Dear friends,

I am so pleased to share some of the Project Seahorse findings and doings from 2017. It was a rich and full year, not least because I was on sabbatical from my UBC professorial post from September to December. That meant I could spend time on field visits and policy development, both of which I love. It also meant I had time and opportunity to reflect on marine conservation in general and on our Project Seahorse work in particular. Allow me to share a few of those experiences and thoughts.

Six weeks in India, the majority of it surveying bottom trawl landing sites with Tanvi Vaidyanathan, hugely supported Project Seahorse’s decision to throw a lot of time and effort at ending this absurdly wasteful method of extracting marine life. It’s time to target our take and stop trawling.

Five weeks in southern Chile and Argentina allowed me to wallow in marine wildlife and help support the most southerly populations of seahorses in the new world. It was clear from working with Diego Luzzatto (IUCN SSC Specialist Group member) that the Project Seahorse combination of a research and management feedback loop would serve the Patagonian seahorses very well.

Five weeks in China gave me hope that the country might be mobilizing for marine conservation. Xiong Zhang and I spent time encouraging better enforcement of new laws directed at phasing out bottom trawling, planning the establishment of MPAs and training young colleagues who will fight for the ocean.

My children and I ended 2017, with New Year’s Eve spent watching a leatherback turtle lumber up a vast wild beach to lay her eggs in a protected area, while people from the local community patrolled to protect her clutch. The wonder of it all, and the hope it captured, was a great end to a very good year and a wonderful way to renew my commitment to the ocean and its animals.

On behalf of everyone at Project Seahorse, I sincerely thank our donors, collaborators, and team members for your tireless support and commitment. Together let’s work with hope in 2018 and beyond (see #OceanOptimism).

Yours, in hope,

Prof. Amanda Vincent
Director and Co-Founder, Project Seahorse
@AmandaVincent
Seahorses are iconic, flagship species that bring attention to a wide range of marine conservation concerns, including overfishing and destructive fishing practices, sea-filling, pollution, and much more.

Longsnouted seahorse (Hippocampus reidi). Photo by Chelsea Bennice/Guylian Seahorses of the World.

MISSION STATEMENT

PROJECT SEAHORSE IS COMMITTED TO THE CONSERVATION AND SUSTAINABLE USE OF THE WORLD’S COASTAL MARINE ECOSYSTEMS
SUPPORTING THREATENED SEAHORSES & THEIR RELATIVES

We are responsible for more than 300 fascinating syngnathiform fishes (seahorses, pipefishes, seadragons, trumpetfishes, shrimpfishes, bellowfishes, cornetfishes, seamoths, and ghost pipefishes). We are so proud to have generated the first full assessment of their conservation status. We are ever ready to take, facilitate, and mobilize conservation action for priority species and geographic regions of greatest concern (see table).

Syngnathids face many threats – habitat loss, pollution, climate change, invasive species, direct exploitation in the form of overfishing and bycatch, and more. The extent of the threats varies from species to species. For example, the Knysna seahorse is Endangered with a geographical range limited to a few South African estuaries, where human activity encroaches on its habitat. We can say conclusively that the other species in the table are also threatened with extinction.

For the next four years we will be focusing on the Critically Endangered and Endangered species (and their marine and freshwater habitats), as well as creating priority action statements for those judged Vulnerable. At the same time, we will also continue gathering knowledge and data on the species that are poorly documented and understood. Through integrated research, management support and policy development we will help reduce the pressures on these iconic creatures.

<table>
<thead>
<tr>
<th>IUCN RED LIST STATUS</th>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
<th>RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critically Endangered</td>
<td>Estuarine pipefish</td>
<td>Syngnathus watermeyeri</td>
<td>South Africa</td>
</tr>
<tr>
<td>Endangered</td>
<td>Knysna seahorse</td>
<td>Hippocampus capensis</td>
<td>South Africa</td>
</tr>
<tr>
<td>Endangered</td>
<td>White’s seahorse</td>
<td>H. whitei</td>
<td>Solomon Islands, E. Australia</td>
</tr>
<tr>
<td>Endangered</td>
<td>-</td>
<td>Microphis pleurostictus</td>
<td>SE Asia (freshwater)</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>-</td>
<td>Cosmocampus balli</td>
<td>Pacific- Hawaiian islands</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>West African seahorse</td>
<td>H. algiricus</td>
<td>W. Africa</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Barbour’s seahorse</td>
<td>H. barbouri</td>
<td>Indo-Pacific</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Tiger tail seahorse</td>
<td>H. comes</td>
<td>SE Asia</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Lined seahorse</td>
<td>H. erectus</td>
<td>W. Atlantic</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Thorny seahorse</td>
<td>H. histrix</td>
<td>W. Indian Ocean to Central Pacific</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Pacific seahorse</td>
<td>H. ingens</td>
<td>California to Peru</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Great seahorse</td>
<td>H. kelloggi</td>
<td>Indo-Pacific to E. Africa to China &amp; Australia</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Spotted seahorse</td>
<td>H. kuda</td>
<td>Indo-Pacific</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Japanese seahorse</td>
<td>H. mohnikei</td>
<td>Japan &amp; Korea to Thailand</td>
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<tr>
<td>Vulnerable</td>
<td>Patagonian seahorse</td>
<td>H. patagonicus</td>
<td>Brazil to Argentina</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Hedgehog seahorse</td>
<td>H. spinosissimus</td>
<td>Indo-Pacific</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Three-spot seahorse</td>
<td>H. trimaculatus</td>
<td>Indo-Pacific</td>
</tr>
<tr>
<td>Vulnerable</td>
<td>Andaman pipefish</td>
<td>Microphis insularis</td>
<td>India</td>
</tr>
</tbody>
</table>

List of Critically Endangered, Endangered and Vulnerable syngnathids we will be focusing our efforts on in the next four years.
**HIGHLIGHTS**

**AMANDA COORDINATING GLOBAL CONSERVATION EFFORTS FOR MARINE SPECIES**

Our director, Dr. Amanda Vincent, is delighted to have the opportunity to coordinate global conservation activities for marine species. She is now the chair of the Marine Conservation Subcommittee of the International Union for Conservation of Nature (IUCN) Species Survival Commission (SSC). Amanda is also Chair of the IUCN SSC Seahorse, Pipefish, and Stickleback Specialist Group.

**SEAHORSES: MAGICAL CREATURES IN OUR BACKYARD**

We launched our first outreach expedition into Florida, USA, using seahorses to connect people to the beauty of their marine backyards. In April and May 2017, we met 5000 South Floridians and reached two million more through conventional and social media during our campaign “Seahorses: Magical Creatures in Our Backyard”. Our focus was on alerting people to the presence of seahorses and their relatives in the Biscayne National Park, and (we hope) inspiring them to protect their park and ocean.

**NATIONAL SEAHORSE EXPERTS & AMBASSADORS**

iSeahorse, our citizen science programme for conservation, now includes 17 National Seahorse Experts and 18 Ambassadors. National Seahorse Experts have particular credentials in seahorse ecology and conservation and can address country-specific seahorse questions. Ambassadors show their commitment to seahorse conservation partly by promoting iSeahorse. Together, we hope to increase public awareness of seahorses and marine conservation, empowering citizens to act for seahorses and the seas. Find a National Seahorse Expert or Ambassador in your country at [iSeahorse.org](http://iSeahorse.org).
MOBILIZING CITIZEN SCIENCE & MARINE PROTECTED AREAS

Shallow seas — which encompass the first 10 metres of depth along the world’s coastlines — contain many of the planet’s most valuable and threatened marine ecosystems, including reefs, mangroves, and seagrasses. Many of these are home to seahorses. Project Seahorse combines conservation research, sustainable fisheries management, and marine protected areas to help safeguard shallow seas.

SECURING SHALLOW SEAS

We are excited to foster marine conservation in China, the world’s largest importer and consumer of dried seahorses and a country that exerts considerable pressure on ocean resources.

For the past three years we have worked to mobilize China’s governments, NGOs, and local fishing communities to appreciate, protect, and monitor their threatened seahorse populations. Our outreach campaign - “Saving seahorses means saving the ocean” – is bearing fruit. Local governments and fishing communities near Qingdao, a large coastal city in Shandong Province, China are now strongly advocating for the protection of many square kilometres of coastal habitat and for the strong enforcement of an existing no-trawling zone. This area has high densities of the Vulnerable Japanese seahorse (Hippocampus mohnikei), and the local fishers have voluntarily mobilized to enforce no trawling in these areas.

China’s wild seahorse populations were little known until our researcher Xiong Zhang (PhD student) spent the last four years mapping seahorse populations and the threats they face, both from overfishing and habitat loss. His work has identified conservation priorities and is informing fisheries policy and the creation of new marine protected areas.

To expand our influence, Xiong recruited enthusiastic divers to be iSeahorse Ambassadors in China; they have had great success in promoting our citizen science program to monitor local seahorse populations. He further trained ten teachers to spread the word about seahorse biology and conservation at local schools and communities in Hong Kong, Guangdong, Fujian, Shanghai, Qingdao, and Beijing.

Participants at an iSeahorse Workshop in Guangzhou, Guangdong Province, China, making the underwater sign for “seahorse”. Photo by Xiong Zhang/Project Seahorse.
Did you know?

• Shallow seas ecosystems provide a home for thousands of marine species, shelter coastal peoples from typhoons, and help to keep our planet cool. Unfortunately, they are being altered very rapidly. About one-third of coral reefs, mangrove forests, and seagrasses have been degraded or destroyed globally.

• Working with local communities, Project Seahorse has created 35 marine protected areas on Danajon Bank, a rare and threatened double barrier coral reef in central Philippines. Our research and marine conservation tools have helped many more shallow seas habitats around the world.

A fisher in Qinglan, Hainan Province, China, sorts seahorses by size into two plastic baskets.

Photo by Xiong Zhang/Project Seahorse.
Project Seahorse researchers track the global seahorse trade through a combination of field work and data analysis. In the 1990’s we uncovered the vast geographical and economic scope of this trade. About 15–20 million seahorses are traded, live and dead, around the world each year. They are used in traditional medicine, for display in aquariums, and as curios. Working with the United Nations’ global agreement, Convention on International Trade in Endangered Species (CITES), we make large contributions to trade regulation.

Global wildlife trade continues to increase rapidly and has become a significant threat to species survival.

Yet we still lack an understanding of the scale, routes, and impacts of wildlife trade. An increasing number of wildlife species are protected by trade controls, but marine fishes are often overlooked. It is notable, then, that all seahorse species have been protected by CITES since 2002, when they became the first marine fishes that had to be cleared for export.

Our researcher Ting-Chun Kuo (PhD student, now graduated), took a pioneering look at the regulation of the global trade in marine fishes, with a focus on the global agreement called CITES* (www.cites.org). Ting was curious about how CITES’ first global commitment to restrict exports of any marine fishes had actually played out.

Ting found that although reported seahorse exports declined globally with the new regulations, the number of seahorses caught in the biggest source country, Thailand, did not change. For all animal species regulated by CITES, she found that the USA was the centre of global wildlife trade by number of shipments, although Asian countries were becoming more active. Her study also found that trade in marine fishes involved more countries than trade in most other animals on CITES’ Appendix II. Ting’s study shows that global agreements can contribute to conservation action and her findings can help set conservation priorities.

*Convention on International Trade in Endangered Species
HIGHLIGHTS

SEAHORSE EXPLOITATION AND TRADE IN VIET NAM

In light of suspension of its seahorse exports, imposed by CITES in 2013, Viet Nam sought to make its trade practices more sustainable. In response to the government’s request, we again marshalled resources to assess the management situation for seahorses in Viet Nam. What had changed since 1999, when we did our first trade survey? Were seahorse numbers bouncing back? Were seahorses still traded and exported in high numbers?

During intensive field surveys that comprised 146 interviews in eight provinces, we gathered information on the biology, fisheries, aquaculture, and trade of seahorses in Viet Nam. We soon realised that Viet Nam was not fully implementing CITES regulations: none of the seahorse catch was being monitored or regulated to any extent to assess sustainability; large numbers of dried seahorses were being exported illegally without CITES permits or exported with permits that Viet Nam did not report to CITES. In addition, the supposed switch in exports of cultured seahorses from H. kuda to H. comes - after CITES banned exports of H. kuda in 2013 - needs probing.

DID YOU KNOW?

- About 15-20 million seahorses are traded, live and dead, around the world each year. They are used in traditional medicine, for display in aquariums, and as curios.

- Project Seahorse is the global authority on the sustainable trade in seahorses and other marine species. We generated landmark trade protections for seahorses under CITES in 2002 and 2012. Our trade analyses have clarified and reinforced the role of CITES in the conservation of marine fishes subject to global trade.

- Because of our work, Thailand suspended all seahorse exports until it can trade without damaging their wild populations. This is significant since Thailand is the world’s largest exporter of wild seahorses - responsible for three-quarters of global seahorse trade.
MAKING FISHERIES SUSTAINABLE

Nearly three billion people depend on the sea as a source of food and medicine, and 90% of all economic activity in our oceans takes place in coastal areas. Overfishing and harmful fishing practices such as bottom trawling and the use of illegal fishing gear put tremendous pressure on fish populations, making their recovery increasingly difficult. Our research supports our work to end trawling and promote sustainable fishing practices in its place.

INSISTING ON TARGETING OUR TAKE

There is a deep and growing awareness that bottom trawling must end. Seahorses, along with most marine life, are caught recklessly in nonselective gear all over the world. To tackle this alarming issue, we developed “Target Our Take, Stop Trawling” – a campaign to alert India’s policy makers to the appalling forms of bottom trawling that extract all ocean life indiscriminately, and urge them to better manage their coastal resources.

Trawling in India often no longer has a target. As a trawl owner in Mandapam, Tamil Nadu says

“Bycatch has become our main catch”.

Also, a portion of this catch – at times the whole catch - is dumped into trucks and hauled away for use in chicken or aquaculture feed, and often sold at an astonishing low price of Rs 2/kg (USD 0.03/kg).

Amanda Vincent, our Director, and our researcher Tanvi Vaidyanathan (PhD student) surveyed trawl landing sites and met with Fisheries and Forest department officials, and conservationists throughout India in September. Extraordinarily, they found that everyone, from senior figures in the state government, to the representatives of fisherfolk associations, scientists and technical people, all expressed the need to end bottom trawling, and were ready to map a way forward. This lays the groundwork for what lies ahead. Now to get the political forces on board...
SMALL-SCALE FISHERIES HAVE BIG IMPACT ON OCEAN

Small-scale fisheries are incredibly important for local food security, but they’ve become less and less sustainable over time. Our researcher Jennifer Selgrath (PhD student, now graduated) and other team members found that small-scale fishing effort by individuals in the Danajon Bank, Philippines, increased >250% from 1960-2010. But, because fishing was concentrated, fishing effort increased > 2,000% at popular locations. The huge increase in fishing effort was driven by the large growth in the number of people fishing, rather than by changes in individuals’ fishing behaviour. Also, the use of damaging fishing gears increased rapidly over time, while the use of more sustainable methods had not increased. When fishing effort is so high, methods that might have been passable in the past can cause substantial damage to marine life. Jenny also found that people did not change fishing effort very often, and they continued using destructive fishing methods even if those fishing gears became illegal. This highlights the importance of getting young fishers to start using good fishing methods that do not cause damage to corals and seagrass, or catch juvenile fish and invertebrates.

THAI SEAHORSE CATCH IS 3X MORE THAN PREVIOUSLY FOUND

We were astonished to discover that about 29 million seahorses were caught per year in Thailand – more than three times the number previously documented. Our researcher Lindsay Aylesworth (PhD student, now graduated) and colleagues explored the relative pressure exerted by nonselective fisheries (such as trawling) on seahorses. We focused on Thailand as it is a dominant fishing nation and the world’s largest exporter of seahorses. Our interviews with commercial and small-scale fishers and our port sampling revealed that three fishing gears – two commercial (otter and pair trawl) and one small-scale (gillnet) - caught the most seahorses. Of the seven species found in Thai waters, Hippocampus kelloggi, H. kuda, and H. trimaculatus were most susceptible to fishing.

TARGETED AND INDISCRIMINATE SMALL-SCALE FISHING OF SEAHORSES IN VIET NAM

A largely unregulated global extraction of seahorses has emerged, of which Viet Nam is one of the main sources. In south Viet Nam, bottom trawling and compressor diving are the fishing methods that target seahorses and/or catch them incidentally. Our researchers, Allison Stocks (MSc student, now graduated) and Sarah Foster (Programme manager), found that trawls and divers that did not target seahorses caught an average of 1 and 3 seahorses per boat per day respectively, and caught higher proportions of young seahorses. This amounted to more than four times the catch of similarly sized fisheries that do target seahorses. This apparently low fishing pressure, when multiplied by the number of boats, results in the landing of 127,000–269,000 seahorses in just one small area, a tally of considerable concern.

Approximately a 1000 trawlers (mainly bottom trawlers) are in operation in the Rameswaram Region - catching everything in their path. Catches here are dwindling so they controversially cross over to Sri Lankan waters on a regular basis. Photo by Tanvi Vaidyanathan/Project Seahorse.
Under greater pressure than ever before, our oceans need more champions and more optimists. Project Seahorse is training the next generation of scientists, conservationists, and advocates to stand up for our oceans. To date we have trained over 175 professional conservationists (as well as about 80 volunteers) around the world, with backgrounds ranging from the biological sciences to law to the arts.

**WHERE ARE THEY NOW?**

In addition to their cutting-edge research and conservation work with the Project Seahorse team, our alumni have gone on to build impressive, difference-making careers as scientists, policymakers and conservationists. So, where are they now, and what are they doing?

This year we focus on those trained academically. Here is a snapshot of some of our PhD and MSc graduates and the work they are doing for the oceans.

For more information visit our website [www.projectseahorse.org/about-alumni](http://www.projectseahorse.org/about-alumni).

Allison Stocks, MSc: Outreach and Interpretation Officer at Gulf Islands National Park Reserve, Parks Canada.

Clayton Manning, MSc: Environmental Sustainability Officer at EQWIP HUB in Zanzibar, Tanzania.

Danika Kleiber, PhD: Post-doctoral Researcher, ARC Centre for Excellence in Coral Reef Studies & WorldFish, Australia.

Eulalio Guieb, PhD: Associate Professor at the College of Mass Communication, University of the Philippines, Quezon City, Philippines.

Iain Caldwell, PhD: Sessional lecturer at University of Hawaii, USA.

Janelle Curtis, PhD: Senior Research Scientist, Department of Fisheries & Oceans, Canada.

Jennifer Selgrath, PhD: Postdoctoral Research Associate at Hopkins Marine Station, Stanford University, USA.

Jonathan Anticamara, PhD: Assistant Professor at the Institute of Biology, University of the Philippines, Quezon City, Philippines.

Julia Lawson, MSc: PhD student at Bren School of Environmental Science & Management, University of California, USA.

Kerrie O’Donnell, PhD: Research Coordinator, Fisheries & Marine, EcoTrust, Canada.

Lindsay Aylesworth, PhD: Ecological Research Project Leader at Oregon Marine Reserves, Department of Fish and Wildlife, USA.

Lucy Woodall, PhD: Research Officer, Ocean Research & Conservation Group, Oxford University, United Kingdom.

Marivic Pajaro, PhD: Manager, Research Department, Haribon Foundation for the Conservation of Natural Resources, Philippines.

Miguel Correia, PhD: Researcher at Fisheries Biology & Hydroecology Group, University of the Algarve, Portugal.

Natalie Ban, PhD: Associate Professor, University of Victoria, Canada.

Nicholas Hill, PhD: Conservation for Communities Technical Specialist, Networks, ZSL, United Kingdom.

Sian Morgan, PhD: Lead Auditor, Scientific Certification System, USA.

Ting-Chun Kuo, PhD: Assistant Professor, National Taiwan Ocean University, Taiwan.
CONSERVATION OUTREACH TOOLS

We have created an array of resources for like-minded groups to use for education and community programming, and when engaging with policy-makers. Here are the toolkits we have so far:

- **Seahorses: magical creatures in our backyard.**
  Launched 3 April 2017.  
  [www.projectseahorse.org/bnp-seahorses](http://www.projectseahorse.org/bnp-seahorses)

- **Target Our Take, Stop Trawling.**
  Launched 1 September 2017.  
  [www.targetourtake.org](http://www.targetourtake.org)

- **Saving seahorses means saving the ocean.**
  Launched 1 November 2017.  
  [www.projectseahorse.org/seahorseschina-intro/](http://www.projectseahorse.org/seahorseschina-intro/)

- **Protect the Knysna Seahorse – A Threatened National Treasure.**
  Launched 1 December 2017.  
  [www.iucn-seahorse.org/knysna/](http://www.iucn-seahorse.org/knysna/)

FANTASTICAL FISHES: SEAHORSES, PIPEFISHES AND SEADRAGONS INTO THE FUTURE

We were delighted to co-host the third global meeting of researchers and managers working to understand and support seahorses, pipefishes, pipehorses, and seadragons. Participants from about 20 countries on six continents gathered for SyngBio 2017 at the University of Tampa, Florida (USA) in May 2017. We had a dynamic and inspiring meeting and came away with a renewed sense of urgency and excitement to continue saving syngnathids, and the seas.


For a complete listing of our publications visit [www.projectseahorse.org/research-publications](http://www.projectseahorse.org/research-publications) *invited piece, not reviewed*
PARTNERS & DONORS

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.

The Zoological Society of London is our other home base. Dr. Heather Koldewey, Project Seahorse’s co-founder and Field Conservation Manager, is also Head of Marine and Freshwater Conservation Programmes ZSL.

OUR MAJOR SPONSOR

Guylian Belgian Chocolates is a major sustaining partner and sponsor for our research and conservation projects around the world, providing truly generous support. Indeed, Guylian’s commitment to marine conservation is matched only by the excellence of its chocolates.

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Taiwan Forestry Bureau, COA
The Disney Worldwide Conservation Fund
The Herbert W. Hoover Foundation
The Paul G. Allen Family Foundation

“We are so grateful to our partners and donors for their ongoing support of our work to advance marine conservation. Together we will continue saving seahorses, and the seas.”

Special thanks to an anonymous donor who for many years provided essential support to Project Seahorse.

Thank you to our hard-working, dedicated volunteers and interns around the world for their enthusiasm and dedication.