Shoal

Annual Review 2020

Shoal

MISSION

To ***halt*** the extinctions and ***recover*** populations of threatened freshwater species in the wild.

VISION

A world where all native freshwater species have the conditions needed for them to ***thrive*** in their natural habitats, where the extinction crisis in the world's freshwater ecosystems no longer exists.

Contents

Shoal is a programme of Synchronicity Earth and Global Wildlife Conservation. Synchronicity Earth is a charity registered in the UK and Wales No: 1132786 and a company limited by guarantee No: 06952204. Global Wildlife Conservation is a U.S.-based 501(c)3 non-profit corporation.

MIKE BALTZER
Executive Director of Shoal

A note from our Executive Director

Throughout 2020, our in-field project work was put on pause as the COVID-19 pandemic led to lockdowns around the world. This challenge, while unexpected, did give us the opportunity to take stock, strengthen and expand our partnerships, reassess our priorities and solidify our foundations.

We are incredibly fortunate to have secured a fiscal sponsor in the US with Global Wildlife Conservation. This has enabled us to have a full-time presence in the US, which will open up further opportunities for us to conduct urgent work there and further afield. Both Global Wildlife Conservation and Synchronicity Earth – our sponsors in the UK – are doing wonderful work to halt the extinction of overlooked and neglected species, and are thus a perfect fit for Shoal. Together, the two organisations have formed the Shoal Governing Council as our governance body. The support and expertise offered by both has been, and will continue to be, invaluable in helping us achieve our goals.

We have taken the opportunity this past year to define our Vision and Mission – which you can find on page 2 - and our Goals, plus the strategy which will guide our work. It is exciting for us to have formalised these important compass points which will give the organisation its key bearings as we move forward. Take a look at the 'Planning for impact' section on page 14-15 to read more.

New support has enabled us to expand our team: Dr. Harmony Patricio and Michael Edmondstone joined us in September, as Conservation Programme Manager, and Communications and Engagement Lead respectively. Harmony will lead Shoal's work in the US and, as an expert on fishes, is integral to guiding our conservation strategy. With the recruitment of Michael, we can now focus much more time on the crucial awareness-raising and engagement that will help define our success.

Over the next few pages, we hope to provide a good overview of what we achieved in 2020, and expand on what our strategy moving forward will be. The foundations we strengthened over the past 12 months have put us in a much stronger position than this time last year to kick on with our urgent goal: that of saving and protecting freshwater species around the world. As soon as life goes back to some kind of normality, we will be ready to spring further into action to support our in-field partners with their impactful conservation work.

We thank you for your support in 2020 and hope you will join us on our journey through 2021.

Mike Baltzer

Introducing our Governing Council

CATHERINE BRYAN
Chair of Governing Council

Shoal continues to collaborate with a network of organisations, 'swimming together' to grow freshwater conservation around the world. Two key team members were added during 2020 and I was delighted to Chair the first meeting of Shoal's Governing Council in October, which formally brought together the long-term collaboration between Synchronicity Earth (UK) and Global Wildlife Conservation (US), the founding partners of Shoal. Having worked together for over two years to fund and develop this crucial initiative for freshwater life, the infrastructure and team are now in place, and two in-field projects in Indonesia's Sulawesi and Southern India have received funding. The Governing Council will support and oversee the development and implementation of Shoal's strategy and it was exciting to hear about the work underway to prioritise particular regions for action, which will be published as part of the full strategy later this year.

KIRSTY SCHNEEBERGER
CEO, Synchronicity Earth

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The delays in project implementation as a result of COVID-19 have been challenging, but Shoal has used the year to focus on developing its strategy, building partnerships with freshwater conservation groups who are leading local actions to restore freshwater species, and establishing its Global Council. This wise investment has put Shoal in such a strong position for the year ahead to be a leading player in channelling funds to those projects that are doing the most impactful work.

DR. BARNEY LONG
Senior Director of Species Conservation, Global Wildlife Conservation

Global Wildlife Conservation is very excited to have formally launched Shoal in the US this year and to have brought Dr. Harmony Patricio on board as the Shoal Conservation Programme Manager. With capacity in the US, we have started to build a network around freshwater species conservation from the angling, aquarist, and aquaria sectors that we hope will support our efforts around the world. We aim to grow this network of Shoal supporters over the coming year to build a diverse global program of work to save freshwater species.

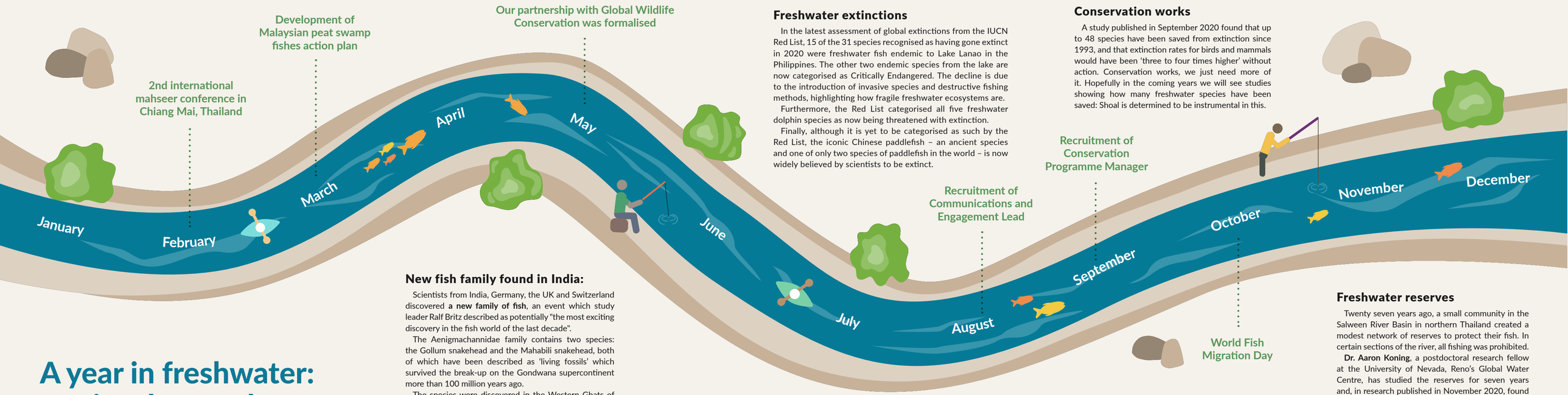
GEMMA GOODMAN
Head of Species & Ecosystems, Synchronicity Earth

It has been amazing to watch Shoal grow since it was conceived as an idea in January 2018, and Mike Baltzer has done a fantastic job of turning the idea into reality. Championing freshwater fish conservation is challenging, but the initiative is progressing well, despite the challenges many faced in 2020. I am delighted to be part of the formal Governing Council: this small group of dedicated people, alongside Shoal's staff, advisors, collaborators, and in-field actors will continue to do their best for freshwater fish and freshwater conservation with a collaborative and global ethos at the heart of the movement.

ALEX QUINTERO
Chief Operating Officer, Global Wildlife Conservation

It has been exciting to see Shoal strengthen over the past year and make strong headway in developing a strategy that will have real impact on the future of freshwater species. At a time when there is real urgency in tackling freshwater challenges, I believe Shoal is on the right track to cause lasting positive change.

A year in freshwater: stories that made waves in the freshwater world



New fish family found in India:

Scientists from India, Germany, the UK and Switzerland discovered **a new family of fish**, an event which study leader Ralf Britz described as potentially "the most exciting discovery in the fish world of the last decade".

The Aenigmachannidae family contains two species: the Gollum snakehead and the Mahabili snakehead, both of which have been described as 'living fossils' which survived the break-up on the Gondwana supercontinent more than 100 million years ago.

The species were discovered in the Western Ghats of southern India. Dr. Rajeev Raghavan, Assistant Professor at the Kerala University of Fisheries and Ocean Studies, who worked on the study, said: "The presence of two unique endemic families of freshwater fish in a small region like Kerala is unparalleled, and indicates the exceptional diversity and endemicity of fishes in this part of the world".

Freshwater extinctions

In the latest assessment of global extinctions from the IUCN Red List, 15 of the 31 species recognised as having gone extinct in 2020 were freshwater fish endemic to Lake Lanao in the Philippines. The other two endemic species from the lake are now categorised as Critically Endangered. The decline is due to the introduction of invasive species and destructive fishing methods, highlighting how fragile freshwater ecosystems are.

Furthermore, the Red List categorised all five freshwater dolphin species as now being threatened with extinction.

Finally, although it is yet to be categorised as such by the Red List, the iconic Chinese paddlefish – an ancient species and one of only two species of paddlefish in the world – is now widely believed by scientists to be extinct.

Conservation works

A study published in September 2020 found that up to 48 species have been saved from extinction since 1993, and that extinction rates for birds and mammals would have been 'three to four times higher' without action. Conservation works, we just need more of it. Hopefully in the coming years we will see studies showing how many freshwater species have been saved: Shoal is determined to be instrumental in this.

Failed Aichi targets

In a year that was supposed to be a 'super year for nature', a UN report found that the world had failed to meet any of the 20 targets set at Aichi in 2010 to protect wildlife.

According to the UN's biodiversity head, Elizabeth Maruma Mrema: "Earth's living systems as a whole are being compromised. And the more humanity exploits nature in unsustainable ways and undermines its contributions to people, the more we undermine our own wellbeing, security and prosperity".

Living Planet Report

Freshwater species have declined by around 84% since 1970, according to the WWF's Living Planet Report published in September 2020. Freshwater biodiversity is declining far faster than that in our oceans or forests, and around 1 in 3 freshwater species are now threatened with extinction.

It has never been more urgent to commit to protecting and recovering populations of freshwater species.

Freshwater reserves

Twenty seven years ago, a small community in the Salween River Basin in northern Thailand created a modest network of reserves to protect their fish. In certain sections of the river, all fishing was prohibited.

Dr. Aaron Koning, a postdoctoral research fellow at the University of Nevada, Reno's Global Water Centre, has studied the reserves for seven years and, in research published in November 2020, found that they are extraordinarily successful at protecting multiple fish species and markedly increase fish density and biomass relative to adjacent areas.

The findings lend support to the idea of creating community led freshwater reserves in the mould of marine no-take zones in an effort to recover dwindling fish populations.

Action in 2020


© Will O'Hare

MALAYSIAN PEAT SWAMP FISHES ACTION PLAN

While the plan for ASAP fish species is still in development (see ASAP freshwater fishes action plan to the right), a clear global fish conservation priority in the region is the fishes endemic to the peat swamps of Malaysia and Indonesia, one of the most threatened habitats in the world. These fish can be stunningly beautiful and consequently have become extremely popular with the aquarium hobby, including Bettas, Rasboras and Parosphromenus. Forest clearance for large agricultural crops including palm oil has caused major habitat loss, and these fishes have become one of the most threatened freshwater groups in Southeast Asia.

During 2020, Shoal, supported by Singapore Zoo (Wildlife Reserves Singapore) worked with Malaysian experts including from Global Environment Centre, Monash University Malaysia, Universiti Malaysia Terenganu, and the Malaysian government, along with Parosphromenus Project to develop a conservation plan for the Malaysian peat swamps. This is one of the first fish species-focused action plans to be created in Malaysia.

Projects for the first three top priorities have since been initiated, including focusing on parosphromenus fishes in Johor state, threatened species in the acidic blackwaters of the North Selangor peat swamp forest, and species including the tiny paedocypris in Pondok Tanjung.

This project has demonstrated that Shoal can help bring partners together to direct and ignite action for highly threatened but neglected fish species.

Following on from the success of this project, Shoal is now working with partners to undertake a similar process for peat swamp fishes in Kalimantan and Sumatra in Indonesia.

Wentian Shi

"The aim and mission of the Parosphromenus Project is to create strong alliances between different actors – private aquarists, biologists and scientists, museums, zoos, and locals – in a joint effort to help the conservation of the threatened Parosphromenus, the survival of which is now severely threatened."

— Wentian Shi,
Biologist, Parosphromenus Project


© Wentian Shi


© David Tan

ASAP FRESHWATER FISHES ACTION PLAN

Southeast Asia is considered the region with the highest number of species facing immediate extinction. In response, the Asian Species Action Partnership (ASAP) was established to address the extinction risk facing the area's most threatened vertebrates.

The largest group of ASAP listed species* are the fishes, with over 85 in total. The species range from some of the smallest in the world, including Paedocypris progenetica and the marvellous liquorice gouramis, to some of the largest, such as the Mekong giant catfish. The threats to these fishes are varied and include impacts from agriculture (including land habitat loss and pollution), aquatic habitat loss, invasive species and overharvesting.

With such a large and diverse set of species requiring immediate action, it is critical that action is prioritised and organised in the most efficient way. Shoal have been working with the ASAP team and Wildlife Reserves Singapore to create the action plan, which we aim to put into effect this year.

** ASAP species are vertebrate species found in Southeast Asia and listed as Critically Endangered on the IUCN Red List of Threatened Species.*

Nerissa Chao

"Freshwater fishes make up the largest group of ASAP species, yet are seriously neglected in terms of conservation attention. This is why we're delighted to strategically partner with Shoal, working together to catalyse conservation action for freshwater fishes in Southeast Asia. With 16 freshwater fishes from Southeast Asia declared extinct in 2020, our partnership is more important than ever."

— Nerissa Chao,
Director, IUCN SSC Asian Species Action Partnership

Ernyanti Zain

"The biodiversity of forests, rivers, lakes and seas, has an important role in the survival of the community. Biodiversity can be a source of food, energy, medicine, housing and more for the local people living around the area. However, the sustainability of biodiversity and its habitat depends on the way the government, private sectors and community itself manage the resources. Overexploitation will cause damage to the flora and fauna, which will have an impact on the survival of the local communities."

— Ernyanti Zain,
Lake Mahalona Project Leader, YBS

SULAWESI'S ANCIENT LAKES

Despite having to divert their work to supporting lake communities in their protection against the COVID-19 pandemic, our partners Yayasan Bumi Sawerigading (YBS) still managed to carry out critical conservation work. Towards the end of 2020, they undertook baseline assessments of the flora and fauna in Sulawesi's Lake Mahalona and subsequently began the long-term task of removing invasive species including flowerhorn cichlids and tilapia.

According to Lake Mahalona Project Leader Ernyanti Zain: "In 2020, YBS collaborated with Shoal and Synchronicity Earth in carrying out the baseline biodiversity survey in Lake Mahalona to identify the species and their distributions , and subsequently began the selective fishing for invasive alien species, using gill nets. These programmes really help us in saving the endemic species in Lake Mahalona, and also encourage the interest of the local community to improve their local fishery for their alternative livelihood".

Since the project restart on October 4, they have caught 612 individual animals, amounting to 38kg of invasive species removed from the lake (at time of publication).

This tactic is a powerful one in freshwater conservation: according to the IUCN, invasion by alien species is second only to habitat loss as a threat to biodiversity.

This tactic is a trial and, if successful, it may be a powerful approach to freshwater species conservation: according to the IUCN, invasive species are second only to habitat loss as a driver of freshwater biodiversity decline.

PROJECT MAHSEER

"Despite the extraordinary potential for COVID-19 to impact on lives beyond China, scientists, anglers and conservationists departed from the International Mahseer Conference in Chiang Mai in mid-February 2020, full of enthusiasm and ambition for what we hoped to achieve in the coming months. Little did we know that in less than one month's time, most of the world's population would be subject to lockdowns and the extended period of uncertainty that persists today.

As early as April it was clear that the impacts of the pandemic extended beyond human health. Positive news stories were emerging on how the suspension of industry was resulting in some of India's most polluted rivers (e.g. River Ganges) running clean. The flipside however, was unemployment and disrupted food supply chains were also increasing pressure on rivers as people tried to source alternative wild food. On 28th April 2020 one of the last remaining giant hump-backed mahseer hit the news headlines when it was captured and killed by a youth, from a tributary of the upper River Cauvery (see **here**). While this was depressing news for our project, it also highlighted that the species was still persisting in some of the areas where we had previously thought it had been extirpated. It also provided new insight and renewed spatial focus for our hump-backed mahseer conservation project, supported by Shoal under the umbrella of 'Project Mahseer'.

After nearly a full year of curtailed field activity, we are now up and running again. We have recruited and equipped two young field researchers to explore some of the upper Cauvery tributaries which recent events have indicated may be crucial for the survival of the hump-backed mahseer. They will be working with local tribal guides and are currently being trained by our senior scientists in the collection of biological material and biometric data to further understand the biology and ecology of the critically endangered hump-backed mahseer and the non-native and introduced blue-fin mahseer with which it now has to compete. Assisted by further collaborative/partnership efforts, catchment wide sampling is also underway to characterise the population genetics to inform conservation planning.

Further work to understand the current status of hump-backed mahseer throughout the catchment using hands-off methodologies including the application of novel tools such as eDNA to map species distribution, and the roll out of questionnaires to explore regional awareness and the societal, cultural and religious importance of the hump-backed mahseer to remote forest tribal communities, is also underway.

This exciting programme of works will provide the basis of a robust species conservation action plan which will be critical to inform the direction and mechanics of the future conservation measures required to bring the hump-backed mahseer back from the brink of extinction."

Take a look **here** to learn about how angler catch rates for the hump-backed mahseer catalysed the species into becoming a conservation priority.

— Dr. Adrian Pinder,
Bournemouth University / Mahseer Trust, Chair

Dr. Sonja Luz

"We believe in wholistic approaches to wildlife conservation and the importance of linking in situ and ex situ efforts to ensure positive change in species conservation. Our partnership with Shoal is a great example for this, allowing us to identify and direct resources where they are most sorely needed, as well as actively contribute to a safe future for ASAP fishes in a strategic and evidence-based manner."

— Dr. Sonja Luz,
Deputy CEO, Mandai Nature

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Aquarist Podcast

HARMONY ON THE AQUARIST PODCAST

Conservation Programme Manager Harmony featured on a November episode of **The Aquarist Podcast**. With host Randy Reed, she discussed the biodiversity crisis facing freshwaters and how aquarists can play a central role in finding solutions.

Harmony said she "really enjoyed the experience", and that it was "an excellent opportunity to increase Shoal's reach to our target audience of aquarists".

We will be featuring on a number of other podcasts over the coming year, so stay tuned.

Dr. Topiltzin Contreras

"More than ever, it is now clear that healthy freshwater ecosystems are intrinsically linked to human health."

— Dr. Topiltzin Contreras, IUCN SSC Freshwater Conservation Committee

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DAMS IN BOSNIA AND HERZEGOVINA

In a decision that could help set precedent across the Balkan region, the Federation of Bosnia and Herzegovina announced on 26 November 2020 that, starting in 2021, the government would no longer provide subsidies that support the construction of small hydropower plants.

This comes off the back of urgent calls from conservation organisations for the government of Bosnia and Herzegovina to ban new small hydropower dams. Shoal has signed onto a letter sent by a coalition of organisations, led by Global Wildlife Conservation, to 'prohibit construction of small hydropower projects endangering critically important rivers and rare endemic wildlife'.

The decision is an encouraging step in the right direction for protecting Europe's last free-flowing rivers and the people and wildlife that depend on the waterways. Shoal applauds the sustained efforts of local environmentalists and hopes this is a signifier of the government's intent to keep their rivers wild.

Kathy Hughes

"WWF's Living Planet Report, released in September 2020, indicates that freshwater biodiversity is declining at twice the rate of other biodiversity and that it has never been more important to take action to prevent more species from going extinct. Shoal's work will be vital to this."

— Kathy Hughes, WWF

Planning for impact: our strategy

Throughout 2020, we have taken the opportunity to review our priorities and strengthen our strategy. We have restructured our strategy around four strategic themes: **Inspire – Partner – Research – Act**

Inspire: We will work with partners to create a 'world of wonder' to inspire and motivate action for freshwater species.

Partner: The task is too big to work on alone. We aim to create a powerful global network to tackle the freshwater species crisis head on.

Research: Our actions were first inspired by the research that highlighted the crisis. Science and research will guide our actions and help us effectively monitor impact.

Act: Most importantly, we are committed to taking direct action. Working with the science, motivated partners and innovative solutions, we will catalyse and increase funding for conservation action that will provide freshwater species with the conditions necessary to recover and prosper.

Under the fourth strategic theme, **Act**, we have defined, through a careful analysis of the most recent data with our technical advisors, principally from the IUCN FFSG, the most effective and efficient focus to concentrate the impact of our direct conservation action:

Priority regions

The primary focus for Shoal's direct action are those regions with the highest number of threatened fish species, where urgent, coordinated action will recover the most species away from extinction. In 2021, Shoal will initiate action in at least five of these regions.

Collective action for threatened species

Shoal is founded on inclusivity, and supporting the projects close to the hearts of those who care and want to take action is a priority for us. As part of this, we will initiate a programme to save critically endangered salmonid species, creatures held dear by the angling community, and to take action for the species enjoyed in the aquarium hobby. **If we collaborate, we can work wonders together.**

Lost Species

We will launch a programme to find a selection of 'lost species': species that have not been declared extinct but have fallen from the human radar. Our aim is to find those that have a glimmer of hope of survival, inspire the world with their rediscovery, and ignite the necessary action to ensure they are not lost again.

Dr. Rajeev Raghavan

"Though field surveys were completely disrupted due to the pandemic, 2020 turned out to be a great year as we managed to add a new branch to the tree of life – a unique family of bony fishes – Aengimachannidae, considered to be a 'living fossil', and an additional six new species of freshwater fishes from the Western Ghats – Sri Lanka's Biodiversity Hotspot."

— Dr. Rajeev Raghavan, Conservation biologist

Looking ahead

With the challenges of 2020 behind us, we now look ahead with a stronger foundation from which to launch into a new, exciting phase. Throughout 2021, we will ramp up our engagement of people and organisations about freshwater issues, and bolster our support for increased in-field action in the places that need it most.

Development of projects in priority regions

Now we have identified our priority regions and target species, we can expand the scope of the field projects we need to support. In 2020, we scoped new partners and new projects and in 2021, we aim to turn them into action. New priorities include starting work in the African Rift Lakes, the extraordinary fishes of the caves of India's Western Ghats, and in Mexico.

Building new partnerships within the home aquaria hobby

Shoal is rapidly building a strong partnership with the aquaria hobby and the businesses that are associated with it. In 2021, we plan to consolidate this partnership further with direct partnerships on projects in the field and ex situ.

Launch of three flagship reports and the Lost Species programme

We have three flagship publications planned for 2021, each aimed to further raise the profile of freshwater species and inspire action to support them.

In February as part of a coalition of partners led by WWF, we will publish the 'Forgotten Fishes' report, celebrating the marvels of the freshwater world and calling for more action to protect and recover species populations.

Towards the middle of the year, we will publish a report on some of the 'Lost Species' of fishes - those feared extinct but which have a chance for rediscovery. We will launch an expedition to find at least one of these fishes to accompany the report.

At the end of the year, we will launch a report detailing the new species of fish described in 2020.

Engage angling companies and anglers in Project Mahseer and our threatened salmon and trout programme

Shoal supports two projects of interest to anglers, Project Mahseer (led by the Mahseer Trust) in Asia and a programme aimed to stop the extinction of rare and threatened salmon and trout. We aim to mobilise support from the angling community for these two critical initiatives.

Helping to coordinate further involvement of zoos and aquaria in freshwater fish conservation

Zoos and public aquaria have always taken a keen role and interest in supporting freshwater fish conservation. Despite the hardships faced by the zoos and aquaria during the COVID pandemic, Shoal have been discussing with them a new escalation of interest to support conservation action in a more determined and systematic way. This will be a key focus of Shoal's work in 2021.

Thanks to our friends & partners

A very special thanks to our two most important partners who provide financial support, host our teams and provide their staff and facilities to give Shoal a very firm base to reach its goals from. Without these two organisations, Shoal would not exist.

Special thanks to Plus Fish Philanthropy and private donors for their support and tireless engagement.

Thanks also to the photographers and organisations who kindly allowed us to feature their images in this review: Freshwaters Illustrated, Jeremy Shelton, David Tan, Michel Roggo, Atlas of the Future.

We would like to also take this opportunity to acknowledge and thank those partners and supporters that worked with Shoal in 2020 to help end extinctions of freshwater species:

Albuquerque Biopark
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Andy Patel
Balkan River Defence
Borneo Nature Foundation
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Charles Fusari
Chester Zoo
Christel Kasselmann
Conservation International
Fisheries Conservation Foundation
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Fluval
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IUCN Freshwater Biodiversity Unit
IUCN Freshwater Fish Specialist Group
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