (Estación de Ciencias Mariñas de Toralla) - Universidade de Vigo, 412 pp. ([details on WoRMS](#)).
- <https://science.mnhn.fr/institution/mnhn/collection/im/item/2000-32257?listIndex=326&listCount=11913>



*[click on image for more information]*

#### Contact:

- Philippe Bouchet ([pbouchet@mnhn.fr](mailto:pbouchet@mnhn.fr)), Molluscan taxonomic expert



