

Press release WoRMS



Ten remarkable new marine species from 2019

EMBARGO: 00:01 GMT March 19th, 2020

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High-resolution photos available online. See section "Image available at:" with each individual species.

Ten remarkable new marine species from 2019

- [The Green Rat Clingfish, *Barryichthys alqicola*](#)
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- [Brenner's Bobtail Squid, *Euprymna brenneri*](#)
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As for previous years, the World Register of Marine Species ([WoRMS](#)) has again released the annual list of the top-ten marine species described by researchers during the year 2019 to coincide with World Taxonomist Appreciation day - March 19th!

If you were unaware of this celebration of all the work that taxonomists do, you can find more here: <https://twitter.com/hashtag/taxonomistappreciationday>, here: <https://smallpondscience.com/2014/03/19/today-is-taxonomist-appreciation-day/>, and here: <https://cetaf.org/news/19th-march-taxonomist-appreciation-day>.

Every day in labs, museums, out on fieldwork, taxonomists are busy collecting, cataloguing, identifying, comparing, describing and naming species new to science. Some 500 experts globally also contribute their valuable time to keeping the World Register of Marine Species (WoRMS) up to date. Today is a chance for us at WoRMS to thank all our editors for this important task. And we celebrate the work of taxonomists now with the WoRMS list of the top-ten marine species described in 2019 as nominated and voted for by taxonomists and journal editors!

This top-ten list is just a small highlight of almost 2,000 fascinating new marine species discovered every year.

How were the species chosen?

All editors of WoRMS and editors of major taxonomy journals were given the opportunity to nominate their favourite marine species. Nominated species must have been described between January 1st and December 31st, 2019, and have come from the marine environment (including fossil taxa). A small committee (including both taxonomists and data managers) was brought together to decide upon the final candidates. The list is in no hierarchical order.

The final decisions reflect the immense diversity of animal groups in the marine environment (including fish, crustaceans, molluscs, corals, sponges, jellies, worms) and highlight some of the challenges facing the marine environment today. 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. This year the chosen species are in some cases particularly small, large, hidden, or rather sparkly!

We feature the unusual light-producing Christmas-Light Brittle Star and the Star-of-the-Sea Seed Shrimp; the tiny Brenner's Bobtail Squid; cryptic Boring Amphipods and Green Rat Clingfish; and even a giant Mediterranean Branching Placozoan (well, giant for a placozoan...).

About the WoRMS top-ten list of Marine Species

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 do know that at least 233,000 marine species have been described because their names are managed in WoRMS by almost 300 scientists located all over the world.

In 2018, to celebrate a decade of WoRMS' existence, we compiled 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 (see <http://www.lifewatch.be/en/2018.04.23-WoRMS-LifeWatch-press-release>).

We decided to continue this process every year as a celebration of the work that taxonomists do and of the fascinating marine species that are discovered each year. Our previous lists of the top-ten marine species described for the decade 2007-2017, for 2017 and 2018 can be found here:

- <http://www.lifewatch.be/en/worms-top10-2007-2017>
- <http://www.lifewatch.be/en/worms-top10-2017>
- <http://lifewatch.be/en/worms-top10-2018>

A list of the 'Top Ten Species' described from ALL habitats and taxa has been announced annually since 2008 (<http://www.esf.edu/top10/>). 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>). Although the ESF 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 the global list!

- [Ten remarkable new marine species from 2019](#)

The Green Rat Clingfish

Barryichthys algicola Conway, Moore & Summers, 2019

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1397766>

This tiny new species is one of two that were recently described in the new genus *Barryichthys*. The new genus was named for Barry Hutchins, in honour of his work on Australian clingfishes. Clingfishes are small fishes that have a well-developed ventral adhesive disc with which they can attach to smooth or even heavily structured substrates with great tenacity.

Some clingfish species are particularly well-adapted to living on the surface of macroalgae or seagrass blades and have narrow, elongate bodies and relatively narrow heads, shortened or modified fins, and colour patterns of different shades of green, brown, orange or red to aid in camouflage. A tiny and undescribed species of macroalgae dwelling clingfish has been known from the southern coast of Australia since at least the 1980s. Until now, this species has been referred to either as an undescribed genus, "Genus B" or simply as "rat clingfish".

Studies of specimens from museum collections revealed the "rat clingfish" to represent not one but two undescribed species, with non-overlapping distributions along the southern coast. This includes the more western distributed Brown Rat Clingfish *B. hutchinsi* (from Western Australia and South Australia), and the more eastern distributed Green Rat Clingfish *B. algicola* (from New South Wales, Victoria, and Tasmania).

The spectacularly coloured Green Rat Clingfish (*Barryichthys algicola*) was chosen for our top-ten, and the scientific name means 'one who inhabits the algae' in reference to the habitat of the new species.

Both new species are tiny, less than 21 mm long and are characterised by many reductions and novel characters. Mature females of the Green Rat Clingfish were found as small as 17.2 mm. Fish at these sizes are 'officially' classed as miniature and they are some of the smallest clingfish species described to date.



Original source:

- Conway, K.W.; Moore, G.I.; Summers, A.P. (2019). A new genus and two new species of miniature clingfishes from temperate southern Australia (Teleostei, Gobiesocidae). *ZooKeys* 864: 35-65. <https://doi.org/10.3897/zookeys.864.34521>

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Image available at:

- <http://www.marinespecies.org/aphia.php?p=image&tid=1397766&pic=141009>

Thiel's Boring Amphipod

Bircenna thieli Hughes & Lörz, 2019

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1364144>

Are amphipods boring? Well, in the case of this new species – yes they are! This tiny Tasmanian vegetarian lives right inside common bull kelp, boring new tunnels as it eats. They belong to the little known family Eophliantidae, which has just sixteen species, including this new species. Eophliantids are very small crustaceans, all of which live as colonies of hundreds burrowing in the stipes of macroalgae.

Though most are recorded from a single algal species, it is likely that this is just a result of the under recording of these tiny (all less than 6mm) hidden animals. More widely surveyed species appear to burrow in a range of algae, and they are probably actually quite common. They are mainly known from the southern hemisphere.

This species was named in honour of Prof. Dr. Martin Thiel in recognition of his extensive contribution to studies of crustaceans, and for the collection of the specimens by snorkeling.

The head of these animals looks rather ant-like, and they have a very unusual pair of square shaped appendages at their rear ends (known as uropods).

This new discovery of a boring crustacean common in algae, will hopefully open the door to further study, and encourage others to take a closer look at biodiversity on a smaller scale. Boring, yes, but certainly not dull!



Original source:

- Hughes, L.E.; Lörz, A.-N. (2019). Boring Amphipods from Tasmania, Australia (Eophliantidae: Amphipoda: Crustacea). *Evolutionary Systematics* 3(1): 41-52.
<https://doi.org/10.3897/evolsyst.3.35340>

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Image available at:

- <http://www.marinespecies.org/aphia.php?p=image&pic=140989&tid=1364144>

Brenner's Bobtail Squid

Euprymna brenneri Sanchez, Jolly, Reid, Sugimoto, Azama, Marlétaz, Simakov & Rokhsar, 2019

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1396783>

Bobtail squid are small cephalopods that have unique features distinguishing them from true squid, including their rounded or 'bobbed' posteriors, which give them their common name. The new species chosen here for our top ten is particularly cute. *Euprymna brenneri* is tiny, its mantle only reaching about 22 mm in length and it differs from all other species in the genus because the females have enlarged arm suckers, while usually only the males have this trait.

The new species was named in honour of the renowned molecular biologist and Nobel Prize winner, Prof. Sydney Brenner [1927–2019]. 'Brenner's Bobtail' was identified based on its unique morphology and molecular signature. Prof. Brenner, also once president and among the founders of the institute where the discovery was made (Okinawa Institute of Science and Technology, OIST), once described cephalopods as, 'the first intelligent animals on the planet'.

The new species was found when researchers at OIST collected three different types of bobtail egg clutches and two types of adults in the shallow waters around the Ryukyu Archipelago. The eggs were hatched and reared in the laboratory, and the DNA of two of the three types of hatchlings matched that of two of the adult animals that were collected at the same time. One of these two was morphologically and molecularly distinct and was described as a new species.

The Ryukyu Archipelago continues to impress with its rich marine diversity. The newly published study sheds light not only on the taxonomy of cephalopods, but also their complex molecular and morphological features.



Original source:

- Sanchez, G.; Jolly, J.; Reid, A.; Sugimoto, C.; Azama, C.; Marlétaz, F.; Simakov, O.; Rokhsar, D.S. (2019). New bobtail squid (Sepiolidae: Sepiolinae) from the Ryukyu Islands revealed by molecular and morphological analysis. *Communications Biology* 2, 465: 1-15.
<https://doi.org/10.1038/s42003-019-0661-6>

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Image available at:

- <http://www.marinespecies.org/aphia.php?p=image&tid=1396783&pic=141042>

Media coverage:

- <https://www.oist.jp/news-center/press-releases/theres-new-squid-town>
- <http://www.sci-news.com/biology/euprymna-brenneri-07918.html>
- <https://australianmuseum.net.au/blog/amri-news/pint-sized-perfect-brenners-bobtail/>
- <https://huscf.hiroshima-u.ac.jp/2019/12/12/theres-a-new-squid-in-town/>
- [Video footage.] <https://www.oist.jp/file/new-squid-species-e-brenneri>

The 'Star of the Sea' Seed Shrimp

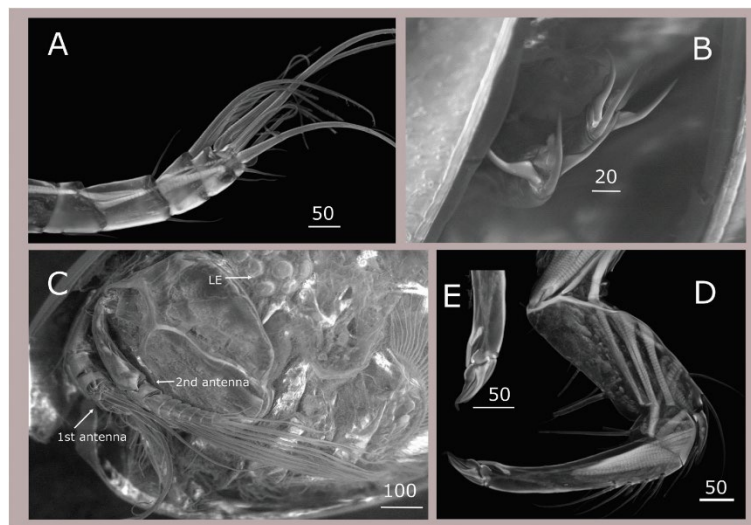
Maristella chicoi Reda & Gerrish, 2019

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1384900>

There is a group of marine ostracods that are capable of bioluminescence, producing light to deter predators. Amongst these there is even a group of species that have been shown to use bioluminescence as mate-signalling during courtship.

Maristella chicoi represents a new genus and species of these bioluminescent mate-signalling ostracods from the Caribbean region. The name '*Maristella*' for the new genus means 'star of the sea' to represent the amazing phenomenon of these tiny animals twinkling like little stars in the ocean.

The species has interesting male courtship patterns, which differentiate it from related species in the Caribbean Sea. Species can be told apart behaviourally based on differences in, duration, direction, brightness and numbers of the light pulses, as well as the depths at which the display takes place.



Original source:

- Reda, N.J.; Morin, J.G.; Torres, E.; Cohen, A.C.; Schawaroch, V.; Gerrish, G.A. (2019). *Maristella*, a new bioluminescent ostracod genus in the Myodocopida (Cypridinidae). *Zoological Journal of the Linnean Society* 187(4): 1078-1118. <https://doi.org/10.1093/zoolinnean/zlz082>

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Images available at:

- <http://www.marinespecies.org/aphia.php?p=image&tid=1384900&pic=141006>
- <http://www.marinespecies.org/aphia.php?p=image&pic=141019&tid=1384900>

Jim Henson's Egg-Eating Slug

Olea hensoni Filho, Paulay & Krug, 2019

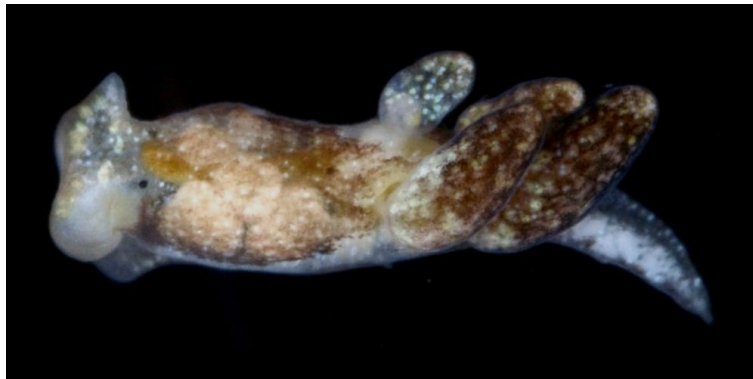
<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1354168>

Sacoglossan sea slugs are mostly herbivorous, feeding suctorially on algal cytoplasm; many are green from functional chloroplasts retained in their body. One lineage evolved to instead feed on the eggs of other sea slugs, a surprising dietary shift that may have constrained their success: the genus *Calliopaea* has one or two species known from Europe, while *Olea* was a monotypic genus from the North Pacific.

That changed when a class fieldtrip to a sand flat on Florida's Gulf Coast discovered sea slugs feeding on unknown snail egg masses. DNA sequencing and anatomical studies confirmed the slugs, smaller than rice grains, were a new species, which was named *Olea hensoni*. Researchers were surprised to find a new *Olea* in warm subtropical waters of the Gulf of Mexico, since their only congener is restricted to the cold North Pacific, a puzzling distribution that suggests more tropical egg-eating slugs await discovery.

The unusual diet of *Olea* resulted in the near complete loss of their radula, the molluscan tooth-ribbon; other sacoglossans use a single blade-like tooth to feed, but the tooth of *O. hensoni* is little more than a nub. Its penis, on the other hand, is armed with a fearsome curved barb likely used in aggressive mating.

The species was named after Muppets creator Jim Henson, whose panoply of animal creations educated generations of children while they ate their breakfast eggs; as Kermit the Frog sang, "It's Not Easy Bein' Green," befitting the one lineage of sacoglossans that lost the green color of their herbivorous relatives.



Original source:

- Filho, H.G.; Paulay, G.; Krug, P.J. (2019). Eggs sunny-side up: A new species of *Olea*, an unusual oophagous sea slug (Gastropoda: Heterobranchia: Sacoglossa), from the western Atlantic. *Zootaxa* 4614(3): 541-565. <https://doi.org/10.11646/zootaxa.4614.3.7>

Contact:

- Patrick Krug (pkrug@calstatela.edu), co-author of the new species

Image available at:

- <http://www.marinespecies.org/aphia.php?p=image&pic=140395&tid=1354168>

Media coverage:

- Featured by NSF: https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=298783
- BBC Wildlife Magazine: <https://www.discoverwildlife.com/news/sea-slug-species-named-after-muppets-creator/>
- Science Daily: <https://www.sciencedaily.com/releases/2019/06/190618141448.htm>
- Tampa Bay Times: <https://www.tampabay.com/environment/florida-scientist-stumbles-on-previously-unknown-species-of-egg-sucking-sea-slug-20190618/>
- Gainesville Sun: <https://www.gainesville.com/news/20190620/egg-sucking-sea-slug-named-after-jim-henson>
- Florida Museum: <https://www.floridamuseum.ufl.edu/science/egg-sucking-sea-slug-from-cedar-key/>

The Christmas-Light Brittle Star

Ophiopsila xmasilluminans Okanishi, Oba & Fujita, 2019

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1392789>

This unusual new species of brittle star was recently discovered living in a cave ecosystem on Christmas Island, in northwestern Australia. The animal survives in complete darkness and is believed to be endemic to this habitat. The species name '*xmasilluminans*' means 'christmas lighting', in reference both to its origin, Christmas Island, and to the flashing light emitted from the arms. The specimens were collected by divers who noted that the arms start flashing as a response to being touched. This response to mechanical stimulation is likely to be a defensive response to predation. Some brittle stars are capable of 'losing' an arm to save the rest of the animal and in the case of this species, these severed arms were seen to produce green flashes of light and even to wriggle, which would certainly be an effective distraction to the would-be predator.

Bioluminescence is found in several ophiuroid species, but this is the first, and so far only, cave-living species to show this behavioural adaptation. Cave-dwelling brittle stars are rare and have only recently been studied in detail. We know very little about how they came to live in caves and what their adaptations are to this unusual environment.



Original source:

- Okanishi, M.; Oba, Y.; Fujita, Y. (2019). Brittle stars from a submarine cave of Christmas Island, northwestern Australia, with description of a new bioluminescent species *Ophiopsila xmasilluminans* (Echinodermata: Ophiuroidea) and notes on its behaviour. *Raffles Bulletin of Zoology* 67: 421-439. <https://doi.org/10.26107/RBZ-2019-0034>

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Images available at:

- <http://www.marinespecies.org/aphia.php?p=image&tid=1392789&pic=140991>
- <http://www.marinespecies.org/aphia.php?p=image&tid=1392789&pic=140993>

The Mediterranean Branching Placozoan

Polyplacotoma mediterranea Osigus & Schierwater, 2019

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1337062>

Changing our view of a whole phylum is a very, very rare event, yet in 2019 it happened.

The phylum Placozoa (“plate animals”) has been a key taxon for understanding early animal evolution, and it had only contained a single species, *Trichoplax adhaerens* (Schulze, 1883), for more than a century. Modern genetic studies have shown, however, that there are in fact several dozen cryptic species in the phylum, which all look the same under the microscope.

It has therefore become a major challenge for modern taxonomy to describe species that look identical. A new placozoan species (*Hoilungia hongkongensis* Eitel, Schierwater & Wörheide, 2018) was described last year solely based on genomics (and the finding was so exciting that it made it to our [top ten for 2018](#)!). Just one year later, the “plate animals” delivered an even bigger surprise.

After more than a century of field and laboratory work on placozoans and more than a decade of intense sequencing efforts came the biggest, i.e. most unexpected surprise. In the rough environment of a wave-breaking zone in the Mediterranean, an animal of very bizarre appearance was detected. In-depth anatomical and molecular studies identified it as a placozoan and revealed several completely new features for the phylum.

The new species, named *Polyplacotoma mediterranea* (Osigus & Schierwater, 2019), shows a highly branched body - instead of the uniform circular disc seen in the other two species; and it is visible to the naked eye, reaching a body size of more than 10 mm (almost ten times the size of the other placozoan species).

At the genetic level, *P. mediterranea* possesses a highly unusual, extremely compact mitochondrial genome, which is only half of the size of that of *T. adhaerens*. The combination of these highly unique characteristics immediately forces the erection not only of a new genus, but also of a higher taxonomic rank above the family level, since *Polyplacotoma* represents at least a sister taxon to the only described placozoan family. In any area of biology, the finding of a new high taxonomic rank is a highly rare event and it is clear that there is much more to be learned about this enigmatic phylum, i.e. the simplest of all metazoan animals.



Original source:

- Osigus, H.-J.; Rolfes, S.; Herzog, R.; Kamm, K.; Schierwater, B. (2019). *Polyplacotoma mediterranea* is a new ramified placozoan species. *Current Biology* 29(5): R148-R149. <https://doi.org/10.1016/j.cub.2019.01.068>

Contact:

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Image available at:

- <http://www.marinespecies.org/aphia.php?p=image&tid=1337062&pic=140994>

The Octopus-Dwelling Worm

Spathochaeta octopodis Jimi, Moritaki & Kajihara, 2019

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1321351>

Polychaete worms are well-known for forming symbiotic relationships, where both species benefit from close association. This has been shown to occur between polychaetes and a variety of animals including sponges, cnidarians, molluscs, other annelids, crustaceans, echinoderms, and tunicates. The molluscan hosts include bivalves, gastropods, limpets, chitons, and squids; but until now they had not been found associated with octopuses. Octopus ectoparasites have also been reported before, but these have never been polychaetes, until now...

A single specimen of an undescribed species of polychaete worm was found on a small (3 cm) octopus that was found hiding in an empty shell collected at 150 m depth in the Kumano Sea, off central Japan, in the eastern North Pacific Ocean.

The polychaete remained attached on the octopus' body surface for three days, strongly supporting that this is indeed a symbiotic relationship between the two creatures, rather than an accidental attachment. The worm was also seen moving around from the mantle to web of the host octopus. Since this is only known from a single specimen, nothing further is known about the ecology of the relationship, which awaits more specimens and further study.

This discovery of this new genus and species is distinctive in being the first record of a symbiotic association between a polychaete worm and an octopus. The worm belongs to the little-known enigmatic group of polychaetes known as the Calamyzinae. *Spathochaeta octopodis* is also the first calamyzine polychaete to be reported from a non-chemosynthetic ecosystem, all others are known from methane seeps and hydrothermal vents.



Original source:

- Jimi, N.; Moritaki, T.; Kajihara, H. (2019). Polychaete meets octopus: symbiotic relationship between *Spathochaeta octopodis* gen. et sp. nov. (Annelida: Chrysopetalidae) and *Octopus* sp. (Mollusca: Octopodidae). *Systematics and Biodiversity* 17(1): 80-85.
<https://www.tandfonline.com/doi/full/10.1080/14772000.2018.1520753>

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Image available at:

- <http://www.marinespecies.org/aphia.php?p=image&tid=1321351&pic=140733>

Thomas' Coral-Eroding Sponge

Cliona thomasi Mote, Schönberg, Samaai, Gupta & Ingole, 2019

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1324525>

This new species may at first appear to be simply a rather uninspiring brown sponge, but it has been selected as one of the top-ten new marine species of 2019 because it has an important story to tell; about taxonomy, about ecology, and about collaboration.

Sponges are often overlooked, and this one is prime example of this. The new species has been known for many years and is common and abundant in Indian Ocean coral reefs, but because the taxonomy of these sponges is complex and historically confused, it has remained unidentified or wrongly identified for a long time.

The new species is a bioeroding sponge and these fulfil many important functions in marine habitats. Apart from all the ecoservices any sponge provides, they rework calcareous hard substrate (such as corals), recycling materials and producing large amounts of fine sediments, while also creating small cavities that can be inhabited by other organisms. These bioeroding sponges invade and can kill live corals, and they therefore have an important ecological role on the local coral reefs. *Cliona thomasi* has an association with a dinoflagellate and this symbiosis plays a major role in the survival of the sponge as well as in its bioeroding capability.

It is thought that the species has significantly increased in abundance, a pattern that has been seen around the world. Experiments have shown that bioerosion rates will significantly rise in future, owing to environmental change, and should be closely monitored. New, quality descriptions for dominant bioeroders that provide quantitative data suitable for taxonomic comparison and that allow different stakeholders to recognise key characters are needed.

However, despite this species' ecological importance and the need for monitoring, surveyors were unable to identify it beyond 'morphotype'. Thanks to this comprehensive, collaborative, modern description, these problems are now solved; meaning monitoring and management agencies can now track trends relevant to the local habitat health, including trends in bioeroder ecology.

This new species description is also an excellent example of the importance of collaboration and training of new taxonomists. The paper was written jointly by sponge experts working closely with a PhD student, overcoming difficulties of access to samples and publication pressures.



Original source:

- Mote, S.; Schönberg, C.H.L.; Samaai, T.; Gupta, V.; Ingole, B. (2019). A new clionaid sponge infests live corals on the west coast of India (Porifera, Demospongiae, Clionaida). *Systematics and Biodiversity* 1-17. <https://doi.org/10.1080/14772000.2018.1513430>

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Image available at:

- <http://www.marinespecies.org/aphia.php?p=image&tid=1324525&pic=141043>

The Vibranium Fairy Wrasse

Cirrhilabrus wakanda Tea, Pinheiro, Shepherd & Rocha, 2019

<http://www.marinespecies.org/aphia.php?p=taxdetails&id=1358386>

This colourful new species was discovered inhabiting dimly-lit coral reefs between 50-80 metres below the surface of the Indian Ocean, just off the coast of Zanzibar in Tanzania. The researchers studied the colouring, body structures, and DNA of the new species and compared it with other known species to confirm that it was new to science.

The species' scientific name is *Cirrhilabrus wakanda*, which refers to its finding in the little-known mesophotic reefs of Africa, and is a nod to Marvel's mythical East African nation of Wakanda, home of the superhero Black Panther.

"When we thought about the secretive and isolated nature of these unexplored African reefs, we knew we had to name this new species after Wakanda," says Yi-Kai Tea, lead author and ichthyology PhD student from the University of Sydney.

The species has been given the common name 'Vibranium Fairy Wrasse', and refers to the fictional metal 'vibranium', a rare substance found on Wakanda that is woven into Black Panther's suit. The purple chain-link scale pattern of the new species reminded the scientists of Black Panther's suit and the fabric motifs worn by Wakandans in the hit film. Interestingly, the "vibranium" purple locked in the scales of the fish turn out to be so intense that it even keeps its colourful shades even when the specimen is preserved.

Like Wakanda, the dimly-lit mesophotic reefs where the vibranium wrasse lives are hidden and hard to reach. They are near the limit of the depths human divers can reach.

"It's a time of global crisis for coral reefs, and exploring little-known habitats and the life they support is now more important than ever," says co-author Dr. Luiz Rocha, California Academy of Sciences Curator of Fishes. "Because they are out of sight, these deeper reefs are often left out of marine reserves, so we hope our discoveries inspire their protection."



Original source:

- Tea, Y.-K.; Pinheiro, H.T.; Shepherd, B.; Rocha, L.A. (2019). *Cirrhilabrus wakanda*, a new species of fairy wrasse from mesophotic ecosystems of Zanzibar, Tanzania, Africa (Teleostei, Labridae). *ZooKeys* 863: 85-96. <https://doi.org/10.3897/zookeys.863.35580>

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Image available at:

- <http://www.marinespecies.org/aphia.php?p=image&tid=1358386&pic=141038>