

SAVING FRESHWATER FISHES AND HABITATS

Newsletter of the IUCN SSC/WI Freshwater Fish Specialist Group

Issue 12 • October 2016



Wetlands
INTERNATIONAL

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Front cover image:
The Rio Marañon,
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Camote

NOTICEBOARD

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FFSG UPDATE

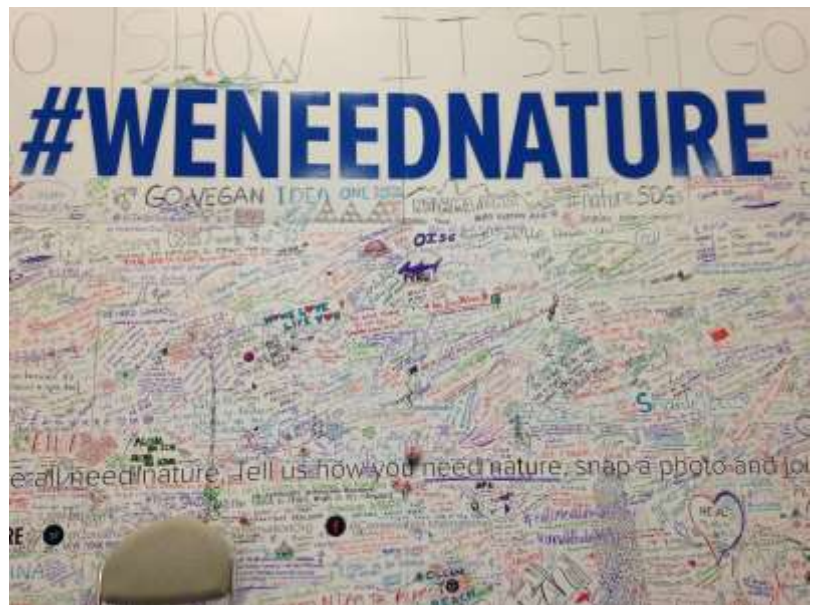
Message from the FFSG Global Chair

Dr. Richard Snieder



As we draw towards the end of the year, and the end of the 2013-2016 Quadrennium for IUCN I am also looking back at my last three years as Chair of FFSG, and marveling at what a fantastic set of individuals the Freshwater Fish Specialist Group is. Individually, and collaboratively, we have achieved so much. Our members continue to publish descriptions of new species of fishes, as well as papers on the ecology and conservation of freshwater fishes, on guidelines for recreational fisheries, and the conservation and management of freshwater ecosystems. Some of you regularly post notes of your publications on your FaceBook pages – if you do, please let Ian Harrison, our Technical Officer, know so he can pick up those posts and share them on our own FFSG FaceBook page. Many of you have also worked on some of the regional freshwater assessments for the Red List over the last couple of years, such as those for the Arabian Peninsula (reported in Issue 9 of our Newsletter, August 2015), Brazil (Issue 7, December 2014), the Tropical Andes (this issue, page 11) the Sunda region (Issue 11, 2016) , and North America. The Global Freshwater Bioblitz (<http://www.inaturalist.org/projects/global-freshwater-fish-bioblitz>) continues to receive photographs of fishes from around the world, and the World Fish Migration Day had another exceptionally successful, globally extensive, series of events this year in May, as reported below (pages 17-31). Our Home Aquarium Fish Subgroup is continuing to reach out to partners in the pet trade world, looking for options to support sustainable freshwater aquarium fisheries that can also promote conservation of freshwater ecosystems and support livelihoods of rural communities. Every year Scott Dowd, the Chair of the Subgroup runs important tours of the Rio Negro region, promoting awareness of the sustainable aquarium fisheries trade and bringing together experts who can identify mechanisms for developing best practices.

The good work that we do was well represented at the IUCN World Conservation Congress in Hawai'i, this September, with numerous sessions devoted to freshwater issues. These are summarized below on pages 44-64 – there's a lot of information there, compiled by several of our FFSG members; I hope this is helpful to those of you who could not attend. In particular, the report of the summary session on **Consolidating Partnerships for a Global Vision for Freshwater Ecosystems (pages 61-64)** and the report on the submission of the Motion calling for a **Union-Wide Strategy to Raise the Urgency of Freshwater Biodiversity Conservation (pages 65-68)** will be of interest.

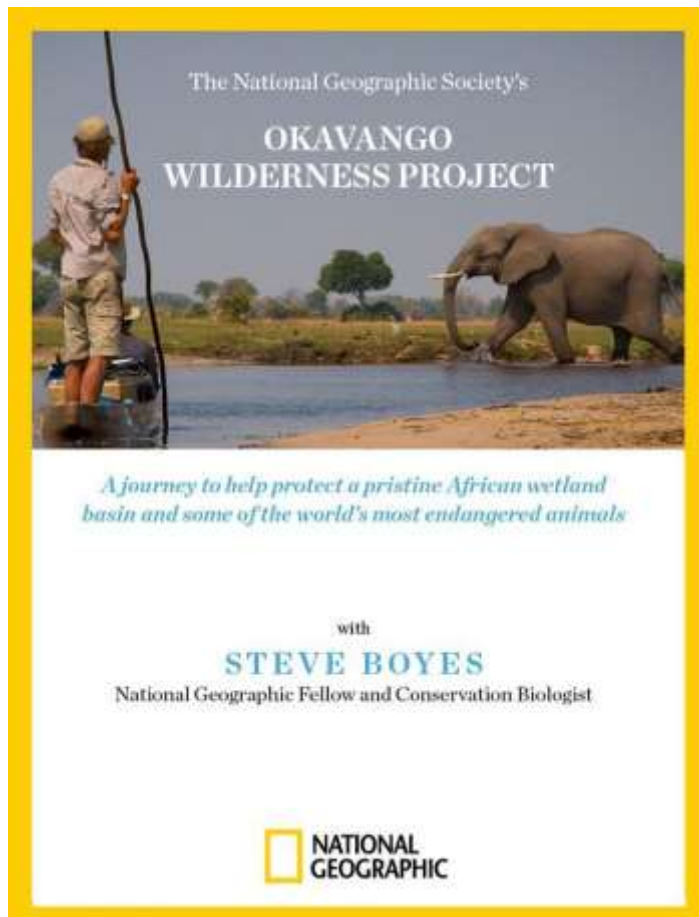


Conservation International's wall for conservation messages at the Congress

The latter point has set the stage for stronger inclusion of freshwater in the 2017-2020 IUCN Program of Work, which is extremely encouraging. I am especially grateful to our colleagues in WWF-US and the SSC Freshwater Conservation Subcommittee, who worked especially hard on making these recommendations.

I was also fortunate enough to be invited to attend The East-West Sustainability Summit that occurred in Hawai'i immediately before the Congress. I joined a session on "Sustainable Business Models" where we discussed the importance environmental awareness and conservation as a corporate responsibility and mission. The topic of sustainability was raised repeatedly throughout the sessions at the Conservation Congress, especially with respect to the opportunities presented by the UN Sustainable Development Goals to ensure that ecosystem concerns are integrated with socio-economic concerns, regionally and globally. One of the most compelling syntheses of the messages presented at the Congress was made by Martha Rojas-Urrego (Secretary General for the Ramsar Convention) when she commented at the session on *Consolidating Partnerships for a Global Vision for Freshwater Ecosystems* that **sustainable development cannot occur without sustainable water provision, and we cannot discuss sustainable water provision without healthy ecosystems.**

The World Conservation Congress showed me the breadth of the fantastic work we do, together, and in collaboration with partners around the world. More important, it showed me the opportunities that we have for the future. All the freshwater sessions that are summarized in this Newsletter included discussion of plans and opportunities for what to do next, and where we need to place our priorities for the upcoming Quadrennium – mapping ecosystems, addressing the problems of dams, migratory fishes, measuring environmental flows, managing fisheries, will all be important for us. And doing fieldwork and raising awareness about freshwater biodiversity. We are already working on these topics. During the Congress we held a session on developing the *Blueprint for Freshwater Life* (see pages 46-47) and one on communicating conservation messages (see pages 52-54) – and senior staff of National Geographic attended both those sessions. I am delighted to be working with National Geographic in developing work on the Okavango delta.



At the Congress Ian Harrison spoke with various colleagues about a plan to implement biodiversity surveys and monitoring in the Rio Marañon, Peru, and discussed this with potential funders. This newsletter includes a short report about the plans for this work in the Marañon (see pages 32-40).

As noted above, there are plenty more projects that we must push forwards as our priorities for the next four years. Moreover, the urgent need for our work to continue to conserve freshwater fishes and their habitats, has never been greater; as you will see from my short report on the newly published, *2016 Living Planet*

Report (see page 6), which shows that freshwater ecosystems are declining at an even greater rate than was found in the 2014 Report. The challenge is strong, as I note in my report below, but it is not insurmountable and I very much look forward to continuing to work with you towards our objectives.

Best wishes,

A handwritten signature in grey ink, appearing to read 'RS', with a long, sweeping flourish extending to the right.

Richard Sneider
FFSG Global Chair

2016 *Living Planet Report* published: an urgent call to action for freshwater biodiversity.

Richard Sneider

FFSG Global Chair

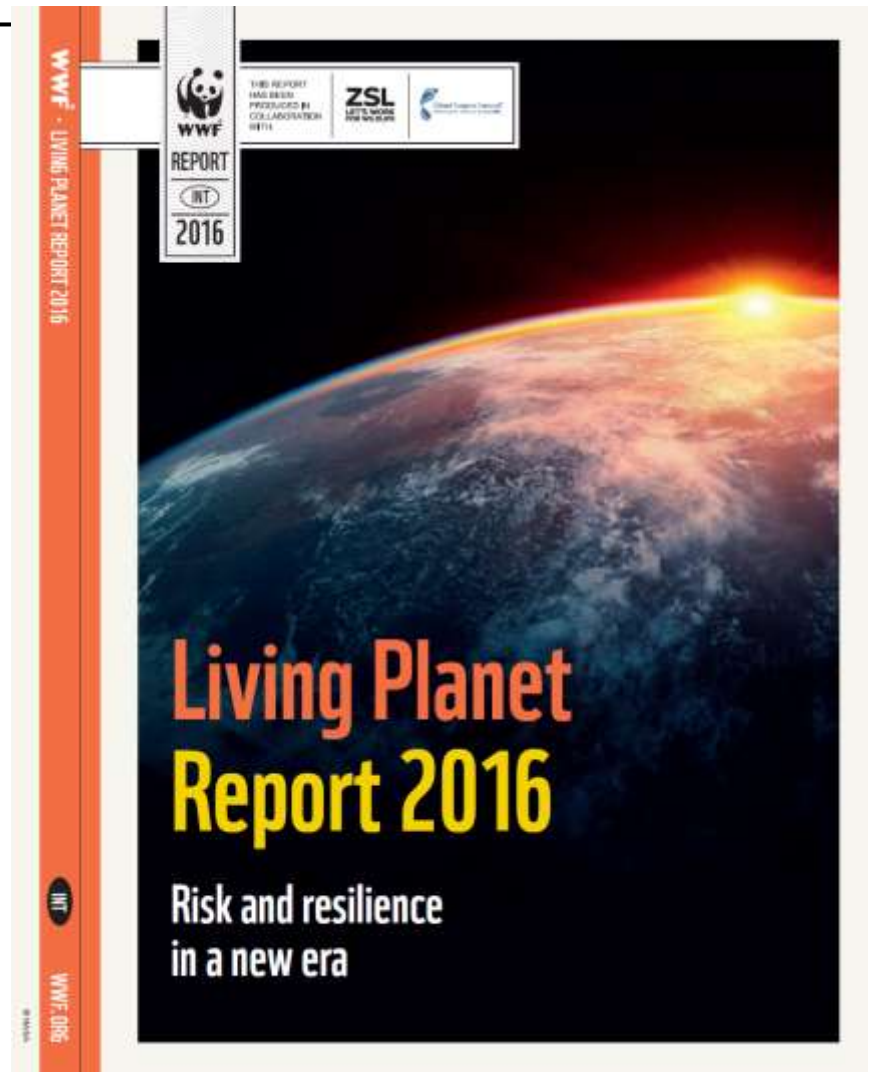
Many of you will remember that one of the messages from WWF's 2014 *Living Planet Report* was that freshwater was showing the greatest decline for any of the biomes measured in the report. The Living Planet Index (LPI) for freshwater species showed an average decline of 76 per cent in the size of the monitored populations, between 1970 and 2010.

In October 2016 WWF published the 2016 *Living Planet Report*, and the news is bleak. The LPI for freshwater has become worse, now showing that on average the abundance of populations monitored in the freshwater system has declined overall by 81 per cent between 1970 and 2012 based on data for 3,324 monitored populations of 881 freshwater species). Habitat loss is the most significant cause of these declines. More detailed analyses in the report describe declines in wetland dependent species and migratory species. The report substantiates several existing studies that species living in freshwater habitats are faring worse than terrestrial species.

The complete report can be downloaded at:

http://wwf.panda.org/about_our_earth/all_publications/lpr_2016/.

As I read this report, it reminded me of the address that I gave to the audience at the workshop on *Catalyzing communication: Conservation action through core messaging* at the IUCN World Conservation Congress (see pages 52-54), where I discussed the dire condition of freshwater ecosystems, and our responsibility to look after them. Below is a slightly updated version of that text.



Freshwater ecosystems host some of the richest biodiversity hotspots on the planet and provide critical services for every other ecosystem and species, yet their loss and degradation remains largely unrecognized. This is an international catastrophe in the making.

Freshwater biodiversity is not taken into consideration when addressing our water challenges in the service infrastructure context.

Biodiversity interconnectedness is vital to the health of all ecosystems, and so it is in fresh water. At least 64% of all wetlands have been lost since 1900, and the 2016 *Living Planet Index* shows a 30 per cent decline over the past 40 years alone. Studies show that the economic service value of this loss is twice that of the US GDP per year! Endemic biodiversity is largest in freshwater systems. Again, according to the *Living Planet Index*, freshwater species loss is occurring at about double the rate of marine and terrestrial life.

Albert Einstein said *“Look deeply into nature, and then you will understand everything better.”*

To look deeply into nature is to understand the relational essence of the biosphere, and the vital role species play in it. The obsolete belief that the earth can afford the loss of species without major foreseen and unforeseen consequences is unfortunately both apocalyptic and foretelling. Whether it be active removal, or passively witnessing the species extinction from the planet, we are behaving like Thanatos' mechanic or a passenger on Ehrlich's Rivet-popper hypothesis. In comparing the earth's ecology to an airplane, Ehrlich illustrates that the earth's species are like rivets in a plane that hold it together. If every passenger or mechanic were to remove a rivet, the plane would eventually disassemble and crash. Each passenger would not believe that their removal of a single rivet would have catastrophic consequences, but eventually, it would; similarly, because earth's ecology is an interconnection of species, and although we may never know how each rivet's removal has affected the overall balance of earth, the aggregate of removing species would be extremely harmful in unanticipated or unforeseen ways, and at times, fatal.

Schistosomiasis is a debilitating disease carried through parasitic worms known as blood flukes, which live inside people's veins, at times it is so debilitating that it can result in death. The carrier of these parasites is a snail, which releases the parasite into the water. When people come into contact with the infested water the larvae enter their bodies. It is estimated that 200 million people are affected by it in 74 countries. According to the World Health Organization, schistosomiasis has become second to malaria in its global health impact. In addition to the physiological and psychological horrors schistosomiasis inflicts on its victims, the disease has a deep economic impact on the populations affected by it. Through its severe debilitating effect, the need of care of those suffering from it, and learning impairment in children, it taxes entire communities.

A telling and alarming example of species attrition or extinction in freshwater ecosystems, on several populations worldwide and more crucially in Africa, is the increase of schistosomiasis. In Lake Malawi, the processes of overfishing and habitat degradation resulted in a virulent outbreak of schistosomiasis, a lake that had been free of it until a couple of decades ago, and the Centers for Disease Control and Prevention

(CDC) has issue travel advisories on visiting the entire region, let alone water bathing and recreation; yet another blow to these communities!

Species attrition and biodiversity loss resulted in 87% of school children in these communities becoming afflicted by the disease.

To make matter worse, and as evidence of the possible far reaching unforeseen consequences of biodiversity loss, schistosomiasis has increased HIV infection up to three times in certain communities. Lesions caused by the waterborne parasite increased the incidence of HIV threefold across rural Africa.

This example underscores the urgent need to address biodiversity loss in fresh water habitats. This example clearly links biodiversity loss to human population suffering and loss. Think of it! We have freshwater species extinction, unaddressed, and it results in afflicting 200 million people!, a three-fold increase in HIV incidence increase in regions affected by this, 87 % of children population suffering, and economic devastation!

Conclusion

This is a matter of veins! Of blood flow! We need to understand freshwater as the circulation system of the earth. Rivers! – these are the veins of the earth. Our planet is already experiencing many strokes from massive blockages we have in our dams in our rivers, the drying of lakes from disruption of flow and climate change, contamination from industrialization and overpopulation of our most precious resource! If we continue in this path, we will continue to have strokes and heart attacks until it is fatal! We need preventive measures for Mother Earth, just as the ones we apply for our own health! Healthy living practices are much better approaches than medical cures, which are often not effective, and often too late! Fresh water species prevention loss can specifically prevent HIV!

Just as we need rainforests, as the lungs of the earth, we need our circulation system. Biodiversity is the heart of Mother Earth, and freshwater bodies and rivers are her circulation system. Fresh water biodiversity is at the heart of a healthy planet.

Here is my message to the audience! I assure you that if it were your kids who had worms in their veins, or your daughters who innocently contracted HIV, your resolve and action on this matter would be very different I exhort you to be very engaged in what we are trying to accomplish in this workshop, and there after! As we are one with earth, let's keep our blood flowing, keep the veins of our children free of deadly parasites! Please, become active ambassadors for fresh water conservation, AND fresh water biodiversity and health!

Thank you!

Welcoming a new SSC Chair

Richard Sneider

FFSG Global Chair

I am sure that many of you know that Jon Paul Rodríguez has been elected as the new Chair of SSC, taking over from Simon Stuart on the day of his election at World Conservation Congress in Hawai'i.

There have been so many deeply sincere messages of thanks to Simon for his leadership since 2008, from the standing ovation at the 2015 SSC Leaders' meeting, through the many emails leading up to Hawai'i, and the wonderful celebration of his service at the Species Pavilion in Hawai'i on September, that there is little more than can be said, except to agree with the huge respect that the SSC membership has shown to Simon.

More importantly, we have a dedicated leader, in Jon Paul, who has a deep knowledge of SSC through his roles in many SSC activities, not least as Deputy Chair since 2009. He understands SSC and its Specialist Groups from the grassroots of doing action on the ground, to the importance of publishing ground-breaking science, to the application of that science to successful management and policy. We have a strong future with Jon Paul, with plenty to look forward to. We have a lot to look forward to.



Dr Jon Paul Rodríguez. SSC Chair

SSC Membership Renewal

Richard Sneider

FFSG Global Chair

The September/October 2016 edition of the Species e-bulletin distributed electronically to SSC members included a note that membership of the Commission remains in place for 90 days from the final day of the IUCN Members Assembly – which is until mid-December 2016.

During this period the Specialist Group Chairs for the new Quadrennium 2017-2020 will be appointed by Jon Paul Rodríguez, our new SSC Chair. The Group Chairs will then review membership lists and invite existing members to renew their membership, or invite new members to join for the next four year period. The exact procedure for this step is being finalized by the SSC Secretariat, and in FFSG we will be looking at creating the strongest membership to achieve our objectives for the next four years. In the next few weeks we will be reviewing some of the priorities identified for FFSG at our meeting in Mexico in 2014 (see FFSG Newsletter Issue 7, December 2014; and see documents posted in the Union Portal, under the FFSG webpage).

Look out for email from Ian Harrison, or SSC Secretariat staff, to keep you up to date with the membership renewal process.



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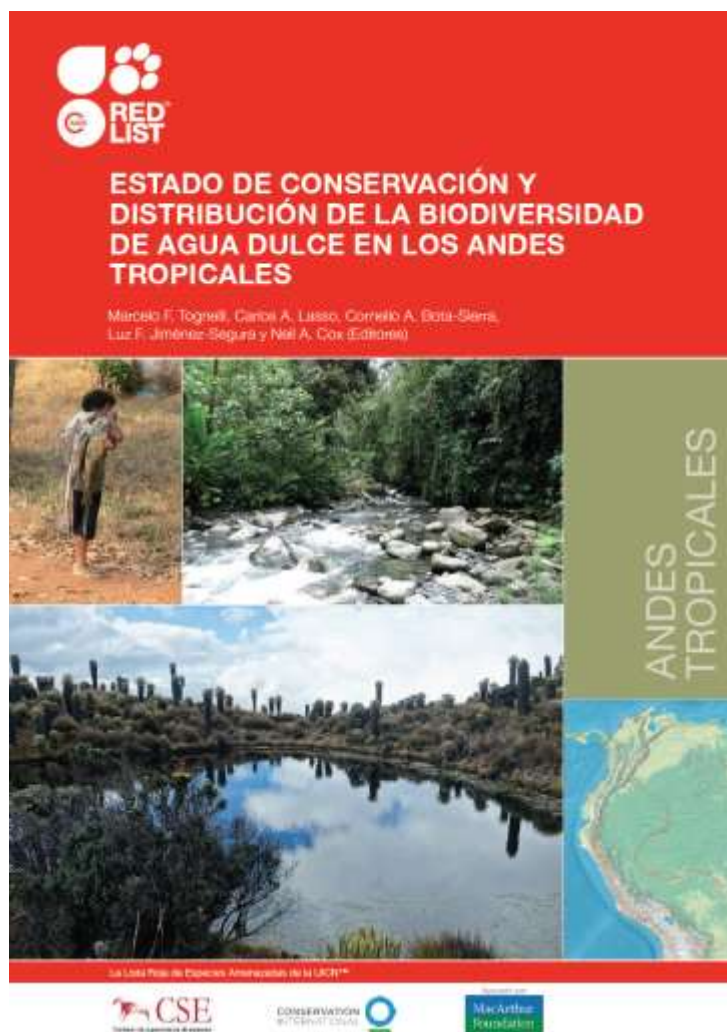


New Publication - *The Status and Distribution of Freshwater Biodiversity in the Tropical Andes*

Marcelo F. Tognelli

IUCN-Conservation International Biodiversity Assessment Unit

As a major contribution towards the provision of information of freshwater species in the region, the IUCN Global Species Programme, in collaboration with local partners, conducted an assessment of the conservation status (according to the IUCN Red List of Threatened Species™) and distribution of all species of freshwater fish, mollusks, dragonflies and damselflies, and a select group of aquatic plants endemic to the Tropical Andes region (defined in this project as including the Andean-Amazon region of Bolivia, Peru, Ecuador and Colombia, as well as the Colombian Chocó and northwestern Ecuador). In total, 967 species of freshwater species endemic to the Tropical Andes region were assessed and documented. Overall, 17.5% of the species for which sufficient information was available to assess its risk of extinction, are globally threatened. Twenty-three species are Critically Endangered (CR), of which three, one fish and two odonates, are Critically Endangered Possibly Extinct. Major drivers of threats are identified as agriculture and aquaculture, pollution, natural system modifications, energy production and mining, and biological resource use. The higher numbers of threatened species are found in the Magdalena-Cauca and Dagua basins in Colombia; the Ucayali, Madre de Dios and Marañón basins in Perú (also see pages 32-40 of this newsletter); the Napo, Pastaza and Cayapas basins in Ecuador, and the Beni and Mamoré basins in Bolivia.



The data derived from the Red List assessments were used in the identification of freshwater Key Biodiversity Areas (KBA, sites of importance for the overall persistence of biodiversity). Overall, 86 freshwater KBAs containing 151 trigger species were identified; 39 were adopted existing KBAs, 22 were adopted existing protected areas and 25 were newly delineated KBAs. In addition, the susceptibility of species to climate change was assessed using the methodology developed by the IUCN: the Climate Change Vulnerability

Assessment Framework. This framework is based on the relationship between climate change and the biological and ecological traits that may increase or decrease its impacts on species. Overall, aquatic plants have the highest percentage of species vulnerable to climate change (40%), followed by the other three groups, with almost the same percentage of vulnerable species each (11-12%). Contrary to what was expected, many species vulnerable to climate change are in low altitude areas and not in the Andean region, where it is assumed that the impact of changes in temperature will be higher. Plants were the exception, but this may be due to the selection of species included in the assessment, which was mostly biased towards upland species. It is expected that the information provided here on the conservation status, distribution, vulnerability to climate change, and the identification and delineation of freshwater KBAs, will help guide and motivate policies and conservation actions in the region to protect freshwater biodiversity in the Tropical Andes.

The full report is:

Tognelli, M.F., Lasso, C.A., Bota-Sierra, C.A., Jimenez-Segura, L.F. y Cox, N.A. (Editores). 2016. *Estado de Conservación y Distribución de la Biodiversidad de Agua Dulce en los Andes Tropicales*. Gland, Suiza, Cambridge, UK y Arlington, USA: UICN. xii + 199 pp.

It can be downloaded from <https://portals.iucn.org/library/node/46341>

The project was funded by the John D. and Catherine T. MacArthur Foundation, with contributions from Conservation International.

Supplement issue on *Freshwater Protected Areas in a Rapidly Changing World*

Ian Harrison

FFSG Technical Officer

In June 2016 the international journal *Aquatic Conservation: Marine and Freshwater Ecosystems* published a Supplement issue on *Freshwater Protected Areas in a Rapidly Changing World*. The supplement, which was funded by Scottish Natural Heritage, Edinburgh, was prepared by Guest Editors, Virgilio Hermoso, Robin Abell and Simon Linke.

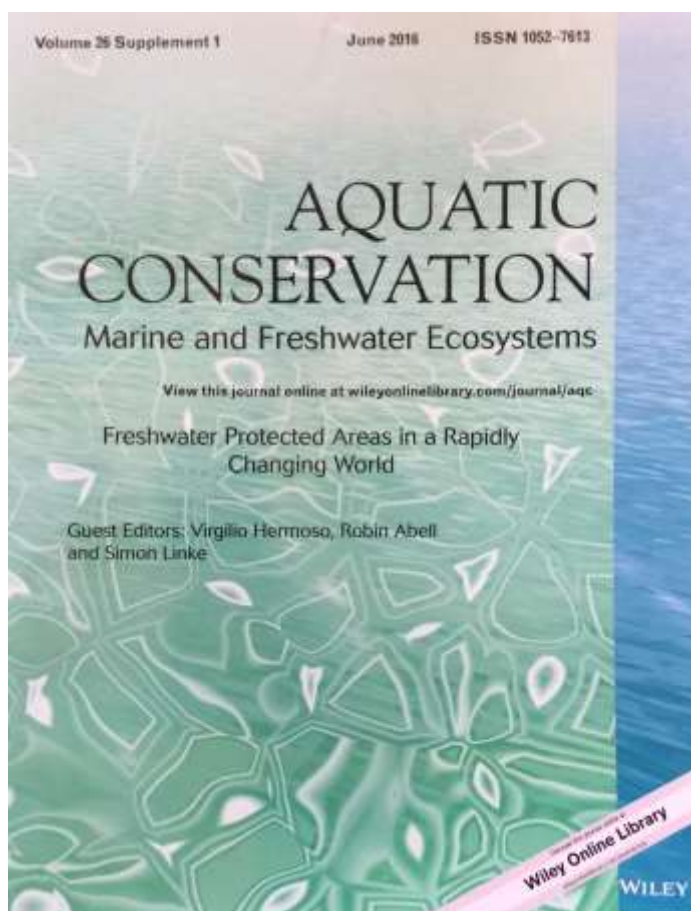
The entire contents of this issue are freely available for one year from the publication date, at:

<http://onlinelibrary.wiley.com/doi/10.1002/aqc.v26.S1/issuetoc>

Among the many important papers in this issue, there is a paper on *Climate change sensitivity of threatened, and largely unprotected, Amazonian fishes* by Renata G. Frederico, Julian D. Olden and Jansen Zuanon.

There are also several papers co-authored by FFSG members:

- *Freshwater conservation potential of protected areas in the Tennessee and Cumberland River Basins, USA* by Michele L. Thieme, N. Sindorf, J. Higgins, R. Abell, J. A. Takats, R. Naidoo and A. Barnett
- *Protected areas and imperilled endemic freshwater biodiversity in the Western Ghats Hotspot* by Rajeev Raghavan, Sandeep Das, P.O. Nameer, A. Bijukumar and Neelesh Dahanukar
- *Protected areas and freshwater provisioning: a global assessment of freshwater provision, threats and management strategies to support human water security* by Ian J. Harrison, Pamela A. Green, Tracy A. Farrell, Diego Juffe-Bignoli, Leonardo Sáenz and Charles J. Vörösmarty



- *Natural solutions for water management of the future: freshwater protected areas at the 6th World Parks Congress* by Nigel Dudley, Ian J. Harrison, Marianne Kettunen, Jane Madgwick and Volker Mauerhofer
- *Achieving Aichi Biodiversity Target 11 to improve the performance of protected areas and conserve freshwater biodiversity* by Diego Juffe-Bignoli, Ian Harrison, Stuart HM Butchart, Rebecca Flitcroft, Virgilio Hermoso, Harry Jonas, Anna Lukasiewicz, Michele Thieme, Eren Turak, Heather Bingham, James Dalton, William Darwall, Marine Deguignet, Nigel Dudley, Royal Gardner, Jonathan Higgins, Ritesh Kumar, Simon Linke, G Randy Milton, Jamie Pittock, Kevin G Smith and Arnout van Soesbergen

FFSG input to projects on lost species and protected areas

Ian Harrison

FFSG Technical Officer

Recently, members of FFSG were asked to provide preliminary input to two projects.

The first is a project being run by Global Wildlife Conservation (<http://globalwildlife.org/>), focused on searching for 'lost species.' Several FFSG members have provided suggestions for fishes, possibly thought to be extinct but requiring further field searches. The suggested species included:

Prototroctes oxyrhynchus (New Zealand); *Pungitius kaibarae* (Hyogo prefecture, Japan); *Barbodes pachycheilus* (Lake Lanao, Philippines); *Adrianichthys kruyti*, *Weberogobius amadi* (Lake Poso, Sulawesi); *Barbodes microps*, *Barbonymus platysoma*, *Lobocheilos rohitoides*; *Hemileiocassis panjang* (Java); *Balantiocheilos ambusticauda* (Maeklong to lower Mekong basins, Southeast Asia); *Ambastaia sidthimunki* (upper Maeklong Basin); *Platytrapius siamensis* (Chao Phraya and Bang Pakong river drainages, Thailand); *Psephurus gladius* (Yangtze River, China); *Cyprinus yilongensis* (Lake Yilong, China); *Neolissochilus bovanicus* (Bhavani River, India); *Pseudoscaphirhynchus fedtschenkoi* (Syrdarya River, Central Asia); *Mirogrex hulensis* (Lake Huleh, Israel); *Pantanodon madagascariensis*, *Bedotia marojejy*, *Bedotia sp. Namorona* (Madagascar); *Coregonis bezola* (Lake Bourget, France); *Priapella bonita* (Mexico); *Amphilophus lyonsi* (Costa Rica); *Rhizosomichthys totae* (Lake Tota, Colombia); *Brycon acuminatus* (Rio Paraiba basin, Brazil); *Phalloptychus eigenmanni* (Rio Catu, Brazil)



Rhizosomichthys totae – a species of catfish from Lake Tota, Colombia, possibly extinct. Photo by American Museum of Natural History.

The second project is the Rainforest Trust's SAVES Challenge (<https://www.rainforesttrust.org/saves/>), a program that will direct a total of \$100 million to establish new Protected Areas to save the world's most endangered species. FFSG members, along with members of the SSC Freshwater Conservation Subcommittee, and the WCPA Freshwater Specialist Group recommended several different priority freshwater sites that

would benefit from the creation of a protected areas, including the Marañon river, Peru (see page XX); Rio Negro, Brazil; the Sekong River in Laos and Cambodia; Lake Tana, Ethiopia; the Western Equatorial Crater lakes region, Cameroon; the Lower Congo region; and Lake Lanao, Philippines



NEWS FROM AROUND THE WORLD

World Fish Migration Day, May 21, 2016

Kerry Brink

Project Coordinator

World Fish Migration Foundation

Preface by Ian Harrison

Preface

World Fish Migration Day (WFMD) occurred on May 21 this year, and the center of operations was in Washington DC, USA, facilitated through the help of The Nature Conservancy. The success of WFMD is due to the amazing dedication of the planning team (see Fig. 1 below). In fact, the events kicked off on Friday May 20 with a discussion panel hosted by The Nature Conservancy, WWF-US, and the World Fish Migration Foundation. There is a great video of the entire discussion available at https://www.youtube.com/watch?v=Q_VDqurv7Bg.



Figure 1. WFMD planning team at the Patagonia store, Georgetown, Washington DC. Left to right: Pao Fernández Garrido, Bart Geenen (sitting), Joost van Deelen (standing), Zeb Hogan, Herman Wannigen (Project lead), Josh Royte, Kerry Brink.

During Saturday May 21 events were underway across the world. These were being monitored by the planning team throughout the day, who were also presenting a public site kindly hosted by Patagonia Inc. at their store in Georgetown, Washington DC.

I was delighted to join the team at the store and discuss the WFMD with the public, and monitor event occurring around the world. Among the events for WFMD was the launch of their *Swimways of the World* poster (Figure 2) which shows the routes migratory fish species travel around the world in a way that is informative and appealing to a broad range of people, from politicians to children (<http://www.swimway.org/>)



Figure 2. Ian Harrison holding a copy of the *Swimways of the World* poster, outside the Patagonia store, Georgetown, Washington DC .

A full report on the achievements of WFMD 2016, prepared by Kerry Brink, is given below. It may also be downloaded at:

<http://www.worldfishmigrationday.com/downloads/?lang=6&id=7>

Feedback on the Day's events is also available at:

<https://worldfishmigrationblog.wordpress.com/>

World Fish Migration Day Report:



We are amazed!



The World Fish Migration Day (WFMD) is a one day global celebration to create awareness on the importance of open rivers and migratory fish. On May 21st 2016, over 2000 organizations from around the world celebrated the 2nd-World Fish Migration Day around the theme; CONNECTING FISH, RIVERS AND PEOPLE. At 450 locations organizers hosted various local events to create awareness about migratory fish and to call attention to the struggles and needs of these amazing animals.

Celebrations officially started in New Zealand during a global kick-off event in Washington DC. This opening was followed by a wave of activity and excitement around the world. Throughout the day we received amazing feedback on ways WFMD was being celebrated from tweets to video launches, from school tours to delegate conferences. Overall it was an amazing success, with thousands of people talking about fish migration. It is estimated that we reached approximately 100 million people around the world through the events, media and social media.

"Fish migration is one of nature's wonders. It is more important than ever to conserve migratory fish on which ecosystems but also jobs and economies depend"



Marco Lambertini
Director General of WWF International.

"We want people to realize what's at stake, understand what we've lost, and work together to protect and restore populations of these amazing and life sustaining fish"



Zeb Hogan
biologist of the University of Nevada and host of National Geographic Wild, Monster Fish.

"It's so important to celebrate and restore our planet's amazing fish migrations. While this one day of events is incredibly meaningful and important, it has spurred the development of a broader mission to connect people around the world in order to share experiences and expertise throughout the year"



Josh Royte
WFMD2016 Steering Committee Chair, The Nature Conservancy

Going global

Creating awareness on a global scale

In 2016, we reached 177 more events than in 2014. The majority of the events were in Europe (228) and the USA (103), but there were also events from other countries; Mongolia, Gambia, Iceland, Ecuador and Papua New Guinea to name a few. Our goals for 2018 are to increase the impact and double the number of events to involve at least 75 countries around the globe, particularly increasing the number of events in developing areas in Africa, South America and Asia, where a major expansion of hydropower and dam development is proposed. It is critical that citizens, companies, governments, financiers and other organizations in these areas are well informed about migratory fish and the impacts they face.

450 Events
63 countries
82.000 visitors to events
2,000 organizations involved
70.000.000 people reached worldwide
+15.000.000 people reached on social media



Getting ready for WFMD2016

Promoting and marketing



Coordination

Preparations for WFMD2016 started right after the official announcement of it during the Fish Passage conference in Groningen in June 2015. The team started reaching out to organizations, recruiting participants to host events, and preparing promotional materials. The response was extremely positive. Even organizations that could not participate in 2014 agreed that organizing an event for 2016 was important to draw attention to fish migration. After 10 months of reaching out to participants through emails, networks, LinkedIn and social media, we had more than doubled our reach. Interestingly, most of the participants that agreed to host an event, were reached through their own networks and direct email contact from a team member.

Promotion

In order to promote WFMD2016, an official communication and marketing campaign was developed, under the slogan: Fish can't travel like we can. This campaign was designed to connect to the people that have no direct connection to WFMD (general public) and attract those who are already engaged to actively share and participate, using the messaging of WFMD: Connecting fish, rivers and people. Within this campaign various products and activities were developed. This included building a press network, developing help documents, promo material, online webshop, new styling, Wikipedia page, press toolkits, drawing competition & [mush maps](#). Participants reported being extremely or very satisfied with the material and managed to use this to create even more amazing posters and communication material.

Some of the highlights of the campaign included: [fish beat video's](#), guess what fish it is campaign, fish stories, presentation at conferences & meetings around the world, articles in newspapers & newsletters, and also appearances on national radio stations on different continents. On top of that is all the outreach and campaigning local organizers did for their own events! Huge thanks go to Zeb Hogan, Nat Geo Wild, and the National Geographic Society who produced great promotional videos that people shared broadly through social media. All the videos made from WFMD and other organizations are all available on our [YouTube channel](#). Stay tuned for an upcoming compilation video being sponsored and developed by RealChile, with highlights from WFMD2016.



Let the fun begin!

The start of WFMD2016

The first celebrations were officially opened in New Zealand [with this video](#), by the Tasman district in conjunction with the Kick-off event in Washington DC. The Kick-off event in Washington was a collaboration with TNC, WWF-US and WFMD. Numerous high level representatives were present incl. Jennifer Haverkamp (U.S. State Department, special representative for environment and water resources). The presentations and debates were available on live streaming and can still be viewed at [this link](#). Included in the program was the unveiling of the Happy Fish. This is a new symbol for fish migration and is the ultimate icon for people, organizations and projects that aim to recreate free migration for fish populations. For the WFMD, the happy fish made a symbolic journey from The Netherlands to

USA and is now travelling from state to state. The international headquarters of the WFMD was also hosted in Washington DC, where the team connected with participants around the world through social media and personal contact. There was also a European headquarters, which was hosted at the famous 'Afsluitdijk' in The Netherlands. During this event the Dutch partners opened a new fishway at the entrance of the river Rhine and the latest news was presented around the biggest tidal fishway project of the world, the 'Fish Migration River'. The WFMD team was also proud to launch the international Swimway Poster, in South Africa. With this poster the WFMD organisers hope to make fish migration accessible to all people around the world. A digital version is being developed with an interactive website. [Click here for more information.](#)



Events

Local action with global impact

On the 21st of May 2016, events opened their doors to an estimated 82,000 visitors from New Zealand to Hawaii and from Iceland to Chile. Overall, 92% of participants regarded their events as being a great success, with event ratings mostly between good to excellent. Many had good attendance, great media coverage and were lucky enough to have good weather. About 10% of the hosts were disappointed with their event. This was mostly due to bad weather, which led to the events not being well attended. In other cases there were fewer than planned visitors due to other events/festivals in the neighborhood. Nevertheless, most of the feedback was incredible to see and extremely positive, with 90.1% of the events meeting the expectations of the event hosts. Of the 450 events, there were so many noteworthy events. These ranged from soccer tournaments in Europe to Kayak flotilla's in the USA. In Ethiopia there was a festival that was estimated to reach thousands of citizens and in Brazil there was a research lab that stopped to show communities the different research techniques and methods. Across the world various shops had WFMD themes, including all Patagonia shops in Europe and the Patagonia shop in Washington DC. There were also several events that celebrated WFMD by releasing herring, lamprey, eels and salmon into the rivers. During these events the public and press were invited to help. The list of amazing event just goes on and on, making it difficult to decide which events to mention. More feedback and details about events can fortunately be found on the [WFMD feedback page](#). As was the case in 2014, the majority of the activities that took place included family fun days, fishway tours, river tours and workshops. In total there were about 144

field excursions, which included visits to the river, river clean ups, kayaking trips, boat tours, trips to fishway visitors centres and dam removal sites. There were also many conferences, workshops and seminars specifically for stakeholders, policy makers, specialists and other groups, such as fishermen. The predominant group of visitors to events were from the local community (81.7%). Communities were invited to join in the celebrations at 108 events. This included family days, outreach events, football matches, festivals, parades, art and fish decoration, music, photo competition, quiz's telemetry tagging with citizens, swimming challenges etc. The public was also invited to adopt a herring. Donors could name their fish and follow their progress of the river herring monitoring, from the website. Out of all the activities, 30-40% had school children, policy makers, universities and fishing clubs present. This did not change much from 2014, where the percentage of representatives from local community was 86%, policy makers (37.7%) and schools (41%). Participants also gave their thoughts about who should we engage with future WFMDs. Some said they would like to see more involvement of local communities, anglers and policy makers. According to NCCMA in Australia the feedback from their event highlighted a definite thirst for knowledge regarding fish migration from community, recreational fishers and policy makers. Others, such as Lamprey Creek Awakening, said that a focus needs to be on indigenous peoples efforts, especially in the U.S.A where the tribes have spearheaded efforts to promote healthy fish migration and put considerable economic resources into these efforts.

[Click here for more amazing feedback](#)



Popular event types

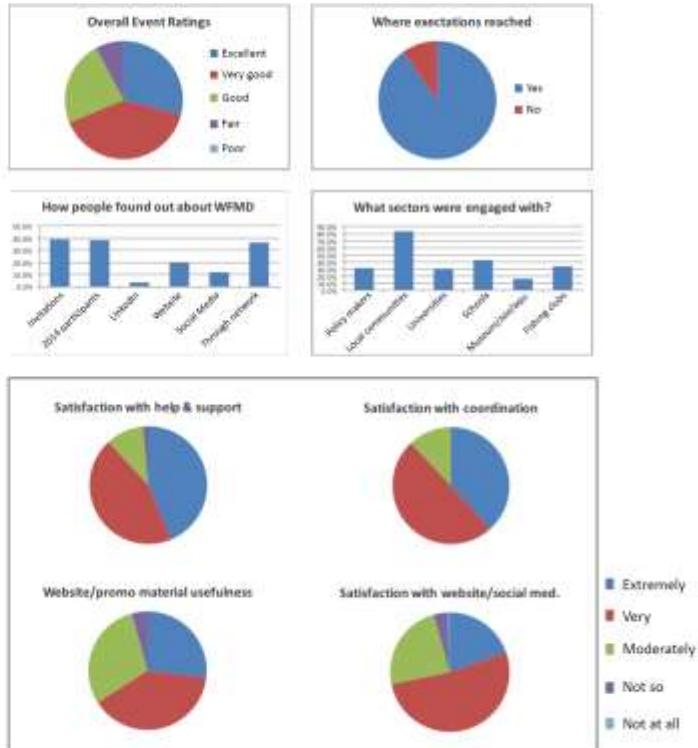


Events

Local action with global impact

After the WFMD we asked event hosts to complete a survey* to gather information and suggestions for future WFMDs. They were asked to indicate how satisfied they were with WFMD, to give details about their event, and to rate the various aspects. Overall most were extremely or very satisfied with WFMD results as a whole. There were some valuable comments from the survey regarding how to improve the website and social media support. For example many indicated that they would like to be able to update their own event on the website and should also be available for easy translation into other languages. Some hosts had suggestions for better international publicity, more videos and more branding materials for events. Also suggestions for better cooperation between events, more news and feedback from events on the website, more material suitable for children, and one mentioned they would like fishhead masks that look like migratory fish species. Overall many of the participants noted that WFMD2016 was taken to a much higher level than previous WFMDs and are looking forward to an even bigger and better 2018!! All of the comments that were received during the survey will be further discussed and reviewed with the WFMD steering committee in preparation for WFMD in 2018.

*survey based on 143 completed forms



World Fish Migration Day Report (continued)

Highlights

There were so many amazing events, but here are a few to give you an idea of what took place. For more feedback and photos you can visit the WFMD.feedback.sage

USA

104 events in USA, with the Headquarters celebrated in Washington. Global celebrations were launched in New Zealand and at the kick-off event with a livestream of special guest-speakers including Jennifer Heverkamp, U.S. State Departments Special Representative for Environment and Water Resources.

Bolivia

The Natural Nature History museum of La Paz hosted 10 different events and also celebrated by publishing a 5 page article in the National Newspaper about fish migration.

Africa

There were 13 events in Africa including a reed boat paddling competition. There was also a visit to a fishway in Kruger National Park with crocodiles and elephants.



India

There were 14 events in India including a march of students asking for clean rivers and The Mahseer Trust hosted 6 events for children and fishermen.

Papua New Guinea

The first WFMD in this country was a launch of a sport fishing research hub to look at sustainable management of the sport fishing industry.

Europe

228 events, celebrated in 32 countries. Highlights included an 11 day kayaking trip along different rivers in the Balkans Region to bring awareness to the need for protecting wild rivers from 2,700 proposed new dams.

Russia

One month of WFMD! Russia hosted a 30 day celebration and for the first time the Amur ecoregion (consisting of Russia, Mongolia and China) were involved in a joint celebration. Events were hosted by 23 organizations partnering with WWF Russia.

Cambodia

Reached 10 million people! WorldFish and IFRDI reached out to 10 million in Cambodia through various TV shows, radio broadcasts and social media.

Citizen science

UK, Netherlands, Spain & USA
WFMD2016 featured an international eel count to raise awareness on the poor conservation status of the eels. In various countries in Europe organizations hosted special events with volunteers to spread the word and to promote citizen science.

LIFE+ (EU funded)

10 Life+ projects joined WFMD
Among these included REMIBAR LIFE project (Sweden), SEGURA RiverLink LIFE project (Spain) and GRAJA life project (Italy), which used WFMD as a tool to raise public awareness and foster connections.

Dam removal

7 dam removal projects
Including a celebration of the removal of 300 barriers in Northern Sweden. Other dam removal celebrations were in city of Helsinki, Finland and along the Penobscot River in Maine, USA.

Fishway visits

There were 59 events that were hosted at various fishways around the globe. 16 different countries including Wales, where The South East Wales Rivers Trust celebrated the newly opened Radyr Weir Hydroscheme and fishpasses.

WFMD2016 achievements



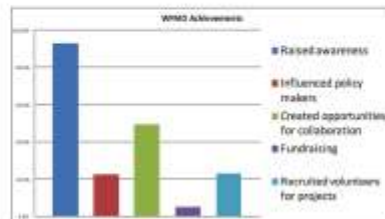
Reaching targets

For WFMD2016 our goals were to double the amount of events and reach out to even more citizens and policy makers around the globe. From the table we see that we surpassed our targets and have almost certainly reached over 70 million citizens around the world through the events, media and social media activity. From the event feedback it was evident that most WFMD activities contributed to raising awareness, educating public and other key groups, and created opportunities for collaboration. The very same trend was observed in 2014. Considering the focus of WFMD2018, we will continue to promote such activities and to take it a step further and promote activities that will get more citizens involved in action for rivers. Staff at the Shed Aquarium, observed that once people know the problems faced by migratory fishes, they want to know what they can do to help. Others suggested that it would be great to see a broadening in our focus from awareness towards action and advocacy. Here are also examples of some of the other achievements that were also fulfilled.

WFMD numbers

	Results		Targets	
	2014	2016	2014	2020
Events	273	430	1,000	1,300
Organizations	1,200	2,000	3,000	4,000
Visitors	55	83	75	100
Citizens	50,000	82,000	200,000	300,000
Citizens	2 min	70 min	100 min	200 min
Official celebrations/Dam removal/Itshweys	30	15	75	100

Achieved by events



"The event was a starting point and we will work from the agreement with the policy makers that attended the event!"

Italy

"We showed the next generation the cool fish so they can then tell their parents and want to look after their rivers!"

New Zealand

"An excellent tool to promote fisheries but also the struggle that fish have to complete their life cycle"

USA

"Local people and employees working at the dam got curious about harmful effects of dams on fish migration"

India

"People were positively impacted and feel amazed about fish migrations. They were shocked to know that most of the fish in the super markets are non native species"

Colombia

WFMD2016 achievements

More than just a one day celebration

WFMD made it easier for organizations to connect with numerous high level delegates. Many events had special guests from ministers, mayors, representatives from state departments to tribal leaders. For instance Jennifer Haverkamp (U.S. State Department Special Representative for Environment and Water Resources), Mariannen Wenning, Director for Quality of Life, Water & Air at European Commission (Europe), Hon Nick Smith, Minister for the Environment (New Zealand), Andres Metsoja, Estonian Parliament member (Estonia) and many more were involved. All of these delegates and many others agreed this topic needs more attention. The power of these positive responses is far reaching on a long-term scale. Key representatives who realize the importance of fish migration, play an essential role in **starting crucial conversations among a broader audience**. Although the implications of this are not always immediately evident after WFMD, it is certain that more attention will be given to fish migration in the future by these delegates. There were additional events that invited delegates to discuss ways to remove dams, install fish passages, and restore rivers. A notable example was the event in Estonia, where politicians and researchers came together to discuss the Sindil Dam and it's removal in 2018! WFMD plays an important role in putting the projects on the world map.

Feedback showed that many organizations used WFMD to showcase their projects and fish migration activities. For instance 10 European Commission (EC) LIFE projects joined the WFMD2016. Many of them showed the benefits of WFMD and how they used this global awareness day as a tool to raise public awareness and foster stronger connections between projects and people. This is one of the key strengths of WFMD. Zeb Hogan neatly phrased it: **WFMD is inclusive**. It helps connect people with those who are sometimes out of reach and helps make it possible for people who dedicate their lives to fish migration to tell their story to the world! Another important aspect of WFMD is that it creates a feeling of **hope and a sense of achievement**. It also gives local organizations a voice. There were many special moments where event hosts got to proudly share their achievements. For example in the Cape Elizabeth Land Trust in the USA could share results of their alewife monitoring project with the public. Kruger national Park could show what they were doing at fishways in this South African wildlife nature reserve, ITAIPU could boast about their program to release millions of migratory fish back into the rivers, research centers such as Sofia University's Department of "General and Applied Hydrobiology" in Bulgaria opened their doors to the public, North Coast

Local Land Services from Australia hosted a field day showcasing improvements made to fish passage and river rehabilitation achievements and this is just to name a few. Giving organizations an opportunity to tell others about their accomplishments and to discuss future possibilities is essential to keep them motivated to continue the amazing work that they have achieved. The WFMD is important for **bringing people together** who are working on fish migration from all around the world. Building a network of over 2000 organizations working toward similar goals is astounding and increases exponentially the opportunities to connect with one another. There were indeed examples of future activities that resulted from WFMD: eel citizen science organizations that were involved with WFMD now want to cooperate and develop an international citizen science knowledge exchange network. Another example was the talks of further cooperation between Europe and Bangladesh to improve fish migration, within a Swimway program. One area for future WFMDs planning is to facilitate better and more connections and collaborations among participants.



A tribute to the event hosts

We could never have dreamed of the amazing success we achieved with WFMD2016, which is all thanks to the enthusiasm, dedication and commitment from all event organizers. Without the involvement of people at the hundreds of locations worldwide, WFMD would not be possible. Thank you to our amazing participants, without you WFMD would not be possible!

Thank you!

What next?

How we move forward



WFMD2018

81% of the participants from 2016 indicated they want to participate in WFMD2018. Some also indicated that they would also like to see WFMD every year. As one participant phrased it, "fish migration is a natural annual event, so we will be organizing an event in 2017 too". So why don't we organize WFMD every year?

Having a WFMD every second year gives us enough time to build it up properly, to create a big impact and to help us make it that much more special. Of course, we encourage everybody to celebrate as much as you think is needed. If you do decide to celebrate before the next WFMD, feel free to keep us in the loop.

We also got very interesting responses to a question regarding what people would like to see in WFMD2018. This will be celebrated on May 12, 2018!

We included some quotes from participants relating to the individual projects, WFMD outcomes and fish migration. We were happy to get feedback from some participants that identify specific areas of work or messaging that we could incorporate, long-term into the World Fish Migration Platform (LINK). WFMD is one of the core activities of the WFMP, a place where additional strategies can be developed (Webinars, On-line Networks, Conferences, Demonstration Projects) to stimulate efforts to create awareness, share knowledge and build solid networks on a global scale around the theme of fish migration and free flowing rivers. Within this platform there are various activities around the theme connecting fish, rivers and people, including webinars, swimway poster, Fish Passage conference coordination, case studies and others. For more information regarding the World Fish Migration Platform and to get more involved please contact us: info@fishmigration.org

Noteworthy activities to focus on in the future, based on comments from participants

- Policy makers: more activities or guidelines that could help people to connect with policy makers easier
- Developing school programmes: activities/ guidelines to connect with schools
- Event organisers: Stimulating cooperation/s between WFMD event organisers
- Financial support: Stimulating financial support facilities for a number of events
- Promote action oriented programmes for future WFMD activities
- Creating stronger networks: creating networks and collaborations with those who will be interested to assist or collaborate, on long term basis, in researches on migratory fishes
- Case studies: Compile a report on the results and case studies where WFMD 2014 and 2016 promoted improvements or changes
- Videos: gather a compilation of successful fish migration happening all over the world

Next WFMD: May 12, 2018

Mark your calendar! It's going to be fun, inspiring and with lots of Happy Fish!



WFMD2018

What would people like to see in WFMD2018?



"a WFMD week instead of day... to attract politicians and visitors and fish experts"

The Netherlands

"some motivational competitions for stakeholders, not given ballot of all stakeholders on the best video feed or attraction"

Slovakia

"removal of a large dam in a main stream of a german river : for example Rhine (Iffezheim) or Weser (Bremen-Hemelingen)"

Germany

"more event than 2016, and more international media coverage"

Italy

"Maybe something like "What does success look like?", but also describe some problems that may have gone under the radar"

Japan

"We need to look at including marine species that travel the oceans as well and are facing challenges in this environment as well"

South Africa

"More effective coordination and assisting in creating networks and collaborations who will be interested to assist or collaborate, on long term basis, in researches on migratory fishes"

Ethiopia

"A sunny day. :))
Anything will be perfect!"

Spain

"Initiatives taken for migration of fishes, mainly in white water rivers of India, where dams are being built"

India

"A focus on Indigenous efforts, especially in the U.S.A where the tribes have spearheaded efforts to promote healthy fish migration and put considerable economic resources into these efforts"

USA

"Videos of successful fish migration happening all over the world!"

USA

"WFDM net meeting and WFDM channel sending program from the events for 24 hours"

Finland

The team behind WFMD

The team, sponsors, partners and organizers












The team

Under the leadership of Herman Wainningen, Director of the World Fish Migration Foundation, there was a dedicated team of passionate people working to develop World Fish Migration Day 2016. It was centrally coordinated in the Netherlands and guided under the World Fish Migration Platform Steering committee, which consisted of representatives from the 7 Partner organizations: WFME, The Nature Conservancy, WWF, FFSG-IUCN, Linkit Consult, Regional Water Authority AGV and Regional Water Authority HHNK.

Project manager Joost van Deelen, together with Event manager Pao Fernández Garrido and marketing manager Bas Deelman made coordination possible with the help from Roel van der Molen, Sandra Chevret, Kerry Brink, Lissie de Groot, Raven Cammenga and Lonneke Fust, Jeroen van Herk, Joshua Royle, Zeb Hogan, Brooke Atwell, Ian Harrison and the Washington DC kickoff team with TNC and WWF. We would like to extend a special thank you to Sandra, Lissie and Raven, who dedicated many hours of their help to WFMD as volunteers to this special day. This document is written by Kerry Brink and designed by Bas Deelman. We have selected the pictures carefully for this report, if you see any mistake contact us via info@fishmigration.org

Supporters

WFMD was also supported by many organizations and agencies around the world, who helped us communicate and reach out to others. This included 11 sponsoring organizations and 62 supporters, who all contributed in some way to creating awareness about WFMD. A BIG thanks to our partners, supporters and sponsors! [Check out all supporters here.](#)

 Joost van Deelen Project manager	 Herman Wainningen Marketing and communication	 Pao Fernández Garrido Event coordinator
 Kerry Brink General communication	 Bas Deelman Marketing and Design	 Roel van der Molen Event marketing and website management
 Lonneke Fust Education Project manager	 Sandra Chevret Event management	 Joshua Royle Partner & Steering committee chair
 Raven Cammenga Event management, assistant	 Lissie de Groot Event management assistant	

Partners



Sponsors



Proposed Construction of 20 New Dams Threatens Newly Discovered Biodiversity in Northern Peru's Marañón River

Nathan K. Lujan

University of Toronto Scarborough, and Royal Ontario Museum

When I first visited the Marañón River as leader of a mostly North American scientific team in August 2006, I approached the river and its reputedly fierce indigenous inhabitants – the Aguaruna – with trepidation. The last North American ichthyologist who studied the Marañón – Don Stewart, now faculty at SUNY Syracuse – was forcibly evicted from his camp on the Santiago River (a Marañón tributary), causing him to abandon his specimens and seek assistance at a nearby military base. Around the same time, the German filmmaker Werner Herzog was forced to abandon his Santiago River set for the movie *Fitzcarraldo*, with much of his equipment being either burned or thrown in the river. More recently, a pair of American college students had been attacked while rafting the Marañón, with one of them killed and the other shot, an event that received a poignant retelling in *Outside Magazine*. My nerves were not settled when, upon searching Google for 'Aguaruna' images, the only photos returned were of shrunken heads ('tsantsa'), for which the Aguaruna had once been a world-famous source.

Despite their history of repelling outside invaders since at least the Incans, who repeatedly and unsuccessfully tried to conquer them, the Aguaruna were beginning to confront unassailable external threats to their resource-rich territory by the time my team and I arrived. An oil pipeline had recently been laid along much of the middle Marañón, and with it had come a stream of government and business interests seeking to exploit divisions among the Aguaruna. At Aguaruna checkpoints along the road to the regional capital of Santa Maria de Nieva, we were repeatedly asked for shotgun shells, which they seemed to have grown accustomed to receiving from other visitors. Of course, we had no firearms or ammunition, so we distributed batteries instead.

Once in Santa Maria, my Peruvian colleagues and I met with the town's mayor and the head of a local Aguaruna council. We explained our mission, where we wanted to visit, and what we wanted to collect. The Aguaruna representative whom we met assured us safe passage and provided us with a captain to hire and a boat to rent. We had what appeared to be comprehensive Aguaruna authorization to sample the main channel of the Marañón and even visit some more remote Aguaruna communities on the Cenepa River. In addition to two Peruvian colleagues from Peru's San Marcos Museum of Natural History in Lima (Darwin Osorio and Blanca Rengifo), our team consisted of three (Fig. 1) ichthyologists from Auburn University (myself plus Donald Taphorn and David Werneke), two fish ecologists from Cornell University (Alex Flecker and his then PhD student Krista Capps, now faculty at U. of Georgia), and Donovan German, a fish nutritional physiologist who was then completing a PhD at the U. of Florida and is now faculty at UC Irvine. In addition to thoroughly surveying fish diversity in the area, our team was planning to study the ecology and nutritional

physiology of wood-eating catfishes, which only occur in tropical South America and exist nowhere at greater diversities and abundances than in the Marañon River.



Figure 1. Expedition team. Photo: N. Lujan.

With the potential to discover new species palpable, I prioritized sampling the most remote habitats I thought our team could reasonably reach: headwaters of the Cenepa River, which drain the mountainous border region between Ecuador and Peru. We set off on our day-long boat trip to the mouth of the Cenepa on the morning of July 31. On August 1, in a gravel shoal in the lower Cenepa, our team collected the first of what would become five new fish species discovered by our expedition. This first discovery was a suckermouth armored catfish (Loricariidae) with large eyes and a distinctive golden sheen when held in the sunlight. The osteology of this species was so enigmatic that my PhD advisor and I eventually described it as a new genus and species (*Etsaputu relictum*; although molecular research work would later reveal that it is actually an unusual member of the already described genus *Peckoltia*; Fig. 2). Unfortunately, our work in the Cenepa was cut short by high water and repeated, lengthy negotiations with local Aguaruna groups, including ungrantable requests for generators and essential pieces of our scientific equipment. We therefore headed back downriver to the Pongo de Manseriche where, luckily, more discoveries awaited us.



Figure 2. Peckoltia relictum. Photo: N. Lujan

In Peru, a pongo is any dangerous or turbulent stretch of river, and the Pongo de Manseriche (Fig. 3) is one of the most notorious of these stretches in all of northern Peru. It occupies a narrow gorge through which the mighty Marañón River breaks out of the Andes Mountains and into the Amazon Basin proper. It features sheer rock walls and only a few small boulder fields at its top end where it is safe to enter the river and work. On our first night sampling one of these boulder fields with a backpack electrofishing unit, we collected two specimens of the most spectacularly beautiful loriciid catfish species I had ever seen. A slight pink tinge of muscle was visible through their lateral body plates, which had the white translucence of quartz. In addition to small eyes and a distinctively gracile body, they had long caudal-fin filaments that trailed behind them like

streamers. I would eventually give this species the epithet '*pankimpuju*', meaning 'beautiful white' in the Aguaruna language, and these two type specimens remain the only two specimens of its species in natural history collections today (Fig. 4).



Figure 3. Pongo de Manseriche. Photo: N. Lujan.

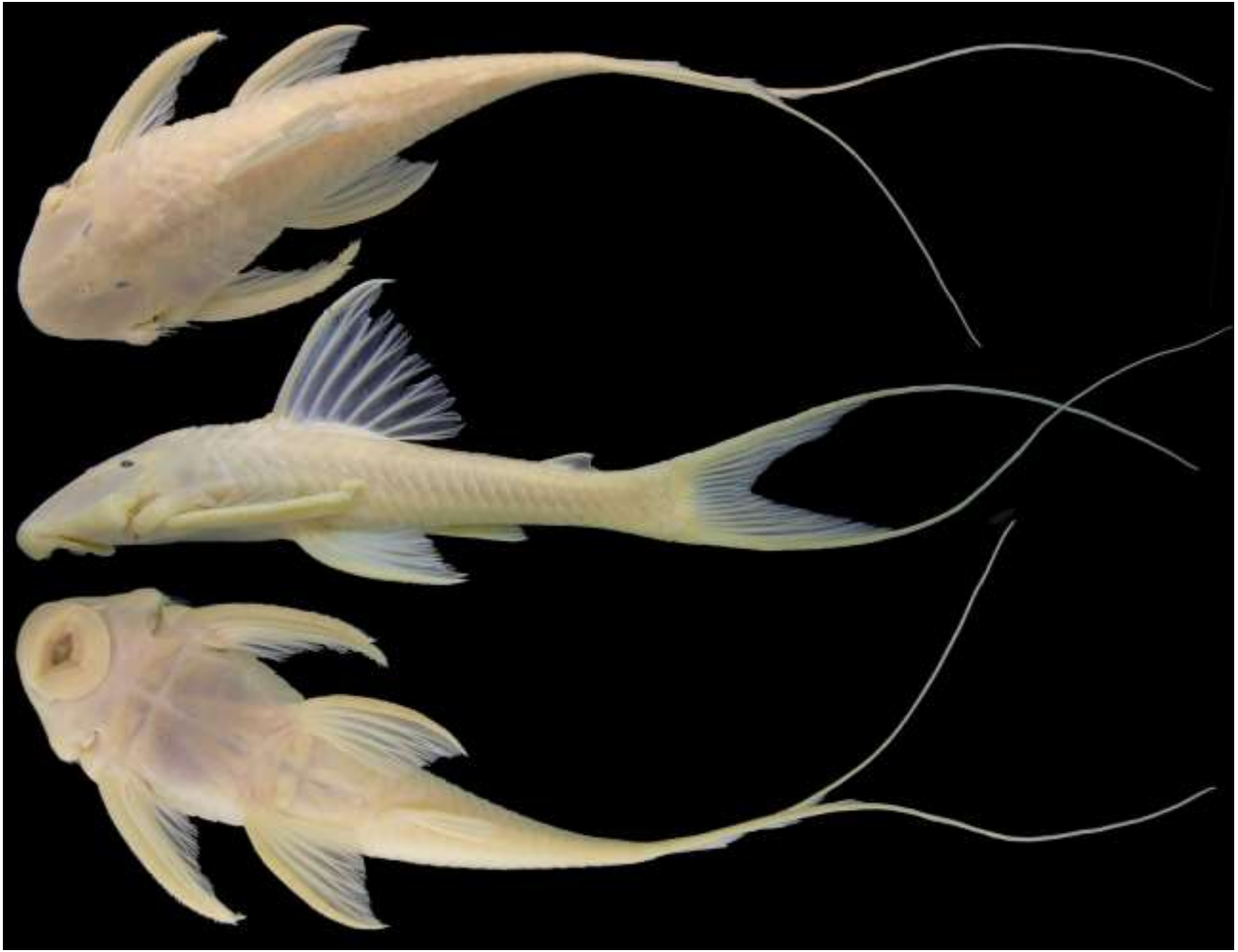


Figure 4. *Peckoltia pankimpuju*. Photo: N. Lujan.

In addition to our discoveries of the species now known as *Peckoltia relictum* and *Peckoltia pankimpuju*, we collected specimens that would provide the foundation for three other new species descriptions (the loricariids *Chaetostoma trimaculineum* and *Panaque bathyphilus*, and the auchenipterid *Gelanoglanis travieso*). Ranging from beautiful to bizarre, other interesting Marañon River catfishes that we collected include the loricariid *Lasiancistrus schomburgkii* (Fig. 5), and the aspredinids *Amaralia hypsiura* (Fig. 6) and *Ernstichthys cf. megistus* (Fig. 7). We also made great strides in understanding the ecology and physiology of wood-eating catfishes. Donovan dissected and froze intestinal samples of several wood-eating catfish species and used these as the basis for a chapter of his PhD dissertation, and I focused a chapter of my PhD dissertation on the functional diversity of wood-eating catfish jaws. We would ultimately publish five papers on these topics and we continue to study this material until today.



Figure 5. Lasiancistrus schomburgkii. Photo: N. Lujan.



Figure 6. Amaralia hypsiura. Photo: N. Lujan



Figure 7. *Ernstichthys cf. megistus* . Photo: N. Lujan

Since our expedition in 2006, there have been no concerted, large-scale efforts to document the distinctive biodiversity and ecology of the Marañón River and its tributaries. Many parts of the watershed, such as the upper Cenepa River, remain totally unstudied and likely hold within them many more intriguing species that are unknown to science. Unfortunately, recent and ongoing efforts to commercially exploit the natural resources of the Marañón River have far outpaced scientists' efforts to understand this ecosystem. No less than 20 hydroelectric dams have been proposed for the Marañón River main channel upstream of the Pongo de Manseriche. If these dams are built, the still wild and poorly understood Marañón River, which has long been protected by the fierce reputation of the Aguaruna, will be tamed, and the unique habitats on which fishes that are found nowhere else in the world depend will disappear. With this rapid pace of change, opportunities to understand this river and its biodiversity in their natural state are beginning to dwindle. Fortunately, a fledgling NGO called Marañón Waterkeeper (<http://maranonwaterkeeper.org/>) has formed with the goal of working to protect the Marañón River from unsustainable development. Team members from Marañón Waterkeeper have also been involved in the production of a documentary, *Serpent of Gold*, about the river and the threats to it and the people who rely on it. The documentary follows the story of local people who are fighting to retain sovereignty over their lands, intertwined with national and international perspectives on development of large scale hydroelectric dams.

For two trailers go to:

<https://www.youtube.com/watch?v=TXcf8Ynz7iY>

<https://www.youtube.com/watch?v=uj5q4gB5HZc>

Marañon Waterkeeper needs assistance from scientists in the form of water physicochemistry and aquatic biodiversity data collection and analysis. In addition, they are compiling published information about the river, including information from the grey literature, included in local and regional reports, and they would be interested to hear from anyone who would be interested in helping with that literature review. If you would like to help, you can contact FFSG technical Officer, who can compile information and send this on to Benjamin Webb, the International Coordinator for Marañon Waterkeeper.

Never too young to learn

René Beaumont

Continental Trout Conservation Fund

How to get the future generation involved in aquatic ecosystem conservation?

The Continental Trout Conservation Fund (CTCF; <http://www.continentaltrout.com/spain/>) strongly believes that education the best way to raising awareness of the values of our natural heritage. As always the challenge is “how to?” Plain teaching will not work; most learning is not the result of mere instruction. It all comes down to providing the proper conditions so people can and will understand why something matters. Especially when working with youth, this is more a matter of arousing enthusiasm rather than emphasizing facts. Facts change. Enthusiasm for exploring the mysteries of the world does not. It remains for life.

Intercontinental Trout Masterclass

In 2014 we realized our first major event in Tolmin, Slovenia. During one week some 25 young enthusiasts (age 18 – 30) were introduced to what conservation is really about, trying to raise them to future leaders, and empower them. For this occasion we had assembled a cadre of senior experts from a multitude of disciplines and from different countries, continents, and cultures. The Masterclass featured a unique and eclectic mix of lectures, workshops, and introductions, and catalyzed the exchange of visions and ideas between all attendees, across the generations. We managed to raise the youth’ awareness of the role they could play in freshwater conservancy processes right from the very start, and showed them how to become serious players in the field. By doing so, we laid the foundation for a network of freshwater conservation stewards, for the next generation, to whom we can hand on the torch; with confidence.

Rivers in the classroom

Since that first event, CTCF (together with AEMS Rios con Vida, Spain) has been working on an educational format that targets children between the ages of 10 and 14. It aims to unlock the mysteries of the underwater world and, at the same time, emphasize the vulnerability of aquatic ecosystems as the very source of life. Through basic explanation about ecology and biology, and lively video presentations we bring the river to the children in the class. During in-class sessions, live young trout feature as a study object. In order to enhance the impact, we also take the children to the rivers, where they do some sampling themselves, and witness electroshock fishing for trout. Commitment and engagement to conservation are encouraged by offering these children the opportunity to become part of a junior conservationists’ network, under the CTCF-umbrella and connected with the already, well established networks of CTCF and that of its partners. Empowered with the tools, resources, and connections that they need to galvanize constituencies in their localities, these children are provided with the support they need to advocate for and implement grassroots freshwater conservation campaigns in their communities, and beyond.



Pilots were held in Spain, Albania and Iran. The outcome of these is being developed further with the respective NGOs and institutions partnering with CTCF, into a pan-Eurasian format, flexibly adaptable to local/national culture and conditions. We are convinced that this approach is a truly meaningful and effective way to get children connected to their environment, and to make them the best of guardians of natural heritage.

The ultimate goal

Our project clearly goes into the value of conservation in terms of natural heritage and biodiversity. This, however, is just one aspect, since it is the socio-economic impact that really counts here. How? A well-guarded and sustainably managed ecosystem holds a potential for non-aggravating ecotourism (e.g., fly-fishing, kayaking, hiking, mountain-biking, bird-watching), which is very well compatible with conservation. What's more, such tourism is known to generate funds through entrance tickets, permits, payment to guides, donations etc. This sustains conservation, and allows continued management and conservation measures to be taken, which are key for successfully promoting the area as a desired destination. Since ecotourism needs infrastructure, jobs can be created by starting a business in the local tourism industry (e.g., guides, hoteliers, tour operators), and for those who wish to be employed therein or work on its behalf in any which way. Thus it enhances prospects in rural areas where the perspectives are "rather poor", as such, and especially for their youth. Our goal, in brief, is to bring prosperity, the wild trout being the means, and key.

To Parliament

We wish to bring this project under the attention of the European Parliament, without any delay. Should you be able to help connect us with an enthused MEP, please do not hesitate to contact us.

Contact: René Beaumont (President): rb@continentaltrout.com

More information: www.continentaltrout.com



IUCN Water/IUCN Species Freshwater Dialogue Series at the 2016 World Conservation Congress, Hawai'i

Compiled by Ian Harrison¹ & Richard Sneider²

with input from several other FFSG members and partners as noted below

¹FFSG Technical Officer; ²FFSH Global Chair

Staff of the IUCN Secretariat Programmes of IUCN Water and IUCN Species collaborated with members of SSC's Freshwater Fish Specialist group, SSC's Freshwater Conservation Subcommittee, WCPA's Freshwater Specialist Group, GEO BON's Freshwater Ecosystem Change Working Group and several other partners to plan a series of freshwater focused events at the Congress.

As noted in the promotional flyer (Figure 1), much of this was focused around the objectives of promoting a Union-wide strategy on freshwater conservation, and building commitment to collaborative action on freshwater conservation. An important activity associated with these events was the submission of a late Motion at the Congress calling for a *Union-Wide Strategy to Raise the Urgency of Freshwater Biodiversity Conservation* (see page 65 of this newsletter).

A summary of several of the sessions (focused in particular on those that discussed freshwater biodiversity) is given below. **These sessions culminated in a summary session at the IUCN Species Pavilion (see page 61).**

IUCN

FRESHWATER DIALOGUE SERIES

How can we scale-up and accelerate the Union's impact on freshwater biodiversity conservation?

A series of events to create and build a discussion through the Forum on how IUCN – through collective and coherent action among Members, Commissions and relevant Secretariat units – can have more impact on conservation of freshwater biodiversity.

THE AIM IS TO

- 1 promote a Union-wide strategy on freshwater conservation and
- 2 build commitment to collaborative action on freshwater conservation

Opening session:
12169 – Water Pavilion
Sept 2nd 13:00-14:30

Freshwater conservation strategies – new approaches to expanding the impact of the Union

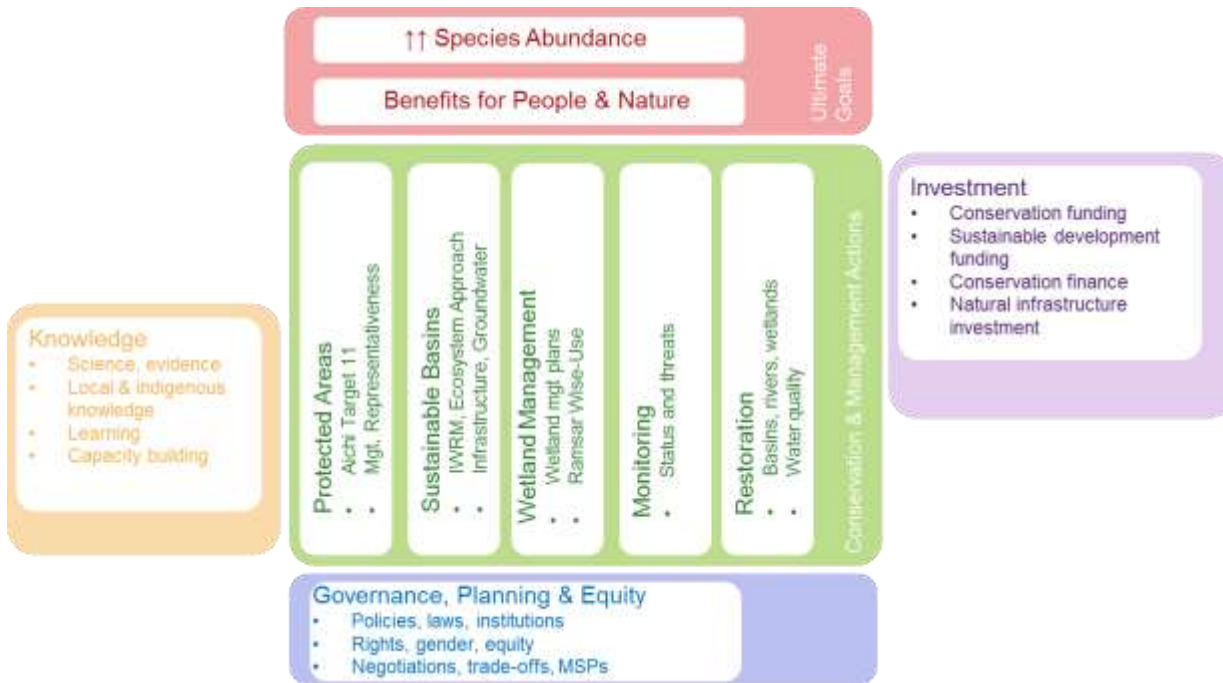
IUCN World Conservation Congress Hawai'i 2016

Figure 1. Freshwater Dialogues promotional flyer

1. Freshwater Conservation Strategies – Water Pavilion session, September 2

The Freshwater Dialogue series started with an event on **Freshwater Conservation Strategies** at IUCN's Water Pavilion (<https://portals.iucn.org/congress/session/12169>).

This session presented the framework below, as a basis for discussion of strategy.



Several comments were made, providing guidance on how to improve this Framework. Missing elements in the Framework include:

- Knowledge sharing, education
- Communications
- Financing, alongside investment
- Environmental flows
- Planning and optimizing infrastructure
- Private sector engagement
- Scaling up strategies

Outcomes, also to be considered include:

- Measuring ecosystem functionality and integrity, rather than species abundance
- Climate change resilience

IUCN Water were closely involved in coordinating, or participating in several other sessions that focused on water, ecosystems and sustainability, and the key messages were summarized at the closing session in the IUCN Species Pavilion (see pages 61-64).

2. The *Blueprint for Freshwater Life* - review of progress and identification of next steps. Knowledge Café, September 2.

The *Blueprint for Freshwater Life* is a newly developing initiative combining research, exploration, education, conservation planning, and diverse communications media to raise awareness of freshwater ecosystems, their species, and the threats they face. A preliminary statement of intent for the *Blueprint for Freshwater Life* is given on the FFSG website at <http://www.iucnffsg.org/blueprint-for-freshwater-life/>.



Figure 2. Participants at the *Blueprint for Freshwater Life* Knowledge Café. From left to right: Topis Contreras MacBeath (IUCN SSC Freshwater Conservation Subcommittee); Helen Meredith (Synchronicity Earth); Michael Cooperman (Conservation International); Ian Harrison (Conservation International/IUCN SSC Freshwater Fish Specialist Group); Eren Turak (GEO BON); Judy Fisher (IUCN Thematic Group Invasive Species & Ecosystems). Photo by Michele Thieme, WWF-US.

The objective of this session (<https://portals.iucn.org/congress/session/9724>), led by Will Darwall (IUCN Freshwater Biodiversity Unit) and Ian Harrison (IUCN SSC Freshwater Fish Specialist Group), was to identify possible projects that can serve as pilots for the *Blueprint*, discuss how to promote the *Blueprint* most effectively to a diverse audience, identify key partners or supporters of the initiative, and identify possible

funding opportunities. It was attended by 15 other experts from research institutes, NGO's, museums, Specialist Groups, a communications organization (National Geographic) and a conservation focused Foundation (Synchronicity Earth).

The key points that were discussed are summarized below.

- i. **The current plan of the *Blueprint* possibly attempts to encompass too much.** We need to clearly identify:
 - Who is it we are trying to serve/influence by the *Blueprint*.
 - What, specifically, is our intended product for the *Blueprint* and why is that product important?
 - Who are we looking to support the *Blueprint*, and for how much?
- ii. **For comparison, the *Census of Marine Life* was focused on science and discovery**, incorporating global to regional scale analyses, and its objectives were based on manageable field programs.
- iii. **Possible priorities for the *Blueprint* should be awareness and information gathering**; but it will be important to clearly identify what issues are the ones that will resonate with the public, and gain interest.
- iv. **Create an alliance with a 'champion' for the cause, and have a focused message.**
- v. **Perhaps focus on raising awareness within IUCN**; address issues that are important to IUCN.
- vi. **It is important to have key science questions behind the projects that are part of the *Blueprint*.**
- vii. **Perhaps focus on an explicit goal that can help improve overall capacity to monitor the status of freshwater biodiversity.** For example:
 - the *Living Planet Index*, which everybody cites as an indicator of the peril of freshwater biodiversity, represents a very important tool to promote our messages. But it needs to be made more representative and equitable in its taxonomic and geographic coverage
 - focusing attention on 25 species of particular interest
 - focusing on 25 key wetland sites; monitor them, and restore them
- viii. **However the *Blueprint* is developed, it will be important to map out a *theory of change* for the *Blueprint***; how it is expected to (and achieve) change in freshwater conservation. There needs to be a process for measuring success of the project (i.e., that it is working and successfully achieving its goals).

3. Sustainability and Livelihoods in the Home Aquarium Trade. Knowledge Café, September 2.

The following session summary was kindly provided by Kira Mileham (Head of SSC Specialist Group Partnerships).

The objectives of this session (<https://portals.iucn.org/congress/session/9797>) led by Richard Sneider (FFSG Global Chair) and co-planned with Scott Dowd (New England Aquarium; Chair of the Home Aquarium Fish Subgroup of FFSG) were to:

- Identify the best opportunities and methods to foster and promote socioeconomic and environmentally beneficial freshwater fisheries for the global aquarium hobby.

- Brainstorm ways to collaborate to share in science communities about consequential impacts such as livelihoods, carbon, biodiversity, and the IUCN Red List of Species.
- Select three project ideas to pursue with attendee organizations to assess the consequential impacts
- Discuss next steps and leadership contacts.

The session was attended by fifteen representatives from research institutes, NGO's, zoos and aquariums, the pet trade, IUCN Specialist Groups, foundations and other funding organizations. Discussion at the session showed that a three stage approach is needed:

- i. **Ensure the science demonstrably supports this approach across multiple case study species and regions** (beyond the exemplary *Project Piaba* model). For example, can we back up the *Project Piaba* model? A thorough exploration is needed into the impact of a range of case studies for sustainable freshwater aquarium fisheries, through a combination of counterfactual and potentially pre/post or comparative studies. **Actions to achieve this include:**
 - Support for this research to be sought through a partnership with the aquarium community for a dedicated program office to undertake a 12 month study
 - Links to be explore through the IUCN Sustainable Use and Livelihood Specialist Group (SULi) to potentially expand the study across taxa to be broadly about assessing impact of sustainable use operations
 - Identification of suitable case studies – across regions and species (and potentially taxa)
 - Also consider expanding research into longevity and health of wild caught versus tank raised individuals
 - Conduct and disseminate impact assessment and evaluation.

- ii. **Explore feasible options for “bringing the fish to market” – e.g., traceability, certification schemes and market partners.** However, certification has several implementation challenges.
 - Certification schemes rely on large biomass, and ornamental fishes don't have the level of biomass to make it business viable.
 - It may be better to link into an existing system rather than start a new certification scheme
 - The value of Certification schemes depends largely on the credibility and capacity of the source country – making it difficult to establish as an international approach
 - Certification is costly and requires continuous management.

Some solutions to these problems are:

- Potentially instead, set up governmental monitoring on a case by case basis as models
- Explore the economics (e.g., how far does the value chain extend and what is the production versus market
- Investigate the growth potential for a developing market – e.g., emerging economies engaging in pet market.

However, Certification may be the key to protecting markets and engaging buyers. For example, Rosie Cooney (Chair of SULi) gave example of bird project that failed due to EU regulations. The EU closed its

doors to all wild bird imports. We should be aware that groups exist that would try to close down all this trade – **so certification may be the key to protecting markets.**

The Blue Planet initiative in the World Bank is very timely; they may help support sustainable livelihood initiatives and schemes.

Actions to achieve this objective on how to successfully “bring the fish to market” include:

- Create alignment with the Ornanemtal Aquatic Trade Association (OATA) report and reach out to the World Bank Blue Planet Initiative
- Continue building links with SULi to understand approaches across different taxa
- Take results of research project in (i) to inform discussions.

iii. **Build the market – through community engagement, promotion and partnerships.** This step will require information gained from (i) and (ii) above. Some points raised were:

Project Piaba – supports a trade of 20 million fish per year – a penny per fish double their value to fisherman

How can we convince the next generation to give preference to wild caught versus tank bred

Often wild caught fish are cheaper than tank raised?

4. World Fish Migration Platform: creating awareness on fish migration and free-flowing rivers.

Knowledge Café, September 2.

The World Fish Migration Platform, and World Fish Migration Day (WFMD) are initiatives to increase worldwide awareness of the importance of freshwater migratory fishes and of free-flowing rivers, with an aim to influence policies for free-flowing river management at a global level and increase community’s connections to their rivers and fish runs. The global coverage of these initiatives has increased significantly since the first global event in 2014. See pages 17-31 in this newsletter for a summary of the 2016 WFMD.

The session (<https://portals.iucn.org/congress/session/9723>) was led by Zeb Hogan (University of Nevada at Reno/National Geographic; and FFSG Steering Committee; Fig. 3). The objectives of the session were to review past successes, and identify opportunities for how these initiatives can expand, and where these programs can have most effect, with the public and influencing policy, into the future. The session was attended by 14 experts from research institutes, NGO’s, and a funding organization. The key points of the discussion were as follows.



Figure 3. Zeb Hogan

- i. **More needs to be done with sharing the outputs of different people's activities at WFMD, and the data that come from these events.** This can help people feel more engaged in the overall impact and importance of WFMD, and make them feel that their event has made a contribution to the objectives of WFMD.
- ii. **It would be useful to develop webinars where people who have been involved in organizing WFMD events can discuss them.**
- iii. **Events should be broadened to more than just the single day of events;** instead, develop projects that can build over time. For example, an ongoing plan to monitor a river and report back on WFMD.
- iv. **There should also be research projects with specific outputs that are released on WFMD** to draw more media interest to the day, and indicate some of the science and research that is focused on migratory fishes and free flowing rivers (e.g., a report on the *Status of Migratory Fishes*; a map of migratory pathways; a study of change in migration due to climate or other threats).

5. Managing protected areas to conserve freshwater biodiversity and ecosystem services. Knowledge Café, September 3.

The objective of this session (<https://portals.iucn.org/congress/session/10379>) led by Ian Harrison (FFSG Technical Chair) was to identify some of the most urgent and practically achievable opportunities that we have for securing better management of protected areas. The session was very well attended by 23 experts from research institutes, IUCN Secretariat, NGO's, and a funding organization. The key points of the discussion were as follows.

The key questions raised at this session were:

- Are we protecting the right places?
- Are we managing protected areas effectively for freshwater biodiversity?
- What are our opportunities to make difference (e.g., within the private sector, and to policy)?
- How do we use this information (particularly from the first two bullets) to address the *2014 World Parks Congress* request to (i) identify legal, institutional and social factors that produce a good synergy between protected area management and water security management; and (ii) document, analyze and communicate examples of positive projects across organizations?

At the start of the session Ian Harrison gave a review of the outcomes from the *2014 World Parks Congress* (see FFSG Newsletter Issue 7, December 2014). Following this, the discussion addressed the following points.

- i. **Our first goal should be to review the representation of the different types of freshwater ecosystems in the current protected area networks, and look for gaps.**
- ii. **A significant and urgent challenge is also to strengthen the existing protection we have for certain areas.** We need to look more closely at our protection mechanisms.
- iii. **We need to integrate climate change adaptation into our plans for where we establish protected areas.**

- iv. **We need to develop a landscape approach, where protected areas are managed as part of a larger, integrated landscape management plan.**
- v. **For freshwater systems, it is particularly important to think about waters flows and connectivity.** It will be important to provide guidance on the upcoming document on *Areas of Conservation Connectivity*.
- vi. **We need to integrate diverse stakeholders into the decision making process and provide a constructive argument for the value of protected areas,** in order to convince government to invest in them.
- vii. **We must start with identifying the government commitments to establish targets; starting with the Aichi targets and SDGs** (these latter represent an extremely important opportunity for influencing policy, and identify KBAs as indicators for measuring progress to goal 15); then link this to the Paris Agreement and national commitments to Intended Nationally Determined Contributions (INDCs).
- viii. **Are there 'learning sites' that can be documented for identifying how protected areas can secure ecosystem services?** Can we provide accounts of management effectiveness.
- ix. **An important area of research and management is to address the problems of invasive species in freshwater ecosystems in protected areas.**
- x. **The WCPA Freshwater Specialist Group should be engaged in identifying opportunities for other effective area based conservation measures (OECMs) as conservation sites for freshwater.**
- xi. **The WCPA Freshwater Specialist Group should engage with Ramsar to assist in identifying potential Ramsar sites, and identifying poorly managed (Montreux record) Ramsar sites.**

6. Migratory fish - the challenges of balancing water development and ecological integrity in freshwater systems. Knowledge Café, September 3.

The session (<https://portals.iucn.org/congress/session/10361>) was co-prepared by Matthew Gollock (Zoological Society of London; Chair of the SSC Anguillid Eel Specialist Group) and Michael Cooperman (Conservation International; Fig. 4). It was attended by 15 people from research, land management, and conservation organizations.

The key points of the discussion were as follows.

- i. **The first step in dam planning should be an analysis of where dams should, or should not, be placed.**
- ii. **Dams and other infrastructure should be developed in the context of regional planning programs, managed by a regional management entity.**
- iii. **Dams are not green energy; there are environmental costs, and the effect on fishes are usually given low importance.**



Figure 4. Michael Cooperman

- iv. **It will be important to encourage wise investment with responsibility.** For example, create bonds associated with dam development; and, development of a dam in one watershed should be matched with investment in conservation of another watershed that has been identified as a conservation priority.
- v. **More consideration should be given to protected areas for migratory species** – migratory pathways are the key for adaptation to climate change.
- vi. **The World Commission on Dams (WCD) Report, published in 2000, includes “Recommendations for a New Policy Framework.” However, these are not being followed;** individual countries have not taken these on board and it is left to NGOs to deal with them. A possible role for IUCN is to make a recommendation to countries to start using these WCD recommendations.
- vii. **A possible output from this Knowledge Café would be to develop some of these discussion points into a ‘guidelines document’;** in particular, these guidelines should make more use of the Recommendations from the World Commission on Dams. The document should also address the objectives of the 2012 Resolution on dams, see:
https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2012_RES_89_EN.pdf.

7. Catalysing communication: Conservation action through core messaging. Workshop, September 3.

This workshop (<https://portals.iucn.org/congress/session/9663>) was planned and led by Will Darwall (IUCN Freshwater Biodiversity Unit), Harmony Patricio (FFSG) and Richard Sneider (Global Chair, FFSG; Fig. 5). The session summary is provided by Harmony Patricio.



Figure 5. Richard Sneider moderating the discussions at the Communication workshop. Photo: Harmony Patricio

A cadre of experts in diverse forms of communication came together to develop new messages to motivate action for freshwater biodiversity conservation at the IUCN WCC in Honolulu, Hawai'i. With an inspiring opening by documentarian Céline Cousteau (Figure 6), and adept moderation by our own FFSG chair Richard Sneider, the session fostered a broader understanding of developing messages that resonate with specific audiences.



Figure 6. Céline Cousteau opens the communication workshop. Céline is an expert in the use of visual media for communication of environmental and social issues, and was at the Congress also to promote her own film on such issues in the Amazon, *Tribes on the Edge* (<http://tribesontheedge.com/blog/80-2/>). Photo: Harmony Patricio

Operating somewhat like a focus group, the communication experts developed pitches aimed at convincing key sectors of the importance of freshwater biodiversity. The speakers ranged widely in expertise, from business leaders to an indigenous community organizer and activist. A second panel composed of representatives from key sectors with critical influence on the future of freshwater biodiversity shared their reactions to the pitches, offering insight into which angles are most effective for different audiences. The key sectors represented ranged from finance and industry to conservation organizations and media.

Live polling was used to engage the audience, fostering an interactive and dynamic experience. The questions for polling were designed to determine the backgrounds of audience members, and gauge whether they felt convinced by different pitches. While there were some audience members from private or public sector organizations, the majority identified themselves as conservation practitioners.

Given the audience segmentation, it's not surprising that the one message which seemed to resonate most with everyone was one of environmental justice, human rights and connection to the Earth. This inspiring two-minute pitch was delivered by Patricia Gualinga Montalvo; Director of International Relations for the Kichwa Community of Sarayaku in the Ecuadorian Amazon. The participation of private sector specialists also provided an essential perspective that needs more attention from scientists and conservationists, in order to convince industry and donors of changing their current practices or supporting freshwater conservation programs.



Figure 7. Participants from the Communications workshop with key messages for the Congress. Left to right: Will Darwall (IUCN Freshwater Biodiversity Unit, workshop co-organiser); Patricia Gualinga Montalvo (Director, International Relations for the Kichwa Community of Sarayaku, Amazon Watch, panelist); Nina Gualinga; Céline Cousteau (Director of CauseCentric Productions, session opening speaker); Adam Sweiden (Chairman, Synchronicity Earth). Photo: Harmony Patricio

8. Freshwater Fish Conservation, Food Security, and Livelihoods – Identifying Win-Win-Win Scenarios.

Knowledge Café, September 3

The session (<https://portals.iucn.org/congress/session/10381>) was organized by Steven Cooke (Carleton University), Abigail Lynch (USGS), Doug Beard (USGS), Bill Taylor (Michigan State University) and Andrew Song (Too Big To Ignore Network).

The following report is kindly provided by Steven Cooke.

When considering ecosystems, the services they provide, and how they are exploited [or degraded] by society, it is becoming increasingly apparent that it is impossible to decouple the concepts of conservation and societal development and well-being. This is particularly salient in the context of freshwater ecosystems and the inland fisheries that they support. Of late there have been a number of efforts devoted to demonstrating the value of inland fisheries yet rarely are conservation, food security and livelihoods considered simultaneously. Needed are efforts to identify win-win-win scenarios where diverse ecosystem services are achieved simultaneously. Failure to think holistically about these complex issues will most certainly lead to further declines in freshwater ecosystems and their services, including biodiversity, and have severe negative ramifications on some of the most imperiled peoples on the planet; ultimately impacting the global biotic community. At the IUCN meeting in Hawaii, a Knowledge Café was organized around the concept of identifying win-win-win scenarios related to freshwater fish conservation, food security, and livelihoods. The following questions were explored by over 20 participants from around the globe.

- i. What are examples of existing win-win-win scenarios? Or are they limited to win-win?
- ii. What are the characteristics of win-win-win scenarios? Are they transferrable and when does “context” matter?
- iii. Do we assume that conservation must always be a “win”?
- iv. Do “wins” need to be complete/unconditional or can they be partial/conditional?
- v. What barriers exist to developing win-win-win scenarios (e.g., governance structures, incentives, communication)?
- vi. Where do opportunities lie for developing win-win-win solutions in the future?

Those involved will continue to communicate over the coming months as we attempt to refine the ideas discussed and develop a manuscript to formally report and share our ideas with the broader community.

9. Linking knowledge on freshwater biodiversity, with planning and actions to achieve the 2020 CBD targets. Knowledge Café, September 3.

The session (<https://portals.iucn.org/congress/session/10377>) was prepared and led Eren Turak (GEO BON) and attended by 13 people from research institutions, NGOs, IUCN Secretariat, government agencies and funding organizations.

The purpose of the session was to ask participants to identify the most important actions they think should happen by 2020, in order to make progress towards the Aichi Targets. Each person then selected one of two actions which would be their area of focus for developing a research paper. They were asked to identify knowledge areas corresponding to these actions and, if there are gaps in these knowledge areas, then they proposed how these gaps should be filled and, if possible, give an estimate of how long it would take. Each person was then asked to identify the tasks necessary to move knowledge to action. The following tasks and actions were identified.

Action required to address CBD targets	Knowledge needed in support of action	Tasks required to move knowledge to action
Strengthening governance capacity, for river basin plans, with inclusion of environmental flows. Develop a river basin approach with basins/watersheds as logical planning units, as functional social ecological systems		Review existing watershed planning tools. Develop a watershed plan through collaboration of IUCN Water program, IUCN climate program, Ramsar Program 2016-2024 aligned with Aichi targets. The plan must balance conservation needs with development
Removing instream barriers & prevention of new barriers where unnecessary	Global map of barriers/potential barriers	Summary of current knowledge and data layers on barriers
Enhancing connectivity of freshwater ecosystems to improve biodiversity conservation; develop transboundary fish management solutions		Quantifying connectivity in freshwater ecosystems.
Control of Invasive species (Target 9)	Invasive species threat map	Describe an invasive species dashboard for freshwaters, identify existing dashboards that can be used and how they might be improved
Overharvesting (Target 6): (possibly focusing on freshwater megafauna & sustainable management of threatened megafauna	Biodiversity information on target species.	
Integrate aquaculture with wild fish harvest management. Ensure that the managements in complementary (Target 7)	Rome declaration	

Action required to address CBD targets	Knowledge needed in support of action	Tasks required to move knowledge to action
Establishing a global awareness of freshwater conservation (Target 1)		Ensuring we have an informed public with the political will to act.
Develop globally comprehensive assessments of freshwater species in the IUCN Red List (Target 12)		Identify initial priorities for regions and taxa to fill gaps
Prioritized action for developing freshwater protected areas for the regions/ecosystem types where they are most needed (e.g., possibly upstream protection) (Target 11)	Systematic conservation planning. Development of HydroAtlas 2000 attributes.	
Valuate effectiveness of existing protected areas (Target 11)		Enforcement towards unsustainable practices (especially KBAs) .
Develop climate adaptable forward planning for protected areas (Target 11)		
Increasing the evidence base of natural value of ecosystems in combination with infrastructure value(Target 14)		Describing demonstration sites; working with those doing the planning.
Put in place a global framework of payment of ecosystem services to represent degradation of water resources (Target 14)		
Reduce pollution from agriculture (Target 8)		Develop regulations about controlling water pollution; make these regulations closely fit policy goals
Increase knowledge of freshwater invertebrate species. Identification		
Assess INDC's for climate mitigation in relation to forests .		
Address problems of disruptive knowledge. New knowledge generates disruption to old knowledge		

The table above is an initial draft. Session leader, Eren Turak, is leading subsequent work on this, to develop the concepts further.

10. Ecological flows for rivers and wetlands. Knowledge Café, September 4.

The session (<https://portals.iucn.org/congress/session/10378>) was prepared and led by Rebecca Flitcroft (US Forestry Service; WCPA Freshwater Specialist Group, Fig.8) and attended by 23 people from research institutions, NGOs, IUCN Secretariat and Specialist Groups, government agencies, and the private sector.



Figure 8. Rebecca Flitcroft

The main points of discussion were as follows.

i. Issues to be expected in coupled human and aquatic systems as a result of dam construction - Ecosystem Services

- A significant problem is that when water allocations for flows are quantified, biodiversity is usually low on the list only after other services have been met.
- It is very hard to quantify ecosystem values beyond the most obvious (e.g., water provision, fisheries resources); and even then, components such as fisheries resources from a river are often viewed as less valuable than power production from that same river when it is dammed.
- The biological data are not always easily available for quantifying their value against direct use of the water system itself, and this is a major challenge.
- But water engineers etc. need whatever data we have, so we must be bolder with the data we have. We should use the biological data we have, and include a strong caveat that the only way to improve the accuracy of our predictions for sustainable ecosystem management is via more funding to do the research we need to get better data.

ii. Challenges for defining e-flows to cope with social, economic and ecological demands in small and large basins - Water Resource Management

- This requires 'assessing the boundaries of what is normal', which requires:
- Understanding the life histories of systems
- Accounting for extreme events
- Comparing small v large wetland systems.

iii. Problem areas with E-flows - Ecological Dimensions

- It can be difficult to bring multiple data sets together
- Life history information is necessary
- There are complex database needs.

iv. Formulating best practices for identifying problems in e-flow management

- Definition of ecological dimensions should have integrated flows (for integrated management) as a critical component.

v. **Other key messages from the session**

- We need to look carefully at whether the paradigm for promoting eflows has passed. Has our management process moved beyond that, to something more inclusive?
- In response to the questions above, it was considered that eflows are important, and need to be mainstreamed into IUCN's messages for landscape management. Eflows are central to catchment scale management that integrates the river courses with the terrestrial environments around them. They are an important part of the management approach, but not the only part of that approach. Hence, an integrated approach is essential.
- Should we, therefore, refer to eflows under a new name such as 'integrated flows' that reflects this new approach? The general feeling was that we need to keep the name – people are beginning to grasp the complete meaning of eflows. To use some other name will only confuse people and lose the visibility of the messages that we associate with eflows.

11. What can fishermen's ecological knowledge contribute in the management of marine and freshwater systems? Addressing past experiences and future perspectives for better fish conservation and resources management. Knowledge Café, September 4.

This session (<https://portals.iucn.org/congress/session/10361>) was planned by Claudio Baigún (Wetlands International, Fig. 9) and led by Marjo Vierros (United Nations University). Marjo also kindly provided the following summary of the session.

The session was attended by about 20 people, from several different parts of the world. The key points discussed were as follows.



Figure 9. Claudio Baigún

- Traditional knowledge is not equivalent to data; it is part of a belief system and a culture. But it represents an enormously important and under-appreciated component of scientific analysis.** Fishers have a daily observation of change which is extremely important to large scale monitoring and management.
- In monitoring and management where communities and researchers are involved, a relationship with the community needs to be built first.**
- It is important to document and disseminate traditional knowledge before elders pass on.** There are several good examples of where this is being done (e.g. New Zealand, Hawai'i, French Polynesia).
- Traditional knowledge can be an important component of conservation assessments;** eg. IUCN Freshwater Biodiversity Unit try to include aspects of this in their freshwater assessments, particularly local knowledge of threats.
- Traditional knowledge must be integrated into biodiversity assessment.**
- Processes need to be put in place to help support traditional management systems.**

vii. **The environment is changing with climate change, and this may impact traditional knowledge.** It is important to ascertain whether traditional knowledge adapt quickly enough to allow communities to cope with climate change?

viii. Several open questions were raised:

- What is the best way to work with communities, including how to use fishers' knowledge? It would be good to learn from examples in places where this has been done.
- How do we balance rights and responsibilities to a place? Who pays the "costs" in the short term, vs. receiving the benefits in the long term?
- How do we sustain fisheries beyond subsistence?
- How can fishermen who are 'in survival mode' be expected to care about conservation?

12. Global mapping of freshwater ecosystems. Knowledge Café, September 5.

The following summary was kindly provided by Bernhard Lehner.

This session (<https://portals.iucn.org/congress/session/9781>) was organized by Simon Linke (Griffith University) and Bernhard Lehner (McGill University). Participants included several members of SSC and WCPA Freshwater Specialist Groups as well as representatives from the major NGOs such as Ian Harrison and Tracy Farrell (CI), Robin Abell (TNC) and Michele Thieme (WWF). Also represented were the IUCN (Will Darwall), the Freshwater Information Platform (FIP, Vanessa Bremerich) and the USGS (Roger Sayre).



Figure 10. Participants at session on mapping freshwater ecosystems. The session is being led by Bernhard Lehner, on left in blue shirt with laptop open. Photo: Simon Linke

The purpose of the workshop was to discuss a roadmap towards a unifying spatial framework for freshwater data – integrating ongoing global data projects such as the FIP, the IUCN species mapping, and Bernhard and Simon’s forthcoming global environmental database ‘HydroATLAS’. A major discussion point was models of governance, ranging from open source to completely proprietary models. The participants came to an in-principle agreement that a consortium of interested parties would be an ideal steering committee to oversee integration and maintenance of datasets.

The group discussed multiple steps forward, including grant opportunities, scientific publications, as well as a formal collaboration within Future Earth’s ‘Sustainable Water Future Programme’ (SWFP; <http://www.water-future.org/>).

13. Consolidating Partnerships for a Global Vision for Freshwater Ecosystems. Species Pavilion, September 5.

This session (<https://portals.iucn.org/congress/session/12466>) was jointly led by Ian Harrison (FFSG), Will Darwall (IUCN Freshwater Biodiversity Unit), Topis Contreras MacBeath (IUCN-SSC Freshwater Conservation Subcommittee) and Mark Smith (IUCN Water).

Ian Harrison gave a short report back on outcomes from sessions focused on freshwater biodiversity. The summarized points are below.

- i. **We face the challenge that freshwater biodiversity tends to be the last point of consideration in plans for ecosystem service assessment and development**, only after other utilitarian needs have been met. Thus, freshwater biodiversity remains at great risk. However, the conservation community has the tools and the expertise to address this challenge.
- ii. **The freshwater conservation community still struggles with getting our message across.** It has been noted that only about one third of the global population have a high level of interest in the environment and conservation, so there is a challenge to getting a conservation message out; especially for fresh water. It has been harder to find iconic species or charismatic messages for fresh water compared to terrestrial or marine systems. In addition, the strongest messages for fresh water tend to focus on its importance as an essential resource for human health and well-being, and less on the biodiversity. **But we do have opportunities for eye-catching projects to promote the freshwater message**, and we need to capitalize on them more. We need to find the mindset of the people who want to do something about freshwater biodiversity, and change the mindset of those who are blind to it.
- iii. **There is a lack of data about many freshwater ecosystems** – for example in terms of distribution of species, species abundance in ecosystems, extent of threat. **We need to increase our data and make our metrics for measuring the status of freshwater biodiversity more inclusive** (geographically and taxonomically); for example, we need to make the *Living Planet Index* more representative of freshwater biodiversity generally. **But, also, we should not be put off by our lack of data; many stakeholders need our guidance and can be frustrated if we are overly cautious. We should be ready to make conclusions and recommendations even when we feel that we have very restricted data.**

- iv. **We have important opportunities to show that freshwater ecosystems are sites of natural capital with inherent service value and value to local livelihoods.** Encouraging more integrated planning at the whole catchment scale will be a particularly important tool for freshwater management and biodiversity conservation.
- v. **Encouraging better oversight of dam planning is important, based on an early understanding of the biodiversity of the ecosystems in question,** well before discussion of development plans. The *World Commission on Dams Report* includes *Recommendations for a New Policy Framework*. These are not being followed; individual countries have not taken these on board and it is left to NGOs to deal with them. A possible role for IUCN is to make a recommendation to countries to start using these WCD recommendations.
- vi. **Better integration of environmental flows** into the activities of IUCN is important.
- vii. **Protected area and other effective area-based conservation measures (OECMs), and Areas of Conservation Connectivity** represent very important opportunities for achieving conservation of freshwater biodiversity and can be tied with indicators for the SDGs. However, we also need to identify which types of freshwater ecosystems are least represented in the existing protected area network, and fill that gap.
- viii. **We need to work closely with existing Conventions, multilateral agreements etc.** (e.g., Ramsar Convention, UN Water Courses Convention, SDGs) to ensure that the requirements of freshwater biodiversity conservation can be transferred into actionable policy that achieves conservation.

Mark Smith (IUCN Water, Fig. 11) gave a short report back summarizing the outcomes from sessions on focused on ‘water, ecosystems, and sustainability.’ The summarized points are below.

- i. **It is necessary to strengthen the promotion and facilitation of multilevel approaches to water governance,** to build water agreements with the agreement of water users on, for example, freshwater biodiversity conservation, transboundary cooperation and sustainable development; hence ensuring that equity considerations are foremost, and mobilizing women as agents of change in water governance.
- ii. **In relation to dams and hydropower, it is important to have input and to and engagement with dam projects much earlier in project preparation,** preferably from the beginning of regional integrated systems planning and the preparation of finance. This early input can help prevent bad dam proposals in the first place; help integrate biodiversity goals into regional development; ensure broad assessment of options; and integrate natural infrastructure investment.
- iii. **We must promote innovative finance and investment that integrates water security for people and nature.** Investing in ecosystems and source water protection is becoming more accepted and moving into the mainstream. However, it is often too complex; it needs to become simpler with lower



Figure 11. Mark Smith

transaction costs in order to drive large scale application and uptake. It should be supported by freshwater biodiversity information, political engagement, and a better dialogue on joint solutions between the development and conservation communities.

- iv. **Relating to the SDGs: sustainable water management is critical for targets across the SDGs** and, based on target 6.6, biodiversity and ecosystem services should be integral to delivering water-related targets. Other sectors and networks must also work extensively with water resource management, such as those working on climate change, food security, energy and industry, protected areas and forest landscape restoration (FLR). Therefore, partnership is key to helping those sectors achieve their results using water management, including mainstreaming freshwater biodiversity conservation in their work and upstream planning for freshwater biodiversity conservation to reduce trade-offs and conflicting policies and strategies.
- v. **The implications of interdependencies among the SDGs is that we require strategies and tools for transformational change in complex systems at large scale.** This is an opportunity and a challenge, but it requires us to move away from linear thinking about development and conservation and not to shy away from dialogue about complexity amongst both policy and practitioner communities.

Martha Rojas-Urrego (Ramsar Convention Secretary General, Fig. 12) gave a discussion on how the freshwater conservation community can most effectively support international policy, looking at the greatest needs of the international conventions and agreements. The summary points are as below.



Figure 12. Martha Rojas-Urrego (Ramsar)

- i. **It is essential to integrate ecosystem conservation into the water agenda.** Sustainable development cannot occur without sustainable water provision, and we cannot discuss sustainable water provision without healthy ecosystems.
- ii. Critical issues for addressing water provisions and healthy freshwater ecosystems include considering climate, poverty, and regional scale management, and linking with the recommendations of the **High Level Panel on Water**.

[Ian Harrison commented that the freshwater motion that was submitted at the Congress was partly in response to a recommendation to IUCN from Prof. Charles Vörösmarty (City College of New York) who was lead author on the *Framing Notes on water-related environmental services*, submitted to the High Level Panel on Water].

- iii. How do we achieve better ecosystem conservation into the water agenda?
 - **We need to be better communicators. We need to identify the “killer facts” – the ones that will instantly grab people’s attention.**
 - **We need to identify transformational effects** (comparable to 0% deforestation; 0% land degradation) and promote these objectives. [Karin Krchank (WWF-US) gave the example of the Clean water Act in the US that aims at ‘no impaired water’].

- **We need to be strategic in our policies** and develop appropriate partnerships between NGOs and addressing disaster risk reduction. We need to identify the key partners to be involved in this.
- **We must work with developing countries**, who know they need to plan to be sustainable but might not know how to do this. We need to help advise.
- **We have to be practical**, not esoteric. We have to look at how we can work at a practical, national level, and scale up.

Karin Krchnak (WWF-US, Fig. 13) discussed the need for an IUCN Union-wide strategy to raise the urgency of freshwater biodiversity conservation, as defined in the terms of the freshwater motion (see pages 66-67).

Plenary discussion raised some additional points:

- i. We need to identify focal working groups to achieve our objectives, and to develop an inventory of people to work with.
- ii. We should identify sentinel species that can define the importance of freshwater ecosystems (e.g., amphibian declines are now widely recognized, and can be used).
- iii. **We need to ensure substantial government engagement.**
- iv. **We need to use the Paris agreement on climate** as a mechanism to promote freshwater ecosystem conservation; conservation of wetlands is a component of the Paris Agreement.
- v. Countries have outlined the post-2020 climate actions they intend to take under the Paris agreement (these actions are the Intended Nationally Determined Contributions (INDCs)); **we need to identify the INDCs that relate to freshwater systems and promote these.**
- vi. **We need to bring in the private sector** – especially large companies – to our plans for a global vision for freshwater ecosystem.



Figure 13. Karin Krchnak (WWF-US)

All of the above are summaries of full notes taken at these Forum sessions at the 2016 IUCN World Conservation Congress. The full accounts are available from Ian Harrison, and will be posted on the IUCN Portal.

Ian Harrison is grateful to Richard Sneider and Conservation International for covering his staff time and costs of accommodation to attend the Congress, and to Zeb Hogan for covering travel.

Late Motion on Freshwater submitted at World Conservation Congress, Hawai'i

Ian Harrison

FFSG Technical Officer

At the 2016 IUCN World Conservation Congress a late Motion was submitted calling a *Union-Wide Strategy to Raise the Urgency of Freshwater Biodiversity Conservation*. Although the Motion was not passed, it resulted in an important update to IUCN's 2017-2020 Program of Work that can pave the way for a more cohesive freshwater strategy across IUCN.

Background

During the World Parks Congress in 2014, and subsequent to then, there have been conversations among various FFSG members and their collaborators about the need to strengthen IUCN's approach to freshwater ecosystem conservation (e.g., see the World Parks Congress report in the FFSG Newsletter Issue 7, December 2014). Early in 2016 Matthew Gollock (Zoological Society of London; Chair of the Anguillid Eel Specialist Group) submitted a motion (motion #005) for consideration at the 2016 World Conservation Congress on *Promotion of Anguillid eels as flagship species for aquatic conservation* (this motion was subsequently accepted at the Congress; <https://portals.iucn.org/congress/motion/005>). This Motion #005 also noted the concerns about the extent of attention being paid to freshwater conservation in the statement: "*Applauding the efforts of IUCN Members to address the threats in the aquatic environment, particularly freshwater habitats which, despite providing essential ecosystem services, are under-studied and suffer from limited and under-funded conservation work.*" During the public online debate of this motion, prior to Congress, Ian Harrison (FFSG Technical Assistant to the FFSG Global Chair) commented that the "*need to put a stronger emphasis on freshwater ecosystem conservation, at a higher level within IUCN, is urgent, because of the significant and growing threats to freshwater ecosystems and their species, and the benefits they supply to support human well-being.*"

These concerns were also raised again during a freshwater session of the GEO BON Open Science Congress session on July 6th, led by Eren Turak, co-chair for the GEO BON Freshwater Working Group. Dr. Jörg Freyhof (former Executive Director of GEO BON, Western Palearctic Regional Chair for FFSG) summarized the points raised during that session in a letter sent to IUCN on July 24, 2016, where he recommended that IUCN "*develop a stronger strategy [for] freshwater conservation: that can help create stronger links across these IUCN bodies; promote and support research and messaging on freshwater issues; and therefore help the Secretariat, and the Specialists Groups, Subcommittees, and Thematic Groups of the Commissions achieve fundraising and sponsorship, to support more comprehensive, and cross-sectoral projects.*"

On July 26, 2016 Professor Charles Vörösmarty (City University of New York Advanced Science Research Center) also wrote a letter of recommendation to Inger Andersen, IUCN's Director General, suggesting that

IUCN consider developing a strong, Union-wide programme for assessing freshwater biodiversity and ecosystem status, in support of shared objectives with the *Framing Notes to the High Level Panel on Water: Water-related Environmental Service* that he led with an international group of authors. Inger Andersen responded positively to these communications, welcoming further discussion of freshwater at the World Congress.

Members of the FFSG, SSC Freshwater Conservation Subcommittee, and WCPA Freshwater Specialist Group had discussed how to advance some of these ideas, besides through discussions in the freshwater sessions that had been planned for the Congress. One option was through a Motion, submitted to IUCN, that specifically calls for a *Union-Wide Strategy to Raise the Urgency of Freshwater Biodiversity Conservation*. While the deadline for Motions had passed, there is an option to submit a 'late Motion' at the Congress, according to clauses of Rule 52 in the World Conservation Congress Rules of Procedure. The rule requires that an IUCN Member organization proposes the motion and at least 10 others support it. WWF-US agreed to act as the proposer for the motion and the following IUCN member organizations very kindly agreed to support it:

- Center for Biodiversity and Conservation (American Museum of Natural History)
- Christensen Fund
- Conservation International
- EcoHealth Alliance
- Ecologic Institute
- Flora and Fauna International
- Global Wildlife Conservation
- Grupo Jaragua
- International Crane Foundation
- Natural Resource Defense Council
- NatureServe
- The Nature Conservancy
- Wildfowl Wetlands Trust
- Zoo Outreach Organization.

The Motion

The entire text of the Motion, as prepared and revised by WWF-US, FFSG colleagues, and the supporting organizations listed above, and as submitted at the Congress, is not given here because it is being revised for publication elsewhere. However, a summary of the main points are given below.

The Motion highlights the statements made by the UN Conference on Sustainable Development in 2012, recognizing the key role that ecosystems play in maintaining water quantity and quality and, therefore, the importance of protecting and sustainably managing these ecosystems. It also highlights the *Vision for Water and Nature*, published by IUCN in 2000, which aims at a world with greater water security by 2025. It acknowledges the progress made in pursuit of this Vision through changes in policies and practice by

governments, multilateral agreements (e.g., Ramsar), NGOs, Community Based Organizations, civil society and scientists, including action by IUCN Members, Commissions, and its Secretariat. It notes, however, the continuing, alarming rate of loss of freshwater biodiversity and freshwater ecosystem integrity, and states that stronger efforts are required to support conservation of freshwater ecosystems and their species, and the management of protected areas. The Motion notes that these actions are necessary to address global conservation targets such as those set out in the Aichi Targets, and those suggested as post-Aichi Target strategies (e.g. , see Motion 033 on *Safeguarding space for nature and securing our future: developing a post-2020 strategy*; <https://portals.iucn.org/congress/motion/033>). The freshwater Motion also notes that it is essential (for conservation, support of livelihoods by ecosystem services, and sustainable development) to integrate freshwater biodiversity conservation into implementation strategies and plans for the Sustainable Development Goals, and other Conventions and Agreements such as the Paris Agreement on Climate Change and its water-related Intended Nationally Determined Contributions (INDCs), the Ramsar Convention, and the UN Watercourses Convention. Accordingly, the Motion calls upon IUCN for a program that gives higher a higher profile to freshwater, and that cuts across the different IUCN Commissions and components of the IUCN Secretariat. In this respect, the recommendations of the Motion align closely with the objectives of IUCN's One Programme Charter

As a part of the explanation for this motion, it was defined as ‘new’ based on the requests made in July by Dr. Jörg Freyhof and Prof. Charles Vörösmarty for developing a strong, Union-wide program for assessing freshwater biodiversity and ecosystem status. It was defined as ‘urgent’ based on the need for urgent action to address the Sustainable Development Goals according to their stipulated timelines.

The submitted Late Motion was not accepted by the Motions Working Group at the IUCN World Conservation Congress. However, this was not because the Motions Working Group disagreed with the points raised in the Motion. Instead, the Group recommended that some of these points be integrated directly into IUCN’s draft 2017-2020 Program of Work.

Edits to the 2017-2020 IUCN Programme of Work

The recommendation of the IUCN Motions Working Group, to include text from the Motion in the IUCN Program of Work is an excellent solution. By inclusion in the Programme, it represents a more formal commitment from IUCN to ensure that it delivers on these objectives.

The existing, approved draft of the Programme includes a paragraph specifically addressing freshwater, with the statement: *“Through the IUCN Programme 2017–2020, the Union will therefore work on supporting the achievement of SDG 6 on water security and the freshwater as well as the terrestrial elements of SDG 15, doing so across the Commissions, Secretariat and Members of the Union. This cross-cutting effort will be essential to draw together the water-related components of IUCN, identify the priorities for action, and make best use of opportunities of synergy and collaboration.”*

The IUCN Programme Committee also accepted several small edits made by to the Programme by the SSC Freshwater Conservation Steering Committee; these edits provide background information that supports the

need for a stronger focus on freshwater. These results are a very important step forwards; and from here the various freshwater focused Specialist Groups of IUCN's Commissions, and the staff of the Secretariat, must identify a more detailed program to make best use of this opportunity.



IUCN Members Assembly discuss amendments to the 2017-2020 Programme, including those proposed for fresh water. Photo credit: IUCN.

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The Freshwater Fish Specialist Group is generously supported by IUCN's Species Survival Commission, Wetlands International, Project Piaba, and the Zoological Society of London.

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