Fish

Ecosystem

Fisher

Community

Region

Nation

World

ANNUAL REPORT 2022

PROJECT SEAHORSE

advancing marine conservation

We are leaders in marine conservation, making discoveries and collaborating globally to take effective action for seahorses and their seas.

Our vision is a world in which marine ecosystems are healthy and well-managed.

Project Seahorse is an award-winning team that has made measurable gains in marine conservation around the world. We build knowledge and then translate it into effective action, creatively and collaboratively. When confronted with a problem, we take a multilayered approach to find solutions. This means we embrace many different ways of thinking at many spatial scales, with our work ranging from local seahorse populations to global policy and back again.

Our mission has three elements:

- We are an interdisciplinary and international organization committed to conservation and sustainable use of the world's coastal marine ecosystems.

- We engage in connected research and management at scales ranging from community initiatives to international accords.

- We collaborate with partners and communities, using seahorses to focus our efforts in finding marine conservation solutions.

We aim to do this through four main programs

Saving seahorses

Establishing protected areas

Limiting problem fisheries

Regulating wildlife trade

projectseahorse.org/about-us

Director's Message

Dear friends,

Reflecting on our progress and joys in 2022 prompted me to share four milestones with you, chosen from among many.
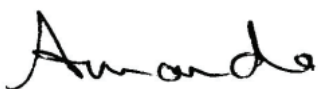
- We launched two new field projects on seahorses with in-country colleagues. We plunged into the first dive research of Patagonian seahorses in Argentina, working to bolster an important marine protected area. We also investigated seahorse fisheries and trade the whole length of Peru to help the government tackle significant illegal trade in these fishes.

- We led a big project to analyse how well policy agreements are actually working, using a case study of global trade regulation for marine fishes. Our novel approach drove home the clear message that all the information and regulations in the world will make no difference unless they are being actively deployed in ways that affect the fish themselves.

- We had a notable breakthrough in November in our work with CITES, the global Convention that regulates wildlife trade. With our technical and management knowledge, we catalysed new formal agreements by 183 countries plus the European Union to act on illegal trade in seahorses. Now to make those agreements come alive…

- We engaged more deeply in constraining non-selective fishing, notably by becoming part of the Steering Group for the global Transform Bottom Trawling Coalition. This is a harbinger of things to come as Project Seahorse pushes to end bottom trawling in 2023.

Sadly, 2022 also brought a great sorrow, when Carl Krefting died. Long the Managing Director of Guylian Belgian Chocolates, Carl created a partnership with Project Seahorse that powered wonderful conservation work for 24 years. I greatly miss Carl, his wisdom and his warmth.

As we move into 2023, we are delighted that an anonymous donor has generously provided significant funding to allow us to take on bold new conservation ventures. Watch this space!

Sincere thanks for everything you all do for seahorses and the seas.

Yours in conservation,

Prof. Amanda Vincent
Director and Co-founder, Project Seahorse

Amanda aboard a ferry travelling through Active Pass in B.C., Canada. Photo by Kian Vincent

Where We Work

OFFICE

BIOLOGICAL RESEARCH

FISHERIES AND TRADE RESEARCH

FIELD COLLABORATION

GOVERNMENT COLLABORATION

Project Seahorse is a global leader in marine conservation. We are engaged in cutting-edge research and highly effective conservation action, in collaboration with governments, local communities, and other stakeholders. We are active in six continents, in a variety of ways and at varying times. Our priority is always for national colleagues to lead the work in their countries, with international cooperation and support.

projectseahorse.org/about-us

Saving Seahorses

Project Seahorse is globally recognized for our expertise in seahorse science and conservation assessment. Seahorses have a unique charm that ignites tremendous passion for marine conservation. These fascinating fish are under pressure from problem fisheries and live in crucial coastal habitats that are under threat. They are also much sought for a range of ornamental and medicinal uses. By implementing effective measures to protect seahorses, such as establishing marine protected areas, regulating fishing practices, and managing wildlife trade, we can safeguard numerous other species that depend on these habitats.

Advancing seahorse life history knowledge with community science

Our iSeahorse public science initiative is proving very valuable in gathering scientific information, expanding data collection capacity, and catalysing marine conservation efforts. Among the 46 species of seahorses, only a handful have been studied to any notable extent. iSeahorse, which is driven by community participation, is helping to bridge this knowledge gap.

Our graduate student, Elsa Camins Martinez from Spain, has been analyzing all the data submitted to iSeahorse from 2013 to April

Coleman's pygmy seahorse (*Hippocampus colemani*) photo submitted to iSeahorse and taken by David Harasti.

2022, piecing together 7,794 complete records for a total of 35 different seahorse species. Elsa has used iSeahorse contributions to update the geographic ranges for eleven species, extend the depth ranges for 13 species, describe new habitats for 24 species, and extract helpful information on sex ratio and pregnancy seasonality for yet more. For example, the seahorse species *Hippocampus colemani*, previously known only from near Lord Howe Island (east of Australia), has now been reported (with validated photographs) from as far north as Japan. These sightings have also provided us with new information about its habitat and depth preferences. Elsa is now considering how iSeahorse findings can help update current IUCN[1] Red List assessments.

Elsa commented, "*It has been really fun and fascinating to bring together all the information that divers and others have contributed. The stories that we uncover help us to plan better seahorse conservation and reveal just how much it helps to involve lots of people in ocean action*".

projectseahorse.org/saving-seahorses

Estimating long-term abundance of yellow seahorse in Cambodia

Miguel Correia, a Portuguese seahorse expert, joined the Project Seahorse team full time in September 2022, bringing with him a remarkable wealth of field experience and international engagement. Miguel had already engaged with iSeahorse trends monitoring in Cambodia, Greece, and Portugal. Recently he co-authored a newly published study about population trends in *Hippocampus kuda*, which were monitored from 2014 to 2021 at five sites within Cambodia's Koh Sdach Archipelago. Revealing very low but stable densities of seahorses across diverse habitats, the study will help identify appropriate spatial management in the area.

Common seahorse (*Hippocampus kuda*).
Photo by Bruno van Saen / Guylian Seahorses of the World.

Hedgehog seahorse (*Hippocampus spinosissimus*).
Photo by Luc Eeckhaut / Guylian Seahorses of the World.

Project Seahorse has a long history of establishing, assessing and sustaining marine protected areas (MPAs). For seahorses and other marine species to thrive, it is essential to maintain healthy marine ecosystems and implement effective management of human activities. MPAs play a crucial role in reducing fishing pressure and preventing harmful practices that can damage habitats and negatively impact populations. Combining expertise in both biology and social work, we work with communities to create and maintain sustainable MPAs that provide benefits for both marine life and local people.

Uncovering South America's most southerly seahorse population to strengthen an MPA

To enhance management of a key marine protected area in Argentina, our graduate student Pax Templeton (from the USA) has been collaborating on seahorse studies with Dr. Diego Luzzatto, Argentina's foremost seahorse expert and member of the IUCN SSC SPS SG.[1]

Together, Pax and Diego undertook the first dive surveys of the most southerly population of seahorses in South America, on a threatened species called *Hippocampus patagonicus*. Their research took place in the natural protected area of Bahia de San Antonio, Argentina, with the aim of enhancing our biological and ecological knowledge of the species and its habitat. While this protected area was primarily established to safeguard shorebirds, it is crucial to foster a stronger connection with marine species, a goal that can be facilitated by the captivating seahorses.

Our collaborative project provided critical resources and support to Argentine locals already engaged in seahorse conservation. Building on Diego's previous research, the team surveyed seahorses across the entire range of the natural protected area. The team included local dive fisher, scientific diver, and naturalist photographer Gerardo 'Tata' Aguayo. Tata provided the team with 30+ years of local dive experience and captured a series of stunning photos from their work which he is using to generate local engagement in seahorse conservation.

The field work was carefully designed to allow population-level comparisons of biological characteristics and to identify seahorses' habitat associations and critical habitat zones. The team's work is expected to play a vital role in the ongoing conservation efforts within the area, as it will provide a clearer understanding of how the seahorse population is distributed.

All findings will be shared with the local government to inform an updated management plan for the protected area. This will strengthen legal protections for critical habitat areas, ensuring they are safeguarded against localized threats such as increasing tourism and development.

[1]IUCN SSC SPS SG = International Union for the Conservation of Nature (IUCN) Species Survival Commission Seahorse Pipefish and Seadragon Specialist Group (SSC SPS SG)
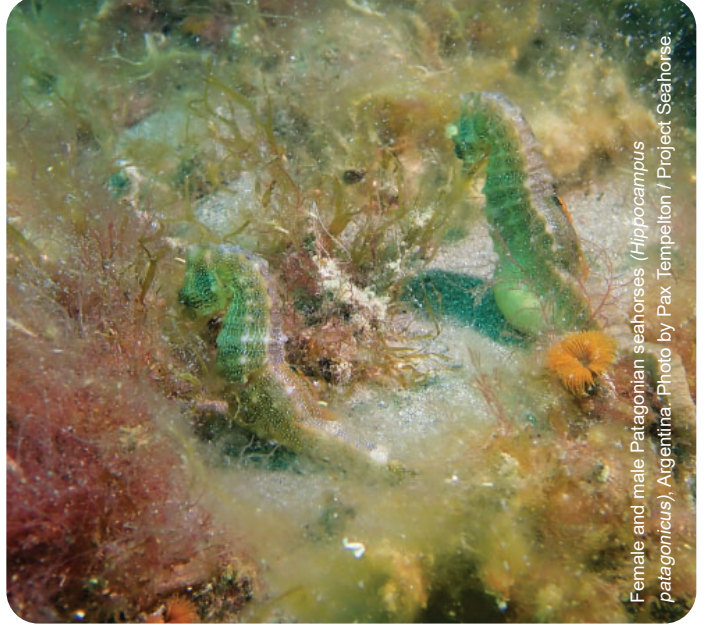
projectseahorse.org/establishing-protected-areas

Bahia de San Antonio at low tide, Argentina. Photo by Pax Tempelton / Project Seahorse.

Pax Templeton heading out to dive site, Argentina. Photo by Diego Luzzatto.

Female Patagonian seahorse *(Hippocampus patagonicus)*, Argentina. Photo by Pax Tempelton / Project Seahorse.

Female and male Patagonian seahorses *(Hippocampus patagonicus)*, Argentina. Photo by Pax Tempelton / Project Seahorse.

Diego Luzzatto, Gerardo 'Tata' Aguayo, and Pax Templeton heading out to survey seahorses. Photo by Diego Luzzatto.

Pax Templeton measuring a Patgonian seahorse during a dive survey, Bahia de San Antonio, Argentina. Photo by Diego Luzzatto.

We work to achieve a balance between fisheries and conservation. Although small-scale fishers manually collect wild seahorses, the main danger to seahorses is from bottom trawling, which indiscriminately catches many species and destroys marine habitats while also raising many social and economic concerns. We are now producing the research and making the connections that will help #EndBottomTrawling, in favour of selective fisheries.

Understanding why fishers start, stay in, and stop bottom trawling

Project Seahorse is keen to advise governments on a just transition away from bottom trawling. India has been dealing with serious consequences of bottom trawling since the gear arrived in 1956. For her MSc thesis, Roshni Mangar (from Mauritius and India) conducted a comprehensive review of why fishers in India participate in bottom trawling, to guide decision-makers who want to address its negative impact. She found that bottom trawling reduces opportunities for small-scale fishers, causes food insecurity, leads to human rights violations, and triggers social and violent conflicts.

Roshni discovered that fishers get trapped in bottom trawling because they have accumulated debt to those higher in the trade. Additionally, trawl boat owners benefit more than the crew. Despite regulations that should have constrained trawling, it continues because of the industry's capacity to exert power and poor enforcement of regulations. Roshni's thesis emphasizes the need for effective regulations and enforcement to address the negative impact of bottom trawling and protect the environment, fishers, and food security.

#TransformBottomTrawling

To promote sustainable fishing practices and eliminate destructive fisheries, Project Seahorse has joined the Transform Bottom Trawling Coalition (transformbottomtrawling.org). The coalition, which comprises small-scale fishers, seafood companies, conservationists, and other experts, aims to restore the ocean by promoting inclusive and long-lasting change. Both our Director, Prof. Amanda Vincent and our Program Leader, Dr. Sarah Foster, are part of the Steering Group. The coalition knows that tackling destructive fishing practices requires collective action, and no single organization can achieve this goal alone.

projectseahorse.org/limiting-fisheries

Investigating seahorse trade in Peru to foster sustainable fisheries and conservation

As Peru emerges as global hub for trade in seahorses, Project Seahorse is developing technical advice for its government. Marta Flotats Aviles, our PhD student from Spain, is investigating the impact of fisheries and trade on seahorse populations in Peru. Collaborating with Dr. Joana Alfaro from ProDelfina, a renowned Peruvian expert on the IUCN SSC SPS SG,[1] Marta's project has been welcomed and endorsed by the Peruvian government.

Over the course of five months, Marta diligently surveyed ports and boats along the entire length of the country. Despite a national ban on seahorse exports, Marta found that seahorse extraction and trade persist in Peru, at significant and problematic levels. The seahorses are primarily obtained as bycatch, with bottom trammel (gill net) nets being the predominant method in the southern region, while bottom trawlers and bottom trammel nets are the main sources in the north.

Marta will analyze her data to develop a comprehensive management plan that can enhance the sustainability of seahorse fisheries and trade. The plan will be discussed with stakeholders to support the implementation of CITES[2] for seahorses and other threatened species.

Project Seahorse is a global leader in regulating wildlife trade in marine fishes. We originally discovered a huge trade in seahorses for traditional medicine, curiosities, and ornamental display. We then used our research and policy work to create global restrictions on export trade in seahorses, the first for any fully marine fishes. Our initiatives to improve implementation of export controls, with a focus on stopping illegal wildlife trade, continue to set precedent for marine fishes.

Implementing CITES Appendix II listings for marine fishes: a novel framework and a constructive analysis

Project Seahorse and collaborators have developed a new and highly practical framework for assessing policy implementation, using CITES[2] Appendix II listings for marine fishes as a focus. Our approach evaluates how well the 184 CITES Parties (member governments) were meeting their obligations to export listed marine fishes at sustainable and legal levels. We assessed progress in four areas: technical outputs, policy outcomes, field outcomes, and population impacts.

We discovered that while technical and policy advancements were progressing quite well, CITES Parties were achieving little in field outcomes, which are real-world changes in activities affecting the listed species directly. Our investigation of marine fishes on Appendix II showed that seahorses benefited little overall while sharks and humphead wrasse were making better progress, while still needing much more attention.

Our innovative framework offers a constructive assessment and can guide additional action to meet CITES and other policy commitments. By monitoring and evaluating field outcomes and population impacts, we can enhance our efforts to safeguard marine fishes from overfishing and illegal trade.

[2]CITES - the Convention on International Trade in Endangered Species of Wild Fauna and Flora

1. Technical Outputs
2. Policy Outcomes
3. Field Outcomes
4. Population Impacts

Practical framework for assessing policy implementation, especially for species conservation. Image by Carissa Chua / Project Seahorse.

Governments agree to improve sustainability and legality of dried seahorse trade

Project Seahorse continues to drive the agenda for export regulation of seahorses, prompting 183 countries and the EU to agree to new time-bound actions (Decisions) for improving CITES[2] implementation for dried seahorses. Despite seahorses being listed in CITES Appendix II since 2002, Project Seahorse research has shown that the vast trade in dried seahorses still persists, with worryingly high levels of illegal trade. The actions agreed at the CITES 19th Conference of the Parties aim to address the illegal trade in seahorses and encourage CITES Parties with unsustainable or illegal trade to develop action plans to improve CITES implementation for seahorses.

Project Seahorse's research and consultations underpin the Decisions agreed at CoP19, which include new proposals submitted by several Parties (Maldives, Monaco, Nigeria, Peru, Senegal, Sri Lanka, Togo, the UK, and the US) and a renewed commitment to Decisions from CoP18 that had been derailed by COVID-19.

Seahorse side-event at CITES CoP19. L to R government representatives for Monaco, Sri Lanka, US, Senegal and Peru, accompanied by Sarah Foster and Amanda Vincent.

Implementing these actions is crucial for the long-term benefit of wild seahorses. Project Seahorse has the tools and information needed to support Parties in implementing the CoP19 Decisions to ensure that trade is sustainable, legal, and monitored.

Assessing progress and next steps

We effectively played our role as expert advisors to CITES during a CoP19 side-event chaired by Amanda Vincent and Sarah Foster and hosted by the IUCN SSC SPS SG.[1] Our focus was on seahorses, being pioneers for marine fishes on CITES, and we provided an update on their implementation while emphasizing the need for renewed action. Our talks summarized the changes in live and dried seahorse trades since their listing, explored the progress in CITES implementation, raised concerns about the substantial illegal trade and proposed new Decisions for the Parties to consider. Notably, the event featured representatives from the governments of Monaco, Peru, Senegal, Sri Lanka, and the US throwing their weight behind CITES' commitment to seahorses.

projectseahorse.org/regulating-trade

Publications

Journal Articles and Reports

Correia, M. (2022). Monitoring of seahorse populations, in the Ria Formosa lagoon (Portugal), reveals steep fluctuations: potential causes and future mitigations. *Proceedings of the Zoological Society,* 75(2):190-199. https://doi.org/10.1007/s12595-021-00394-2*

Foster, S.J., Justason, T., Magera, A.M. & A.C.J. Vincent (2022). CITES makes a measurable difference to the trade in live marine fishes: The pioneering case of seahorses. *Biological Conservation*, 272, 109653. https://doi.org/10.1016/j.biocon.2022.109653*

Kalisiak, J., Gray, I., Bruget, R. & M. Correia (2022). The use of non-invasive sampling to estimate long-term abundance of *Hippocampus kuda* in the Koh Sdach Archipelago, Cambodia. *Cambodian Journal of Natural History,* 1:47-58.*

Mangar, R.S. (2022) *Understanding the fishers to change the fishery: why did fishers start, stay, and stop bottom trawling?* MSc dissertation. The University of British Columbia. http://hdl.handle.net/2429/83519

Rodríguez, J. P., Sucre, B., Mileham, K., Sánchez-Mercado, A., De Andrade, N., Bezeng, S. B., ... Vincent, A.C.J. & Y. Xie (2022). Addressing the Biodiversity Paradox: Mismatch between the Co-occurrence of biological diversity and the human, financial and institutional resources to address its decline. *Diversity*, 14(9):708. https://doi.org/10.3390/d14090708*

Vincent, A.C.J., Foster, S.J., Fowler, S.L., Lieberman, S., and Y. Sadovy de Mitcheson (2022). Implementing CITES Appendix II listings for marine fishes: a novel framework and a constructive analysis. *Fisheries Centre Research Report,* 30(3), 189 pp. http://hdl.handle.net/2429/83105

Podcasts & Videos

Vincent, A.C.J. (2022). What to do about ocean clearcutting and annihilation fishing.(Video) *Vancouver Institute Lectures.* http://dx.doi.org/10.14288/1.0412760

NatGeo (April 12, 2022) Our co-founder (& National Geographic Explorer) Dr. Heather Koldewey talks about how seahorses are a fish but also so un-fish-like. (Video) *National Geographic.* https://www.nationalgeographic.com/animals/article/how-seahorses-are-a-fish-but-also-so-un-fish-like

Salt and Scales (May 18, 2022) Episode 9: The human impact of bottom trawling fishing with Roshni Mangar. (Audio podcast) *Salt and Scales.* https://open.spotify.com/episode/3MXb5Z8dpfvjTqpuuhPLT3

Lamic, A. (May 24, 2022) L'hippocampe comme cheval de bataille de la protection des océans. (Article & Video) *Radio Canada.* https://ici.radio-canada.ca/nouvelle/1884579/hippocampes-ambassaeurs-oceans-ubc-marin-poisson-ecosysteme-changement-climatique

For a complete listing of our publications, visit: projectseahorse.org/resource

For more news, visit: projectseahorse.org/news

*peer-reviewed journal article

Partners & Donors

Our great thanks to our partners and donors for ongoing support of our work to advance marine conservation. Together we will save seahorses, and the seas.

Our Home Institutions

The University of British Columbia hosts much of the team. Director and co-founder Prof. Amanda Vincent is a Professor in the Institute for the Oceans and Fisheries.
Dr. Sarah Foster, our Program Leader is also based here.

www.oceans.ubc.ca

The Zoological Society of London is our other home base. Prof. Heather Koldewey, Project Seahorse co-founder, is a Senior Technical Advisor at ZSL and Associate Professor at Exeter University.

www.zsl.org

Our Funders & Donors in 2022

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Secretariat

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Guylian Belgian Chocolates

Langar Foundation

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Patricia Price

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Individual donors

A very special thank you to a new anonymous donor who is providing invaluable support.

Warmest thanks to a great friend of Project Seahorse who for many years provided essential support to Project Seahorse.

We gratefully acknowledge our volunteers and interns for their enthusiastic dedication.

For past and present partners and donors, see: projectseahorse.org/about-us/who-we-are/
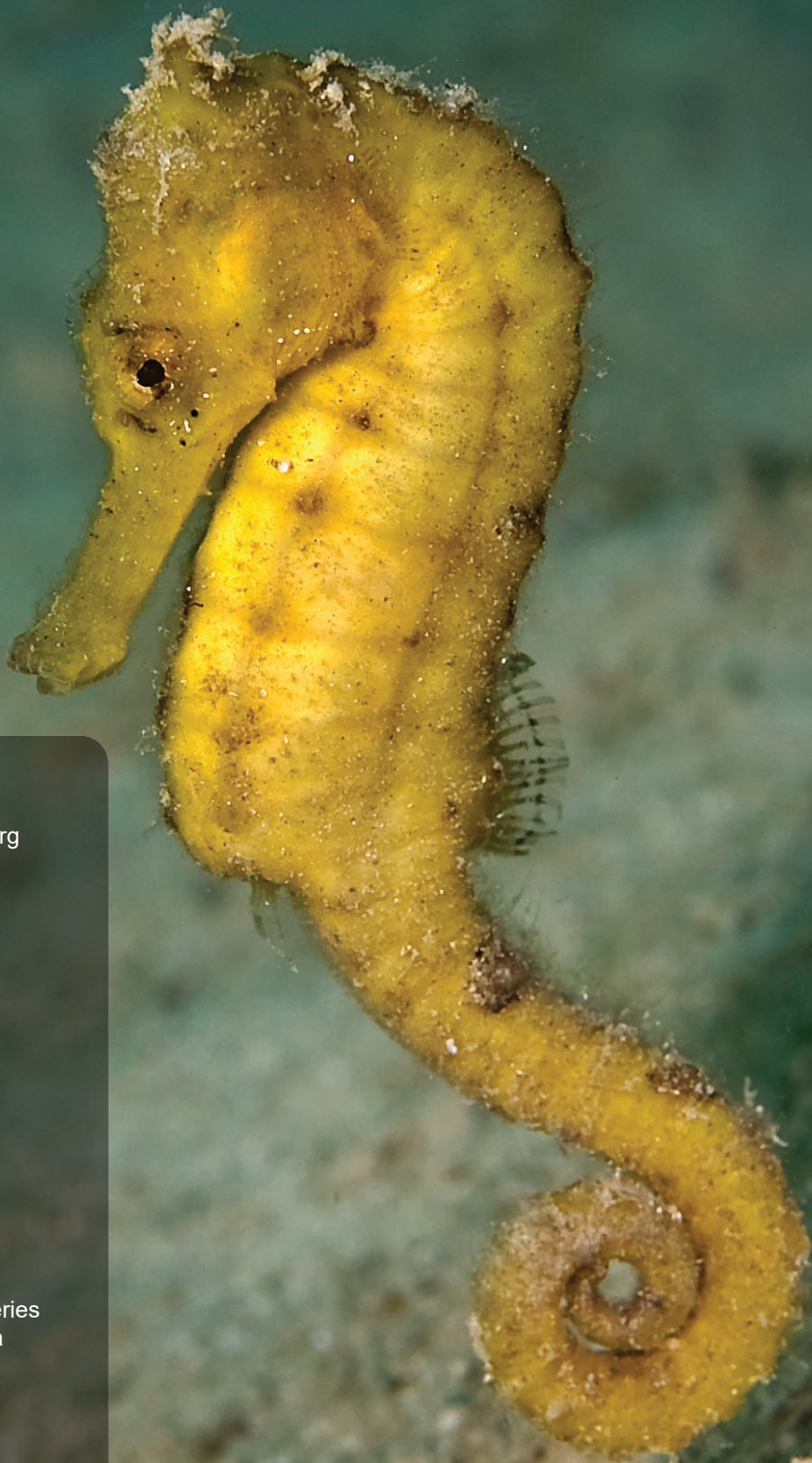
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Common seahorse (*Hippocampus kuda*). Photo by Edwin van der Sande / Guylian Seahorses of the World.