

2014 FFSG Annual Report





OUR VISION
Freshwater fishes sustained in their natural environments.

OUR MISSION
To achieve conservation and sustainable use of freshwater fishes and their habitats through:

- generating and disseminating sound scientific knowledge;
- creating widespread awareness of their values, and;
- influencing decision-making processes at all levels.



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FRONT COVER: Clanwilliam sandfish (*Labeo seeberi*) survey. Part of The Cape Critical Rivers Project. Photo: Bruce Paxton

LEFT IMAGE: Berg River redbin, *Pseudobarbus burgi* © Dean Impson

Message from the Global Chair

“Look deeply into nature, and then you will understand everything better.”

—Albert Einstein

To look deeply into nature is to realize that everything within the biosphere is interconnected, and that species play a vital role in sustaining life. The erroneous belief that the earth can afford the loss of species without major foreseen and unforeseen consequences is apocalyptic and foretelling. In allowing species to go extinct, we are behaving like Thanatos’s passenger in Paul and Anne Ehrlich’s “rivet-popper” hypothesis. Comparing the earth’s ecology to an airplane, the Ehrlichs illustrated the idea that the earth’s species are like the rivets that hold a plane together. If every passenger on a flight were to remove a single rivet believing there would be no consequence, the plane would fall apart and crash. As our planet’s ecology depends on an interconnection of species, the same idea applies to earth, and although we may never know how the removal of each “rivet” might affect the overall balance of life, the aggregate of removing species will be catastrophic.



Like airplane rivets, all species are important, but it has been easier to gain support for saving flagship species and iconic or charismatic animals. Support also comes more readily for species that benefit mankind through the ecological services they provide, such as bees providing pollination. Nevertheless, because of the biosphere’s interconnectedness, we must save all species, not just the popular ones.

Charismatic or not, examples of the dire consequences of the extinction of species abound, as does the evidence of the effects of one species’ extinction on the whole system. For example, there is a natural balance between predator and prey; if predators disappear, unchecked growth of prey disturbs the ecosystem’s balance. The extirpation of the gray wolf from Yellowstone National Park resulted in the overpopulation of elk, which overgrazed on the upland aspen and cottonwood, in turn creating a series of imbalances among other predators, birds, plants, and other life forms. Loss of a species results in a domino effect of popping rivets and ultimately, extinction leads to coextinction. In habitats where biodiversity is sparse, the interdependence of species can become dangerously linear. The more biodiversity there is in a system, the higher its resilience to collapse. The continuing depletion of biodiversity eventually leads to degrading both the system’s and the Earth’s health.

Currently, the rate of extinction is alarming. In the past few decades, extinction caused by humans has grown by one hundred times the normal extinction rate, and is on a fast track to reach one thousand times. Harvard professor E. O. Wilson’s estimates are even higher, suggesting that we are now faced with 270 species being lost daily. At this rate, half of the planet’s plant and animal species will be gone by 2100. This shocking conclusion is further supported by the findings of The IUCN *Red List of Threatened Species*, which documents about 30 percent of the Earth’s examined species are considered threatened. Unless there is a radical change in our behavior towards conservation, species will slide from Vulnerable, to Endangered, to Critically Endangered, to Extinct in the Wild, to Extinct, period—an irreversible fate.

The conservation community agrees on the interdependency of species, whether or not we support the “intrinsic” argument of preserving species for their worth alone as living organisms, or the “instrumental” viewpoint of saving species for anthropogenic purposes. Witnessing the felling of a one-hundred-year-old tree, which in the tropics returns 2.5 million gallons of water to the atmosphere, appalls any conservationist and most conscientious human beings. The reality that the current, massive destruction of biota might eradicate species with life-changing curative properties, such as the one found in the fungi *Penicillin notatum*, the original source of antibiotics, is distressing. Even today, new species are still being discovered in our largely explored world, such as the freshwater fish *M. sneideri* (pictured right) discovered in March 2013, and we are learning the interconnected role species play in their ecosystems, as well as the role geography plays in speciation. Regrettably, the massive habitat destruction eradicates both, known species, and species yet to be discovered, species which we will never get to know, species which could be the panacea of many medical ailments which could significantly improve our lives. The value of biodiversity is essential and indisputable for the planet’s sustainability and health.



Melanotaenia sneideri, a New Species of Rainbowfish (Melanotaeniidae), from West Papua Province, Indonesia, discovered by Richard Sneider in March 2013

The stability of life depends on biodiversity and the interconnectedness of all species, for in their interactions lie the components, the rivets, that make us and all other life forms possible. Biodiversity is our context; it houses life’s genetic library, holds the key to climate stabilization, harbors a cornucopia of cures, and improves our lives in countless ways. Earth is a magnificent bio-cosmic phenomena, it is the cradle of life in our universe. All species become what they are as the result of a particular life manifestation, born from and for the environment that made their existence possible; these entities and we ourselves are interconnected and interdependent. Once we understand this concept fully, we will also understand that “we” are “we and our circumstances,” and that life is its own context.

Dr Richard Sneider

A handwritten signature in black ink, appearing to read 'Richard Sneider'. The signature is fluid and cursive, with a long, sweeping tail that extends to the right.

Global Chair, Freshwater Fish Specialist Group

Highlights from the FFSG Regions

Central Asia

In August of 2014 the FFSG announced the formation of a **new “Central Asia” region**. Up until then the FFSG did not have adequate regional coverage in the area. One of the immediate goals for the region is to develop freshwater fish assessments there as part of the global freshwater biodiversity program being lead by Will Darwall and his staff at IUCN’s Freshwater Biodiversity Unit in Cambridge. Jörg Freyhof (European Regional Chair) identified two well-qualified colleagues in Uzbekistan who could take leading roles in the Central Asia region. Bakhtiyar Kamilov (bkam58@rambler.ru) and Bakhtiyor Karimov (b.karimov@gmx.de), both of the Uzbekistan Academy of Sciences, agreed to join the FFSG as Co-Chairs for the new region.

Dr. Karimov’s acceptance of the position included the following response,

As you probably know nowadays we have a dramatic situation with lost fish biodiversity, and conservation of endangered and rare fishes due to desiccation of the Aral Sea ecosystem and acute declining water quantity and quality in rivers. The fish fauna in Central Asia is today under unprecedented high anthropogenic pressure, and urgent rehabilitation measures are needed in order to stop the destruction of fish populations.

In light of the above, I am very happy to accept this invitation and look forward to working with you and with all fisheries scientists and organizations in the Central Asian Region.

In addition to the aforementioned regional freshwater fish assessments, Dr. Kamilov and Dr. Karimov intend to focus efforts in the region on basic and applied scientific research in the fields of aquatic ecology, ecotoxicology, impact of water quality on fishes, and fish biodiversity conservation projects. Other work will include studies on the impact of aquaculture technologies on the raising of fish and various issues unique to the Central Asia region.

<http://www.iucnffsg.org/about-ffsg-2/ffsg-regions/centralasia/>

Madagascar

Fish related activities in Madagascar have focused more on practical conservation measures than on survey work. Tim McKaskie of the Toronto Zoo continued the survey of the upper Sofia basin that he and Brian Zimmerman of the Zoological Society of London started in 2013. They hoped to find relict populations of *Rheocles derhami*, *Ptychochromis insolitus* and *Paretroplus gymnopreopercularis*. They managed to catch a single individual of *R. derhami* and caught a sufficient number of *Pt. insolitus* to start a captive breeding program. They were, unfortunately, unable to find *Pe. gymnopreopercularis*. This past year, Tim hoped to find additional *R. derhami* as well as possible re-introduction sites for *Pt. insolitus*. Regrettably, he had no luck in the *Rheocles* search, but did find a possible re-introduction site for the *Ptychochromis*. Additional rainy season limnological data are needed before any definitive conclusion can be reached on its ability to support a resident cichlid population over the long term. Tim hasn't given up hope on finding more *R. derhami* and hopes to continue the search in 2015.

The conservation work he and Alex Saunders of the Denver Zoo started a couple of years ago in Lake Tseny has been taken up and continued by a Malagasy conservation NGO. Efforts to involve local fishermen in crafting a program of sustainable exploitation of the lake's resources have enjoyed a degree of success, which bodes well for the lake's population of *Paretroplus menarambo*. Tim (fahaka@hotmail.com) can provide a more detailed account of his Lake Tseny work. They hope to find a Malagasy graduate student to investigate the life history of *Sauvagella robusta*, which supports an important fishery in the Lake.

The most positive developments with regards to freshwater fish conservation involve the significant expansion of *in situ* captive breeding efforts. Guy Tam Hyok has successfully bred the critically endangered *Bedotia* sp. Sabava, *Ptychochromis insolitus* and *Paretroplus menarambo*, as well as the (happily!) less threatened *Rheocles vatosoa*, *Ptychochromis loisellei* and *Paretroplus polyactis*. He very much wants to add *Bedotia marojejy* to the list, but has not to date succeeded in finding a relict source population. If all else fails, founders can be shipped to him, but it would be preferable to secure these from a wild population. The ZSL, Toronto Zoo and the American Cichlid Association have agreed to subsidize Guy's captive breeding program. The details of this are still being finalized; they envisage offering Guy a contract to help him maintain viable populations of the fishes he presently has under culture or might work with in the foreseeable future and provide appropriate

Highlights from the FFSG Regions

(Madagascar cont'd)

numbers of fry for any future re-introduction programs. The initial agreement will run for a period of three years, with the option of continuing support contingent on performance.

Guy's efforts to popularize native cichlids as aquaculture subjects continue to prosper. He now has 75 participants in the Lokoho drainage working with *Paratilapia* sp. Andapa. Participants in his cooperative must agree to returning 25% of their annual harvest to the river, consequently he has managed to establish a self-financing restocking program for this seriously endangered species. He was invited several years ago by two villages in south-central Madagascar to help them set up comparable programs utilizing their local species of *Paratilapia*, but we have no information on the status of these efforts. Guy is also evaluating the economic viability of *Pe. polyactis* and *Pt. loisellei* as aquaculture subjects. He hoped to draw some firm conclusions by the end of 2014.

Finally, Tim McKaskie (ZSL) was able to bring living *Bedotia* sp. Sabava, *Rheocles vatosoa*, *Ptychochromis loisellei*, *Ptychochromis insolitus* and *Paretroplus loiselle* back to Toronto. Losses in transit were light and at last word, all the fish were doing well. This revives the possibility of establishing viable *ex situ* populations of these species, a development of particular importance insofar as the *Bedotia* and *Pt. insolitus* are concerned.

<http://www.iucnffsg.org/about-ffsg-2/ffsg-regions/madagascar/>

Mesoamerica

In conjunction with the FFSG Annual Meeting, the Governor of Morelos, Mexico invited members of the IUCN-SSC Freshwater Conservation Sub-Committee and the FFSG to join him as he signed an agreement to preserve the State Protected Area "El Texcal" (top right). This area is home to a Ramsar Site (a wetland of international importance) and vital to the conservation of the Morelos Minnow that calls it home. Half of the area of occupancy for the Morelos Minnow (*Notropis boucardi*) is found within the Ramsar Site, which is also known for its hydrological importance for the region.

Thanks to the Chair of the Sub-Committee (and FFSG Regional Chair), Topis Contreras MacBeath, for making this happen! He has been working for years to protect *N. boucardi* with the involvement of local communities, governmental authorities, and international agencies.



FFSG Regional Chair and Minister of Environment for Morelos, Topis Contreras MacBeath helps sign a pact protecting vital freshwater habitat.

Northern Africa

The World Fish Migration Day was colorfully celebrated for the first time in Ethiopia under the joint organization of the Department of Zoological Sciences, Addis Ababa University (AAU) and the Bahir Dar University (BDU). The event took place in Bahir Dar Town on Saturday, 24 May 2014 starting at 9:00 am with a theme "Protect the world's unique species flock and migratory *Labeobarbus* spp. of Lake Tana".

The event was accompanied by a panel discussion, press release, march along the roads of Bahir Dar to the Abay Bridge (entertained by the Police March of the Amhara Regional State – see photo on next page) and a seminar in which selected talks were presented. The event was sponsored by Addis Ababa University, Bahir Dar University, Rufford Foundation, Critical Ecosystem Partnership Fund, Mohammed Bin Zayed Conservation Fund, Organization for Rehabilitation & Development in Amhara (ORDA), Abay Basin Organization, Tana-Sub basin Organization and others. Several thousand leaflets were distributed at the event to create awareness about the importance of the *Labeobarbus* spp. of Lake Tana and the threats they face.

In other news, the Critical Ecosystem Partnership Fund (CEPF) has granted research funds to two Universities working on the conservation of *Labeobarbus* spp. The beneficiaries are Addis Ababa University (the principal investigator is Dr. Abebe Getahun) and Bahir Dar University (the principal investigator is Dr. Minwuyelet Mingist). We have also started a preliminary survey of the fishes of the Omo-Turkana basin (a least researched and documented basin).

<http://www.iucnffsg.org/about-ffsg-2/ffsg-regions/northern-africa/>

Highlights from the FFSG Regions



The Police March of the Amhara Regional State in Bahir Dar Town, Ethiopia. This was one of several events organized around the region to celebrate World Fish Migration Day on 24 May 2014.

South America

In Brazil a national assessment of extinction risk for over 12,000 species of fauna was recently completed. The IUCN/CI Biodiversity Assessment Unit (USA) in collaboration with the Chico Mendes Institute finished the assessments in Fall 2014. This included 3,122 species of freshwater fishes. See *Brazil's Regional Red List Assessments* under the "IUCN Red List Authority" section on page 24 for more information. These assessments mark a major step forward for Brazil's freshwater fish conservation.

<http://www.iucnffsg.org/about-ffsg-2/ffsg-regions/south-america/>

Southern Africa

In South Africa there are a number of projects being undertaken by post-graduate students at various institutions in the field of population genetics and conservation. Dr Olaf Weyl from SAIAB has post-doctoral candidates and students registered in the Department of Ichthyology and Fisheries Science at Rhodes University who are looking at conservation genetics of threatened fishes in the Eastern and Western Cape regions. The impact of alien invasive fishes, especially predatory sport fishes like the basses (*Micropterus* spp.) and trout (*Oncorhynchus mykiss* and *Salmo trutta*) has been in the spotlight in recent years because of the promulgation of the National Environmental Management, Biodiversity Act in 2004, and the Regulations thereof in 2013.

Unsurprisingly, the control and regulation of these very popular sport fish is extremely contentious between the conservation authorities and influential angling circles, therefore a lot of energy has been spent in reaching publicly acceptable regulations. Two excellent publications that capture the intensity of the issues and

debate are Ellender & Weyl (2014) and Ellender *et al.* (2014). That fish conservation is so contentious may be a surprise to some in other regions, but South Africa is a young and vigorous democracy where diversity of opinion is extremely widespread and on par with the rich biodiversity of the region and the scale of human impact on the environment.

Another indication of the intensity of public interest and interaction in aquatic conservation is graphically exposed in the 'Fisheries' article by Weyl *et al.* (2014) that concerned the first successful eradication of an alien invasive fish from a stretch of river in the Cape Floristic region. The actual eradication took place in February 2012 and March 2013, but the process leading up to the action began as early as 2003! In the past the authorities would have simply made a decision to act and gone ahead with it; now the process requires Environmental Impact Assessments, dissemination of information to public audiences, and public participation processes. These are definitely important democratic processes that, in many circumstances, can significantly aid conservation; but they are also complex and time-consuming. The papers cited above make for sober reflection on just what it takes to conserve fishes in developing Africa when action is actually required!

References:

- Ellender, BR, Woodford DJ, Weyl OLF, Cowx IG. (2014). Managing conflicts arising from fisheries enhancements based on non-native fishes in southern Africa. *Journal of Fish Biology* doi: 10.1111/jfb.12512
- Ellender, BR and Weyl OLF. (2014). A review of current knowledge, risk and ecological impacts associated with non-native freshwater fish introductions in South Africa. *Aquatic Invasions* 9, (open access).
- Weyl, OLF, Finlayson B, Impson ND, Woodford D, Steinkjer J. (2014). Threatened endemic fishes in South Africa's Cape Floristic Region: A new beginning for the Rondegat River. *Fisheries* 39 (6): 270-279. DOI: 10.1080/03632415.2014.914924

Highlights from the FFSG Regions



Diagram of FFSG Regions for 2013-2016 Quadrennium. Some changes will be made in 2015 due to increased membership and new regional interests.

Oceania

The Australian Society for Fish Biology Threatened Fishes Species Committee held a workshop in Darwin in late June 2014 to review the conservation status of Australian species in the Terapontidae (Grunters) and Melanotaeniidae (Rainbowfishes). Rather than just reactively waiting for nominations of threatened taxa, it is intended that the entire Australian freshwater fish fauna will be proactively reviewed over a series of workshops over the coming years.

It was not intended that this workshop would prepare detailed nominations for individual species. The workshop was intended to canvas opinion, knowledge and the current status of species, and identify those that are priorities for further knowledge synthesis and/or development of individual nominations. Eighteen people attended the workshop with a series of presentations and workshop sessions to on each family.

A total of 36 terapontid taxa were considered with four species considered to warrant more formal assessment following the preparation of full nominations:

- *Bidyanus bidyanus* (Mitchell 1838)
- *Hephaestus* cf. *epirrhinos* [King Edward]
- *Scortum neili* Allen, Larson & Midgley 1993
- *Variichthys lacustris* (Mees & Kailola 1977)

Another 12 taxa were considered to warrant inclusion on a 'watch' list, as there was some concern about their restricted distribution, rarity, or the relevance of particular threats or uncertainty about taxonomy:

- *Hephaestus epirrhinos* Vari & Hutchins 1978
- *Pingalla lorentzi* (Weber 1910)
- *Pingalla midgleyi* Allen & Merrick 1984

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- *Scortum hillii* (Castelnau 1878)
- *Scortum parviceps* (Macleay 1883)
- *Syncomistes rastellus* Vari & Hutchins 1978
- *Syncomistes* sp. [Durack, Pentecost, Ord, Victoria]
- *Syncomistes* sp. [Mitchell]
- *Syncomistes* sp. [Prince Regent 1]
- *Syncomistes* sp. [Prince Regent 2]
- *Syncomistes* sp. [Roe]
- *Syncomistes* sp. [Isdell]

A total of 30 taxa of Melanotaeniids were considered, with seven considered to warrant the preparation of formal nominations:

- *Cairnsichthys rhombosomoides* I (Nichols & Raven 1928)
- *Cairnsichthys cf. rhombosomoides* II [northern]
- *Melanotaenia eachamensis* Allen & Cross 1982
- *Melanotaenia maccullochi* III [Darwin]
- *Melanotaenia utcheensis* I McGuigan 2000 [lowland]
- *Melanotaenia utcheensis* II [upland]
- *Melanotaenia* sp. Ithica

Another 5 species were considered to warrant inclusion on a 'watch' list, as there was some concern about their restricted distribution, rarity, or the relevance of particular threats or uncertainty about taxonomy:

- *Melanotaenia exquisita* II [Bindoola Creek (Pentecost)]
- *Melanotaenia gracilis* Allen 1978
- *Melanotaenia pygmaea* Allen 1978
- *Melanotaenia trifasciata* I [upper Mary R] (Rendahl 1922)
- *Rhadinocentrus ornatus* V [Orara]

Preparation of nominations will continue over the next one to two years, and species will then be formally assessed. It is intended to conduct another workshop in 2015, and the likely candidate families to be considered are Galaxiidae, Percichthyidae, and Lepidogalaxiidae.

Thanks to the ASFB who provided funding to cover the on-site costs associated with the workshop.

Changes to ASFB Threatened Fish Listings in 2014

Nine nominations were assessed, all of the nominations being newly described galaxiids formerly part of the *Galaxias olidus* complex (See Raadik, 2014). All nine taxa were proposed as Critically Endangered, primarily as a result of extremely limited distributions (all taxa now restricted to headwater streams, where salmonids are absent), potential invasion by salmonids, potential threats from climate change, and associated catastrophic events such as bushfires followed by severe rainfall events.

After careful consideration, all nominations were accepted and ratified by the ASFB, and are now listed as Critically Endangered by the ASFB:

<i>Galaxias</i> sp. 9	West Gippsland Galaxias
<i>Galaxias</i> sp. 8	Tapered Galaxias
<i>Galaxias</i> sp. 6	Dargo Galaxias
<i>Galaxias</i> sp. 4	East Gippsland Galaxias
<i>Galaxias</i> sp. 12	Kosciusko Galaxias
<i>Galaxias</i> sp. 5	McDowall's Galaxias

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<i>Galaxias</i> sp. 7	Shaw Galaxias
<i>Galaxias</i> sp. 11	Short-tail Galaxias
<i>Galaxias</i> sp. 10	Tantangara (stocky) Galaxias

Reference:

Raadik, T.A. (2014). Fifteen from one: a revision of the *Galaxias olidus* Günther, 1866 complex (Teleostei, Galaxiidae) in south-eastern Australia recognises three previously described taxa and describes 12 new species. *Zootaxa*. 3898(1):1-198. doi: 10.11646/zootaxa.3898.1.1.

South Asia

- **International Symposium on River Biodiversity: Ganges-Brahmaputra-Meghna (GBM) River System** held in Patna, India, April 4-6, 2014, sponsored by IUCN and jointly organized by Patna University (India) and Chittagong University (Bangladesh). 40 speakers presented papers in six technical sessions comprising higher vertebrates, fish & fisheries, river morphology, water quality, stakeholders and community participation and plankton & benthic organisms. One of the recommendations of the symposium was: a taxonomic and biological study of aquatic organisms (including fish), and assessment of their regional threat status so that conservation actions may be focussed on the species under threat.
- **Freshwater Fish Taxonomy workshop.** Research Advisory Committee (RAC) meeting of NBFGR (National Bureau of Fish Genetic Resources), India held on March 3-4, 2014 strongly recommended the need for training of research personnel in fish taxonomy for correct identification of species for conservation and sustainability. Accordingly, a National Workshop on Freshwater Fish Taxonomy was conducted at Manipur University in collaboration with NBFGR on September 22-26, 2014. More than 40 scientists from different institutes participated in the workshop. Training on fish collection, preservation, measurements and counts, osteology, identification, photography etc were given. There were lectures and demonstrations on different taxa found in the region. Scientists from NBFGR also delivered lectures on the concepts and methodology of molecular taxonomy.
- **The 10th Indian Fisheries and Aquaculture Forum (10ifaf)** was held at NBFGR on November 12-15, 2014. The largest scientific triennial event in the field of fisheries and aquaculture in the country was organized under the aegis of the Asian Fisheries Forum Indian Branch (AFSIB) in collaboration with the NBFGR, with the theme "Towards Responsible Aquaculture and Sustainable Fisheries". The Honorable Governor of Uttar Pradesh, Shri Ram Naik; dignitaries of ICAR; and Dr. Cherdasak Virapat, Director General, Network of Aquaculture Centers in Asia-Pacific (NACA), Bangkok were in the inaugural function. Over 800 distinguished scientists, technocrats, policy makers, members from financial institutions, NGOs, students, farmers and entrepreneurs from all over the country and overseas participated in the Forum. Dr. Ayyappan, Director General, ICAR stressed the need to address various aspects for sustaining the production and productivity of the sector and to meet the anticipated demand of fish by 2020. The keynote addresses on 'Responsible Aquaculture' was delivered by Dr. Vijay Gupta, World Food Prize Laureate and Former ADG, World Fish Centre, and Dr. Mohan Joseph Modayil, Member, ASRB on 'Sustainable Fisheries'. Dr. C. Virapat, Director General, NACA and Dr. Chris O' Brien, Regional Coordinator, BOBLME, Thailand delivered lead lectures on global fisheries perspectives. Dr. Meryl J. Williams, Former Director General, World Fish Centre and Director, Asia Pacific-Fish Watch on 'Fish, Food Security and Nutrition' also delivered an evening plenary lecture.

The "10ifaf" was carried out in seven parallel sessions on different thematic areas, which included invited lectures by several experts and also oral presentations by the scientists and other researchers from India and overseas. Over 200 papers were also presented as posters during the Forum. This four day programme provided an excellent opportunity for the scientists, academicians and policy makers to discuss various issues in fisheries and aquaculture sector of the country and the region.

- **Freshwater fish fauna inventory.** There has been an increase in the exploration of ichthyofauna in recently in the region. As many as 24 new freshwater fish species have been described in 2014. The list is as below:

<i>Aborichthys cataracta</i> Arunachalam et al	Brahmaputra
<i>Aborichthys verticauda</i> Arunachalam et al	Brahmaputra

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<i>Chela macrolepis</i> Knight et al	S India
<i>Creteuchiloglanis payjab</i> Darshan et al	Brahmaputra
<i>Devario deruptotalea</i> Ramananda & Vishwanath	Chindwin
<i>Eutropiichthys cetosus</i> Ng et al	Kaladan
<i>Garra khawbungi</i> Arunachalam et al	Barak
<i>Garra nethravatiensis</i> Arunachalam & Nandagopal	W ghats
<i>Garra tyao</i> arunachalam et al	Barak
<i>Glyptothorac clavatus</i> Rameshori & Vishwanath	Barak
<i>Hypsilobarbus menoni</i> Arunachalam et al	S India
<i>Hypsilobarbus tamiraparaniei</i> Arunachalam et al	S India
<i>Hypsilobarbus vaigaiensis</i> Arunachalam et al	S India
<i>Olyra saginata</i> Ng et al	Kaladan
<i>Oreichthys andrewi</i> Knight	Brahmaputra
<i>Parachiloglanis bhutanensis</i> Thoni & Gurung	Brahmaputra
<i>Pethia longicauda</i> Katwate	W Ghats
<i>Pethia lutea</i> Katwate et al	W Ghats
<i>Pethia rutila</i> Lalramliana et al	Kaladan
<i>Pseudolaguvia jiyaensis</i> Tamang & Sinha	Brahmaputra
<i>Pseudolaguvia magna</i> Tamang & Sinha	Brahmaputra
<i>Psilorhynchus khopai</i> Lalramliana et al	Kaladan
<i>Schistura andrewi</i> Solo et al	Kaladan
<i>Schistura phamrhingi</i> Shangningam et al	Chindwin

COI sequences of 139 fish samples belonging to 38 species from northeast India have been worked out and submitted NCBI.

- **Sand and Pebble Mining.** Sand and pebble mining and quarrying from the river beds for construction purposes are serious threats to the endemic freshwater fishes since these cause habitat loss and destruction of their breeding grounds. There have been many applications from the state forest departments seeking permission for sand mining and quarrying. Manipur state EIAA (Environment Impact Assessment Authority) and SEAC (State Environment Appraisal Committee) jointly made field surveys in different river stretches of the Chindwin and Barak basin from October to November, 2014 so as to prevent mining in the type localities and ideal habitats of endemic fishes. The Department of Forest has been advised accordingly. The Department has also been advised to stop sand mining and washing in Thoubal River at Moirang Pural, Manipur which has caused serious destruction of aquatic habitat which has led to the decline in the population of the endemic carp, *Bangana devdevi* and also caused pollution of water. Similar reports are also available from the SEAC of Assam.
- **National Workshop on Mahseer in India: Resources, Captive Breeding, Propagation, Policies and Issues** was hosted by the Directorate of Coldwater Fisheries Research during December 22-23, 2014 at Gauhati, in which scientists, academicians, technocrats, managers, aquaculturists and other experts discussed the rehabilitation, conservation and propagation of the endemic cold-water species of mahseers.



Fig. 1 GBM River symposium



Fig. 2 Addressing the RAC Meeting, NBFGR

Highlights from the FFSG Regions



Fig. 3. Talking on Freshwater fish conservation in the Inspire Camp, October 2, 2014. For schools, attended by 250 high school students



Fig. 4. Release of Fish Taxonomy Training Manual



Fig. 5. Lecture by resource person



Fig. 6. Demonstration of Electrofishing



Fig. 7. Practicals on morphometry

Highlights from the FFSG Regions



Fig. 8. Microscopy for counts & measurements



Fig. 9. The team on a Field trip



Fig. 10. Joint EIAA & SEAC on field visit



Fig. 11. Sand washing in the river



Fig. 12. Polluted Thoubal River



Fig. 13. Habitat loss of *Bangana devdevi*

Highlights from the FFSG Regions



Fig. 14. Fishing team walking towards the site



Fig. 15. Electrofisher to stun fishes



Fig. 16. Diving to collect fish



Fig. 17. Endemic carps



Fig. 18. Adhesive 'sucker' in live fish

FFSG Projects

Introduction

In 2014 the FFSG was able to capitalize on work done in previous years. Several initiatives that had been planned for months and years beforehand finally manifested. Additionally, the World Parks Congress took place in November – an event that only occurs every ten years! Aside from these large projects, there were many other ongoing efforts including fundraising, establishing new regions and sub-groups, and working to find a new host organization.

Global Freshwater Fish BioBlitz

The Global Freshwater BioBlitz was in full swing during 2014 after being launched on Sunday, February 2nd - World Wetlands Day. The FFSG joined forces with other international groups (World Wildlife Fund, Conservation International, FishBase, the Fisheries Society of the British Isles and the Group on Earth Observations Biodiversity Observation Network) to introduce this new global initiative.

The Global Freshwater Fish BioBlitz enables conservation scientists and nature lovers to work together to map freshwater fishes and help conserve these unique species. People from around the world, whether they are anglers, photographers, students or nature lovers, are invited to upload photographs of freshwater fishes observed in their natural habitat, with details of where and when they saw the fish. Volunteers with expertise in fish taxonomy serve as curators to identify and verify the species to ensure the data are research-grade.

During 2014, participants from across the globe uploaded over 1650 observations, including 618 in the first month alone! The project was regularly promoted by the FFSG and other sponsors, which helped to ensure a continuous stream of observations.

The information, gathered through the BioBlitz, has the potential to assist scientists to describe new species, help assess the risk of extinction for the IUCN *Red List of Threatened Species*, can track the spread of invasive species, and can be exported to freely accessible online data archives, such as the Global Biodiversity Information Facility and Encyclopedia of Life.

The project and its data are highlighted by an FFSG Poster Presentation at the Citizen Science Association's CitiSci2015 Conference in February of 2015.

Check it out: www.iucnffsg.org/bioblitz



Global Freshwater Fish BioBlitz

FFSG Projects



CONNECTING FISH, RIVERS AND PEOPLE
24th May 2014



World Parks Congress
12–19 November 2014
Sydney Australia

World Fish Migration Day 2014

The first annual World Fish Migration Day (WFMD) took place on 24 May 2014. The FFSG served as a sponsor of WFMD along with several other organizations in the international partnership. The purpose was to bring global attention to the need to ensure that natural river networks remain connected and, where they are fragmented, to ensure that they are restored wherever possible in order to achieve healthy fish populations and productive rivers. The common theme running throughout all events on WFMD, and the slogan for the day was 'connecting fish, rivers and people'.

Ultimately, 273 events took place that day across 53 countries, with over 1000 different organizations contributing. The events ranged from fun-filled river clean-ups in Poland to successful conferences in Spain, as well as marches in Ethiopia, open days for viewing bypass channels, and releasing fish in the UK and Paraguay. The inaugural WFMD was met with great enthusiasm and considered very successful.

The organizers received positive feedback from around the world. The goals of raising awareness, educating the public, influencing policy makers, creating opportunities for collaborations, recruiting volunteers and fundraising, were all achieved. Here are some of the outcomes of the WFMD2014:

- **Creation of goodwill** with town officials in the USA
- Creation of more sympathy for the sturgeons/migratory fish cause in Romania
- Creation of a **space to continue discussions** and present recommendations to resolve fish migration problems in Bolivia to policy makers and general public
- **Development of a new tool**, which includes the use of fish behaviour to contribute to the management of rivers in South Africa
- Across the globe many of the events educated the general public, generated great interest and **increased understanding of the challenges we face**
- with line departments for providing fish migration paths in

- After the success of the WFMD2014, an organisation in Brazil will now be **opening up a permanent education centre for school children**

World Fish Migration Platform

WFMD organizers, in an effort to mobilize the success and support of WFMD, established the World Fish Migration Platform (WFMP) in 2014. The FFSG is a member of the platform's partnership, in addition to Wanningen Water Consult, LINKit Consult, World Wildlife Fund, the Nature Conservancy, and Waterschap AGV. Future work of this platform includes a Fish Passage 2015 Conference in the Netherlands, a series of webinars, and World Fish Migration Day on May 21, 2016.

The intention is to use WFMP to continue stimulating efforts to *Create Awareness, Share Knowledge and Build Solid Networks* on a global scale around the themes of fish migration and free-flowing rivers. The platform will help organizations share information about what projects they are working on.

The details of the WFMP will be made possible via the website (www.fishmigrationplatform.com), which will be launched in June 2015, as well as via other social media. Please contact Kerry Brink (Kerry@fishmigration.org) for more information.

Fundraising

Throughout 2014 the FFSG actively pursued leads on sources of funding while simultaneously seeking a new host organization. Building off the work of the previous Programme Officer, the FFSG contacted dozens of zoos and aquariums in the U.S. and abroad to seek support, either financially or in kind. In 2015 it will be a priority to identify both a new host organization and the external funding that is integral for conducting any new or ongoing projects or regional assessments.

World Parks Congress

World Parks Congress

The sixth IUCN World Parks Congress (<http://worldparkscongress.org/>) was held from November 12-19, 2014 at Olympic Park, Sydney, Australia. The Parks Congresses are held only once a decade, and therefore are very important events in terms of planning ahead for management and policy associated with protected areas around the world. The Congress brings together a mix of thousands of park managers, scientists, conservation practitioners, policy-makers, politicians, and indigenous people. The Congress in Sydney was no exception, with 6,000 people from 170 countries attending plenary sessions, parallel sessions in eight subject-specific 'Streams', four cross-cutting 'Themes', World leaders Dialogues, Capacity Development Workshops, over 500 electronic posters, and many side events held in the Pavilions, exhibition booths, and meeting rooms at the Congress site, and off-site.

Several of us from FFSG, as well as from the IUCN-WCPA Freshwater Task Force, the IUCN-SSC Freshwater Conservation Subcommittee, and GEO BON's Freshwater Ecosystem Change Working Group have been involved in planning freshwater content for the Congress for a long time. In early 2013 some of us were included in a consortium that made a proposal to coordinate the content of Congress Stream 1, on 'Reaching Conservation Goals.' That proposal, which was led by Stephen Woodley, Marc Hockings (each of IUCN-WCPA), Tom Brooks (IUCN Science and Knowledge Unit) and Penny Langhammer (IUCN-WCPA and SSC), was accepted by the Parks Congress organizers.

At about the same time, several of us were concerned that, while the four cross-cutting Theme sessions of the Congress included one on marine issues, there was no similar representation in the Themes for freshwater. We requested the inclusion of a freshwater cross-cutting Theme, but were unsuccessful in getting it included in the Congress. Consequently, many of us worked hard to ensure that freshwater content was included in as many of the other seven Congress Stream sessions as possible. Our objective was not only to contribute to the sessions, but also to identify specific outputs that could be produced from these sessions, and to ensure that freshwater issues are well represented in the statements produced from each Stream in support of the official 'Promise of Sydney'.

We were very successful in achieving this, with members of FFSG contributing to the sessions listed below. In addition to this, several of the important freshwater messages that we were discussing with Stream leaders in the lead-up to the Congress were included in preliminary strategy documents. **Most importantly, the reports submitted by the Stream leaders on December 22, 2014 make several recommendations for including freshwater ecosystems as components of future conservation and protected area planning, and water management (see below).**

Stream 1 – Reaching Conservation Goals

A session on ***Identifying and Conserving Important Freshwater Areas*** was planned and co-led by Ian Harrison (Conservation International/The Biodiversity Group) and Harmony Patricio (Australian Rivers Institute/FishBio). This included presentations by FFSG members on:

- *A Global River Gap Analysis: increasing protection of river catchments* by Simon Linke (Australian Rivers Institute) in collaboration with Michele Thieme (WWF-US), Robin Abell (Freelance Conservation Biologist & Science Communications Specialist, Academy of Natural Sciences of Drexel University), and Bernhard Lehner (McGill University, Canada)
- *Freshwater KBAs in Europe and India* by Rajeev Raghavan (Conservation Research Group, St. Albert's College, Kochi, India) and Jörg Freyhof (GEO BON)
- *Environmental DNA for identifying areas of conservation importance* by Harmony Patricio (Australian Rivers Institute)

A session on ***Freshwater Biodiversity Outcomes from Protected Areas*** was planned and co-led by Ian Harrison (Conservation International/The Biodiversity Group), Harmony Patricio (Australian Rivers Institute/FishBio) and Eren Turak (GEO BON & Office of Environment and Heritage, Australia).

There was enthusiastic discussion in this session, **with a call for stronger focus on freshwaters by national and international conservation bodies such as IUCN**, and that special attention should be made to category I and II Protected Areas as being the regions where most

conservation efforts are likely to be the most successful. **Several of the recommendations made in these sessions were adopted by the Stream 1 leaders in their final report submitted to plenary (see below).**

Stream 2 – Responding to Climate Change

A session on *Freshwater and Climate Change* was planned and co-led by Ian Harrison (Conservation International/The Biodiversity Group) with Angela Andrade (Conservation International - Colombia), Roel Posthoorn (Natuurmonumenten, Netherlands), Jamie Pittock (Australian National University & IUCN-WCPA Freshwater Task Force), and Max Finlayson (Charles Sturt University, Australia).

Stream 4 – Supporting Human Life

A session on *Freshwater and Climate Change* was planned and co-led by Ian Harrison (Conservation International/The Biodiversity Group) and Tracy Farrell (Conservation International & IUCN-WCPA Freshwater Task Force). This included a presentation by FFSG members on:

- *Eels – A flagship species for freshwater conservation in the Philippines* by Matthew Gollock (ZSL; and Chair of the Anguillid Specialist Sub-Group) and Marlynn M. Mendoza (DENR – Philippines).

In addition, Ian Harrison presented an ePoster on *Catalyzing action towards sustainability of deltaic systems* in collaboration with colleagues in the Belmont Forum DELTAS project.

<http://wpc2014.digitalposter.com.au/posters-search/>

Stream 6 - Enhancing Diversity and Quality of Governance

Ian Harrison assisted WWF –Mexico and CONAGUA is securing a slot to present an ePoster on *National water reserves program: Moving from basin to a national water environmental allocation*.

<http://wpc2014.digitalposter.com.au/posters-search/>

Stream 7 – Respecting indigenous and traditional knowledge and culture

A session on *Traditional knowledge: a voice for freshwater futures, and a voice for adaptation* was planned and co-led by Ian Harrison (Conservation International/The Biodiversity Group) and Danielle Flakelar (Office of Environment & Heritage, Australia). This included presentations by FFSG members on:

- *Inspiring Images and Connected Cultures* prepared by Stephanie Bowman (The Biodiversity Group) and presented by Ian Harrison
- *Amazonian river aquarium fishes – sustainable fishes and sustainable livelihoods* by Scott Dowd (New England Aquarium, and Chair of the Home Aquarium Fish Sub-Group)
- *Biodiversity Restoration in Lake Dianchi, Yunnan, China - Involvement of Buddhist Believers* by Tony Whitten (Fauna and Flora International, and FFSG Special Advisor).
- *Can Gods save Freshwater Fishes? Temple Sanctuaries as an Alternate Approach to Conservation* by Rajeev Raghavan (Conservation Research Group, St. Albert's College, Kochi, India)
- *Climate Change and Indigenous People: Freshwater Resources and the Need for Adaptation*, prepared by Alex Mauroner (FFSG Programme Officer) and discussed by Ian Harrison.

The recommendations from this session were subsequently compiled in collaboration with Will Mooney (Friends of the Earth Melbourne) and David Lucas (Natural Resource Management at Native Title Services Victoria) and submitted to the Stream leaders by David Lucas.

Stream 8: Inspiring a New Generation

Alex Mauroner (FFSG Programme Officer), Ian Harrison (Conservation International/The Biodiversity Group), and Michele Thieme (WWF-US and FFSG Steering Committee) presented an ePoster on the *Global Freshwater Fish BioBlitz*.

<http://wpc2014.digitalposter.com.au/posters-search/>

Several members of FFSG will be collaborating in preparing two papers as outcomes from these sessions, one on ‘Measuring Change in Freshwater Biodiversity’ and another on ‘What does target 11 really mean for freshwater biodiversity’.

In addition to the sessions in the Streams listed above, FFSG contributed to two side-events at the Congress. **Scott Dowd (New England Aquarium) led a side-event profiling the work of the Home Aquarium Fish Sub-Group of the IUCN Freshwater Fish Specialist Group.** The

side event discussed projects that will promote the conservation and wise management of wild populations of tropical fishes that are part of the home aquarium trade, as well as promoting conservation of the ecosystems where the fishes are found, and maximizing environmental protectionism and socioeconomic benefits for home aquarium fishing communities, especially those living in regions of biological importance.

Ian Harrison co-led a side event with Jamie Pittock (Australian National University) and Becky Flitcroft (US Forest Service) launching the **freshwater chapter in the book on *Protected Area Governance and Management*** that has been coordinated by WCPA and will be publicly available online (for free) in early 2015. Michele Thieme is also a co-author on this publication:

Pittock, J., Finlayson, M., Arthington, A. H., Roux, D., Matthews, J. H., Biggs, H., Harrison, I., Blom, E., Flitcroft, R., Froend, R., Hermoso, V., Junk, W., Kumar, R., Linke, S., Nel, J., Nunes da Cunha, C., Pattnaik, A., Pollard, S., Rast, W., Thieme, M., Turak, E., Turpie, J., van Niekerk, L., Willems, D. and Viers, J. (2015). 'Managing freshwater, river, wetland and estuarine protected areas', in G. L. Worboys, M. Lockwood, A. Kothari, S. Feary and I. Pulsford (eds) *Protected Area Governance and Management*. ANU Press, Canberra.

The Promise of Sydney: Innovative approaches for change

A summary is given below of most of the comments and recommendations for the conservation and management of freshwater ecosystems, submitted by the Stream leaders on December 22, 2014.

Full versions of the text are available on the World Parks website at

http://worldparkscongress.org/about/promise_of_sydney_innovative_approaches.html

In addition to this there are some statements [in square brackets] from earlier planning documents (submitted on November 11). Although these are no longer posted online, they include some important comments about freshwater management that had been noted by the Stream leaders.

Stream 1 – A strategy of innovative approaches and recommendations to reach conservation goals in the next decade

The current situation: Freshwaters are often only incidentally included as part of protected areas, or as borders to protected areas, without representative support for their management and conservation.

Recommendations for change:

Recommendation 8: Countries, local communities, and the private sector consider prioritizing sites that contribute significantly to the global persistence of biodiversity (including both species and ecosystems, across the terrestrial, **freshwater**, and marine biomes, and recognizing the dependence of biodiversity on geodiversity) when creating or expanding formal protected areas or implementing other area-based conservation measures

Recommendation 10: **Global protected areas should include a specific focus on coverage and management of freshwater ecosystems in their own right rather than as a component of terrestrial systems, and should address downstream watershed protection where threats are greatest, as much as upstream landscape protection.**

Recommendation 20: The total area of protected areas and connectivity lands needs to be far higher than current conceptions and delegates agreed on the importance of setting ambitious targets. Percentage targets are problematic in focusing on area at the expense of biodiversity objectives. Nonetheless, many delegates argued that these should be around 30% of the planet for no take reserves, 50% overall protection, **and 100% of the land and water managed sustainably.**

Key partnerships needed: Includes the Ramsar Convention, and UN Watercourses Convention.

Stream 2 – A strategy of innovative approaches and recommendations for responding to climate change in the next decade Responding to climate change

The current situation: Concepts such as ecosystem connectivity, resilience, adaptation and blue and green carbon, which have the best chance of helping nature and people manage in this new world, are being converted into concrete actions by innovative countries, decision-makers, and climate change communicators in an effort to secure food and water supply.

[Also an Annex to a former draft of the *strategy of innovative approaches and recommendations for responding to climate change*, submitted for consultation on 11 November 2014 and for subsequent revision, included the following recommended target: “By 2015, **given climate change is affecting us first and foremost through water flows and availability**, stakeholders act on a ten-year window of opportunity, in IUCN countries, to plan our protected areas wisely so that: (i) **we conserve areas that are currently important wetland sites for biodiversity or that will become important sites in the future under scenarios of climate-forced landscape change**; (ii) our protected area planning can **do a better job at conserving and managing those regions that can provide critical water needs to people in the future.**”]

Stream 3- A strategy of innovative approaches and recommendations to improve health and well-being in the next decade Improving Health and Well-being

The current situation: We must further expand protected areas on land and **inland waters**, and in coastal and marine areas, and integrate nature into our cities

Stream 4 – strategy of innovative approaches and recommendations to support human life in the next decade

A promising future: Protected areas are a key tool for sustainable development, through their role in sustaining ecosystem services - conservation of genetic resources; sustainable production of food and materials; **reliable supply of pure water**; and disaster risk reduction. **They should be routinely integrated into both land, sea and water use plans** and national development plans

The current situation: Well-managed protected areas **sustain water supplies...** Management of protected areas needed to consider agriculture, forestry, fisheries, hunting, poverty reduction **and water** management alongside its more traditional concerns. Since Durban, more attention has been centered on these issues, and some experience gained and lessons learned on how protected areas can and are serving as an accessible and affordable means of food security and subsistence, **fresh water provision**, and disaster risk reduction... We must build on experiences and lessons learned to ensure protected areas effectively contribute to food security, **water and disaster risk reduction.**

General recommendations for change:

- Ensure that **costs and benefits from aquatic and terrestrial PAs are distributed fairly**, in the short and long-term with a full understanding of the balance of power among stakeholders.
- Governments at all levels should develop cross-sectoral policies and mechanisms for integrating fisheries, forestry, agriculture, livestock and bush meat into **water management policy and water resource development plans.**

Food security recommendations for change:

- Strengthen land and water use planning** through studies on the role and impact of protected areas in national food security and local livelihoods, including the quantity and quality of food obtained from protected areas, their role in the "in situ" conservation of genetic resources and in the provision of ecosystem services to support sustainable agriculture, forestry and fisheries.
- Prioritize areas that are particularly suitable for the in situ conservation of genetic resources for agriculture, forestry and fisheries when identifying and establishing **terrestrial and aquatic PAs.**
- Ensure that Ramsar's new strategic programme includes the sustainable use of biodiversity for agriculture, fisheries and forestry as key elements in identifying, **developing and managing wetlands of international importance.**

-**Support for aquatic and terrestrial PAs should be enhanced through efforts to increase incomes and livelihood opportunities** for local people by improving access to markets, value-added processing, certification (including of organics and regional identification labeling), and by better organizing and capacitating local collectors, fishers, farmers and small PA-dependent businesses

Water security recommendations for change:

-Identify legal, institutional and social factors that produce a good **synergy between protected area management and water security management**. Choose examples of positive projects across organisations, document these, analyse and communicate lessons—the **WCPA freshwater task force will monitor and actively support progress on these sites over the next decade. Link this to risk-management and business cases for investing in natural water infrastructure, and restoration initiatives.**

-**Reflect in the water price the benefits from protected areas for water supply, regulation and quality.**

Consider natural water infrastructure as a key investment in addressing water risk and a legitimate component in water security strategies.

-**Strengthen partnerships with a wider group of stakeholders to promote the conservation and management of freshwater ecosystems.**
Enable civil society to engage effectively in water governance.

Stream 5 – A strategy of innovative approaches and recommendations to reconcile development challenges in the next decade

Recommendations for Change: There is increasing evidence of the ever-stronger role that protected areas play in achieving nations' development goals, including food and **water security**, risk reduction, livelihoods, and poverty reduction.

Recommendation 3: Integrate protected area values into the methodologies and procedures for economic accounting, such as in tourism, forest or **water satellite accounts**, SEEDs and ultimately Standard National Accounts, which measure, account, monitor and report on development and human well-being.

Recommendation 7: maintain permeable landscapes that support protected area systems and sustain ecosystem services that are essential for food and **water security**.

Stream 6 - A strategy of innovative approaches and recommendations to enhance the diversity, quality and vitality of governance in the next decade

A Promising Future: Communities should re-energise as governance actors, **build their food and water sovereignty on a proper care of the natural commons** and nourish their unique local knowledge, institutions and capacities towards the long term vision necessary for sustainable human development.

Recommendations for Change:

Recommendation 4 – Collective rights and responsibilities: All countries, relevant organisations, protected area managers and rightsholders take concrete steps ... to recognise and secure the right of self-determination of indigenous peoples as well as the collective land and resource rights and responsibilities of indigenous peoples and traditional ... fishing communities—both sedentary and mobile— for the billions of hectares of ... **wetlands** they customarily govern and manage on our planet.

Recommendation 5 – Governance overlaps: In situations where the land, **water**, natural resources and coastal and marine areas of indigenous peoples and local communities overlap with established protected areas under any other governance type, all countries and relevant organisations ensure that collective rights and responsibilities to own, govern, manage, and use such land, **water**, natural resources and coastal and marine areas are respected. Further, ... indigenous peoples' and local communities' ... livelihoods and food and water sovereignty are appropriately recognized and supported, along with their knowledge, institutions, practices, management strategies and plans related to conservation.

Recommendation 19 – Food and water sovereignty: All countries, relevant organizations, protected area managers and rightsholders take concrete steps to ensure the food and **water sovereignty** of producer communities in protected and conserved areas...

Stream 7 - Annex to a strategy of innovative approaches and recommendations for respecting indigenous and traditional knowledge and culture in the next decade

[The Annex to a former draft of the *strategy of innovative approaches and recommendations*, submitted for consultation on 11 November 2014 and for subsequent revision, included the following statement as part of the Interim specific targets for 2016-2025:

“By 2010: ...building on work undertaken to implement the Voluntary Guidelines for the Responsible Governance of Tenure of Land, Fisheries, and Forests in the Context of National Food Security (VGGT), a mechanism similar to UNDRIP has been established for non-indigenous local communities including artisanal fishers, peasant farmers, and others, making linkages with conservation activities across **all land/water uses**.

By 2025 ...Routine and institutionalised incorporation of the interests and skills of Indigenous peoples and local communities into PA models, application of traditional knowledge, and universal recognition of community-based tenure rights of Indigenous Peoples and local communities have lead to responsible and sustainable land/**water management** across the landscape, with rural and urban communities at the centre of decision-making.”]

Capacity development Stream - A strategy of innovative approaches and recommendations to maximize capacity development in the next decade

Recommendations For Change

Recommendation 4: To ensure that capacity development initiatives address the needs of the full diverse range of protected area managers, managing entities, categories and governance systems. In particular: to identify and meet specific capacities and capacity development needs of indigenous and local community PA stewards; to address the needs of co-managers of multifunctional protected areas and other partners new to PA management; and to build the capacities of other sectors to integrate protected areas into their plans and activities (in particular spatial planning, forestry, agriculture, **water management**).

IUCN Red List Authority



The FFSG has continued to serve the IUCN SSC in the role of Red List Authority for freshwater fishes:

New Red List Authority Coordinators for FFSG

Since the end of 2013 the FFSG had been operating without an official Red List Authority Coordinator. The position is vital for fulfilling the FFSG's mission of achieving conservation and sustainable use of freshwater fishes and their habitats, particularly on the group's emphasis on "generating and disseminating sound scientific knowledge." In November 2014 Jörg Freyhof (Regional Chair, Europe) and Rajeev Raghavan (Regional Co-Chair, Southern Asia) volunteered to split the responsibilities of the RLAC position.

The RLAC works closely with the FFSG's Species Survival Commission Representative on the Red List Committee, Dr. Rajeev Raghavan. Additional responsibilities include coordinating Red List reviews of freshwater fishes, handling relevant reports, working with the Freshwater Conservation Sub-Committee of the SSC, and assisting in coordinating the Red List decision-making process on behalf of the FFSG.

Anguillid Eel Assessments

by Matthew Gollock, ASSG Chair

2014 has been an incredible year for the FFSG Anguillid Specialist Sub-Group (ASSG). It began with myself and my indispensable colleague, Dr David Jacoby, beavering away at revisions to the thirteen Red List assessments that we had carried out in a workshop in July 2013 with 14 others. Twelve of these were submitted to IUCN in February – the American eel, with input from ~30 individuals, just proved too great a challenge with limited time – and was published in June. This work was subsequently presented at the four day eel symposium included as part of the American Fisheries Society conference in Quebec City, Canada in August.

It is fair to say that the publication of the Japanese eel assessment – listed as Endangered – drew the most interest. As such, in July I

traveled to Tokyo to spend 10 days in the company of one of my fellow assessment workshop attendees, Dr Kenzo Kaifu, to better understand the situation in Japan, and also to co-chair the first stakeholder workshop relating to the Japanese eel. It was an incredible trip and I met some amazing and hugely knowledgeable people from the fields of academia, industry and conservation, all of whom took part in the workshop, which was deemed a great success. In the months following the workshop there were further discussions which culminated in an international agreement in September (<http://www.ifa.maff.go.jp/j/saibai/pdf/140917jointstatement.pdf>) to work towards improving the situation for the Japanese eel and other anguillid species.

The European eel was listed as Critically Endangered for a second time, though it was recognised that the situation appeared to be improving, at least in terms of recruitment. The Red List assessment was referenced in the EU's management plan progress review released in October (http://eur-lex.europa.eu/resource.html?uri=cellar:d77e3ffd-5918-11e4-a0cb-01aa75ed71a1.0006.03/DOC_1&format=PDF). Soon after the assessment was released, I travelled to Bonn to present the science case for the listing of *Anguilla anguilla* on Appendix II of the Convention on Migratory Species in collaboration with the Sargasso Sea Alliance and the Government of Monaco. This was my first trip to a major convention meeting and it was a fantastic learning experience to see how the delegates discuss and evaluate the evidence for listing. I'm pleased to say the case for the European eel was approved and supported for inclusion in discussions at the Conference of the Parties (CoP) in Quito, Ecuador in November. Unfortunately, I wasn't able to attend the CoP but the outcome was good with the eel being listed - <http://www.sargassoalliance.org/highlights/176-european-eel-added-to-convention-on-migratory-species-appendix-ii->

In November, the American eel assessment was finally released - the species was listed as Endangered – and just prior to this, the Atlantic States Marine Fisheries Commission had approved fisheries management actions that will hopefully benefit the species - <http://www.asmfmc.org/uploads/file/54500ecapr38AmEelAddIV.pdf>.

This brings us up to date and already we are planning what we will be doing in 2015. None of this work would have been possible without an enormous cast that have been involved in all of the activities above. So to them, we say a huge thank you.

IUCN Red List Authority

Brazil's Regional Red List Assessments

The Chico Mendes Institute (ICMBio for its acronym in Portuguese) finished the national assessment of extinction risk of Brazilian animals in December 2014. ICMBio had a collaboration agreement with IUCN/CI Biodiversity Assessment Unit (USA) to assess 10,000 species of Brazilian fauna in five years (2010-2014). As of December 2014 ICMBio finished the evaluation and validation of over 12,000 species, 4,509 being fish. Of this total, 3,122 are freshwater fishes, which pretty much include all species described by October 2014.

Of the 3,122 freshwater fish species assessed, 3,105 are actinopterygians and 17 are freshwater stingrays; 1,756 are endemic to Brazil, while 1,366 share their distributions with neighboring countries; 1,707 inhabit the Amazon basin and 982 occur in the Atlantic forest.

Habitat loss and degradation is by far the most important threat freshwater fishes are facing in Brazil. The results revealed that 311 (10%) of the species were assessed as threatened (102 species as Critically Endangered (CR), 110 as Endangered (EN), and 99 as Vulnerable (VU)). In addition to that, 98 ended up as Near Threatened (NT) and 381 were Data Deficient (DD), while 2,316 were regarded as Least Concern (LC). Groups particularly threatened are the annual killifishes (Rivulidae), with 125 Endangered species out of 252, and the 16 species of cave fish, all considered to be Endangered



Members of the Chico Mendes Institute (ICMBio) of Brazil. Photo: Roberto Reis.

Administration

Programme Officer

In June 2014 the FFSG hired a new Programme Officer to take over the position. Suzanne Turnock, who had filled the position for the past year, left at the end of April to work for the Orangutan Tropical Peatland Project in Indonesia. She accomplished a great deal in her time with the FFSG, including revising the website, leading the Freshwater Fish Bioblitz and World Fish Migration Day projects, and much more.

Alex Mauroner joined the Secretariat on a part-time basis, having recently received his Professional Science Master's degree in Environmental Science from Oregon State University (US) where he concentrated in Natural Resources. He received his B.A. in Biology from Westminster College (Missouri, US). Prior to joining us he studied ecology in Belize, worked on leatherback turtle conservation in Grenada, and served as an intern for Conservation International's Alliance for Global Water Adaptation.

In his time with the FFSG, Alex has worked closely with Ian Harrison and Richard Sneider on handling FFSG operations such as running the website, publishing the quarterly newsletter, seeking funding, developing FFSG priority activities, and daily logistical duties. He also helped to create presentations for the World Parks Congress, organize the Annual Meeting in Mexico, and run ongoing projects such as the BioBlitz and World Fish Migration Day outcomes. Additionally, he will be representing the FFSG at the Citizen Science Association's Conference in February where he will present on our BioBlitz project.

Annual Meeting – Executive Summary

- The FFSG will work with the World Fish Migration Platform in 2015, specifically in contributing to the Fish Passage Conference in June in the Netherlands; planning for the 2016 World Fish Migration Day; and on projects of mutual interest associated with reviews of the environmental impacts of dams.
- FFSG had a strong contribution to the World Parks Congress and members of FFSG are following up with contributions to at least two publications.
- Need to review the FFSG link to Wetlands International; how does our group link to them in their new strategy?
- FFSG has recently formed the Home Aquarium Fish Sub-Group which will be (i) establishing a Steering Committee; (ii) producing a Position Statement; (iii) writing a white paper to identify good examples from home aquarium fish industry where communities residing in areas of ecological importance can sustainable harvest and trade to protect the environment and support livelihoods; (iv) contributing to the Aquarama meeting in Singapore in 2015.

- The group discussed the plan to form Migratory Species Subgroup, or whether to simply prioritize some migratory species projects as part of the general work of FFSG. It was concluded that FFSG should first focus on assisting Zeb Hogan with updating his paper on migratory species:

http://www.cms.int/sites/default/files/document/inf_3_3_freshwater_fish_eonly_0.pdf.

We can: (i) circulate the paper to Regional Chairs to review and update with new information for any migratory species (regardless of whether they are transboundary); (ii) once Zeb has revised the document we can review this and send to members, then endorse it. e revised document (at the next FFSG meeting?) and circulate to members for feedback; then FFSG endorses the document.

Although Zeb was not at the Mexico meeting, he had made suggested earlier in the year that FFSG to submit a proposal to CMS to make assessments of the migration status of sturgeon.

- FFSG needs to stimulate further participation in the Global Freshwaterre Fish BioBlitz from people outside North America.
 - Claudio Baigun proposed that FFSG develop a 'Manual for Freshwater Life' – that is, a manual, for people like engineers, on freshwater management and how to assess, and reduce or mitigate impacts of projects like infrastructure (mining, culverts, dams, infrastructure. Need to coordinate this activity with the International Association for Impact Assessments (IAIA).
 - Membership: FFSG must log in to the IUCN Portal to maintain their role as an FFSG member. Guidance on using the Portal is available. The group discussed whether to broaden FFSG membership. On consultation with SSC staff and other IUCN SSC groups the recommendation is to keep the membership focused and not greater than 200 people. Additional people can be on the mailing list if appropriate.
- The group also discussed having a membership fee or donation; a membership fee is not permitted by SSC and any scheme for a donation requires FFSG to have a host organization that can hold a bank account for us. Ian/Alex are researching this.
- Regions/Chairs: The group reviewed the status of the FFSG regions and Chairs and recommended some revision. We will redefine a generalized Western Palearctic Zone including: parts of North Africa, the Arabian

Administration

Peninsula, Iran, Iraq, the Caucuses region; European countries and Belarus, Estonia, Latvia, Lithuania, Moldova, Ukraine, and Russia far east as the Ural Mountains)

Paul Loiselle joins Melanie Stiassny as co-Chair for Madagascar

Eastern Palearctic will be a separate region, needing a chair.

Southeast Asia region is being split into the following regions: (i) Indo-Burma region [name needs to be confirmed] (covered by Chavalit Vidthayanon and new co-chair, Amir Ahmad); (ii) the Indonesia/Sunda/Philippines region that will be covered by Tan Heok Hui (once he becomes available in mid 2015), and (iii) New Guinea

Oceania will be split into the following regions: (i) Australia (covered by Mark Lintermans); New Zealand (also covered by Mark Lintermans); Pacific

- Pete Rand is leading an effort with Steven Cook (Carlton University, Canada) to write a set of guidelines for recreational fishing.
- Richard Sneider proposed the possibility of organizing a Global Creative Forum focused on Water.
- A summary of our priorities and deliverables for the SSC Strategic Plan will be sent to FFSG members separately.
- Jorg Freyhof and Rajeev Raghavan have agreed to jointly take on the roles of Red List Advisors for Freshwater Fishes.
- The group discussed the plan to develop the Census of Freshwater Life project. There is a plan next year to have an initial meeting to discuss Freshwater Census, hosted by Topis, possibly with donations from IGB and GEO BON
- Ian and Alex are actively seeking possible institutions that can take over the role of hosting organization that was previously occupied by Chester Zoo. New England Aquarium is a possibility, but this requires further discussion.

FFSG Membership Changes

During 2014 the FFSG grew from 140 to 181 members. This global network of leading scientists and conservationists provide authoritative, up-to-date information on the global conservation status and distribution of freshwater fishes. New members are able to join on the FFSG website at <http://www.iucnffsg.org/support-ffsg/become-a-member/>. In 2014 we also began to incorporate the IUCN Union Portal into our membership by working closely with IUCN HQ, This allowed for all of our members to be officially registered with IUCN and recognized for their various roles. The advent of the Union Portal created more internal venue for news, publications, and a useful directory for searching out members.

During the FFSG Annual Meeting in 2014, several important membership changes were planned and will be enacted in 2015. Regional Chairs will likely have a greater influence on soliciting or recommending new members.

Updates on FFSG Regions

The FFSG is currently split into 17 regions, each with a Regional Chair or two Co-Chairs (with a few exceptions). Following the Annual Meeting, it was determined that some of the regions may be redrawn to represent a more biogeographic approach to their boundaries; the main areas of change will be through the western and eastern Palearctics, and through southeast Asia and Oceania. Any and all changes will be done in collaboration with and having the consent of the Regional Chairs involved. Any changes will be announced on the website and newsletter.

All current Regional Chairs have been appointed for the IUCN Quadrennium 2013-2016. For a full list of FFSG officials please see pages 31-32.

Administration

Creation of Home Aquarium Fish Sub-Group

In October 2014 the FFSG formally announced the formation of a new Home Aquarium Fish Sub-Group (HAFSG). This new component of the FFSG is in large part due to the efforts of Scott Dowd of the New England Aquarium (NEAq), who is now serving as the sub-group's Chair.

The HAFSG was established for a number of reasons. For the last several years the FFSG has had an interest in developing projects on the conservation of freshwater fish species as they relate to the aquarium trade, including their sustainable management and the trade itself. If done properly the aquarium fish trade can support habitat conservation and the livelihoods of local communities involved in the trade.

The sub-group was launched at full speed, with momentum coming from its numerous initial events and projects. It received enthusiastic support from the NEAq, with the aquarium helping to promote the formation and early development of the sub-group.

Early projects included a side event at the IUCN World Parks Congress in Sydney aimed at examining unique approaches for creating protected areas. It was a follow-up on a separate WPC presentation on Creating Protected Areas by Fostering Socioeconomically and Environmentally Beneficial Aquarium Fisheries. In January 2015, Scott Dowd and others from the HAFSG and Project Piaba (another project of Scott's) led a group to the fishing grounds in Brazil to examine the condition of fisheries and livelihoods in the area.

Upcoming projects for 2015 include participation in Aquarama, which is the leading biennial international ornamental fish, aquatic plants, invertebrates and accessories trade exhibition in the world (<http://www.aquarama.com.sg>).

HAFSG website: <http://www.iucnffsg.org/about-ffsg-2/home-aquarium-fish-sub-group/>



Collecting Tetras in Daracua. Photo credit: Gary Jones (Mars Fishcare)

Communications



Effective communication is essential to achieve the mission statement- conservation and sustainable use of freshwater fishes and their habitats through creating widespread awareness of their values. In 2014 we continued to place an emphasis on communication activities in order to attract new members, inform current ones, and promote our diverse projects.

FFSG website

Since its launch in October 2013, the FFSG website has continuously evolved and adapted as the group and its project base have grown. With contributions from the FFSG membership, Steering Committee, Regional Chairs and Sub-Group Chair, the website covers the scope of FFSG's work and key activities as well as providing a range of resources and latest news. **We would like to sincerely thank the Chester Zoo for its continued hosting of the website while we seek a new host organization.**

Big changes to the site in 2014 included the addition of several web pages. The new Home Aquarium Fish Sub-Group now has its own page. Additionally, only about half of the FFSG regions had webpages, so in collaboration with Regional Chairs, the Programme Officer created sites for the Central Asia, Eastern and Central Africa, Oceania, and Western Africa regions.

The site remains one of our main platforms to promote the work of the FFSG and will be a great tool for engaging the public and our partners in all future activities. Please don't forget to visit the website! www.iucnffsg.org



'Saving Freshwater Fishes and Habitats' Newsletter

The FFSG newsletter '*Saving Freshwater Fishes and Habitats*' has become a successful quarterly publication since its relaunch in 2012. The scope of the newsletter includes articles on taxonomy, genetics, policy, evolution, species distributions, management, husbandry and ecology. We welcome news from recent events (workshops, meetings and conferences) and updates from conservation projects. Regular features are a message from the Global Chair, FFSG updates, news from around the world, an opinion article and a noticeboard of upcoming events.

In 2014 we released four issues, which are all available to download from the FFSG website at <http://www.iucnffsg.org/resources/ffsg-newsletter/>.

Facebook

Social media is an important tool to help raise awareness of freshwater fishes and their conservation. The FFSG Facebook page (<https://www.facebook.com/FreshwaterFishSpecialistGroup>), launched in 2012, has grown significantly. At the start of 2014, around 1440 people 'liked' the page. Due to constant posts and updates, by the end of 2014 over 3000 'likes' had been reached, more than doubling the FFSG's reach on Facebook.

The Facebook page is managed daily and news of FFSG activities (including the launch of new projects), publications (many authored by FFSG members), media stories, as well as news from our partner organisations, is shared with followers from around the world.



Plans for the future

Citizen Science Conference 2015

The FFSG Programme Officer, Alex Mauroner, will be presenting at CitiSci2015 in February. The Citizen Science Association's 2015 Conference will take place February 11-12 in San Jose, California, USA. Alex will be presenting a poster he developed in collaboration with Ian Harrison and Michele Thieme (Special Advisor, Biodiversity) on our Global Freshwater BioBlitz Project.

Over 400 proposals were submitted by individuals and organizations hoping to present at the conference. This will be a tremendous opportunity to publicize the FFSG and the BioBlitz, while also allowing us to explore new partnerships and collaborative projects for 2015 and beyond.

Funding to attend the conference was generously provided by Richard Sneider, GEO BON, World Wildlife Fund, as well as the conference organizers themselves. Updates following the conference will appear on our website and in the next issue of our newsletter.

HAFSG at Aquarama 2015

Aquarama – which is the leading biennial international ornamental fish, aquatic plants, invertebrates and accessories trade exhibition in the world (<http://www.aquarama.com.sg>) – has asked that the FFSG, through the newly formed Home Aquarium Fish Sub-Group, contribute to the Aquarama exhibition in Singapore this 28-31 May 2015. The Aquarama exhibition and conference will include a specially convened public aquarium committee (including HAFSG Chair Scott Dowd) which will launch a programme of sub-events focused on the needs of the public aquarium industry, the role that it can play in generating awareness about the fishes and the habitats where they live, and promoting opportunities for sustainable management of wild populations of aquarium fishes that support livelihoods for communities living in regions of biological importance. The goal of these meetings is to create a win-win-win scenario where the hobby gets an infusion of energy from zoos and public aquaria (which will showcase fish identified by IUCN's FFSG as key species), thus promoting fishkeeping; zoos and aquaria will get a new instrument to achieve their goals of in-situ environmental protectionism; rural communities can receive sustainable economic returns for stewarding aquatic resources and watersheds, and the ornamental industry becomes a main actor in facilitating ethical supplies and helping alleviate poverty.

Census of Freshwater Life /GEO BON Plenary

The idea for developing a Census of Freshwater Life was initiated in 2010 at a joint WAZA/FFSG meeting in Chester. This project would support activities that could increase our knowledge of freshwater biodiversity, and promote the application of new technologies or novel approaches to monitoring freshwater ecosystems. The project would also highlight ecosystems that have not been well explored or have interesting challenges (eg., they are very deep or very turbid, or subterranean). The project is loosely based on the decade long Census of Marine Life (www.coml.org/). decade-long program)

The project would be led by the IUCN Freshwater Conservation Subcommittee (FWCSC) and would have strong input from the FFSG (several of whom are also on the FWCSC, including Topis Contreras MacBeath who is the FWCSC Chair). One opportunity would be to combine this planning meeting for the Census of Freshwater Life with the Group on Earth Observations (GEO) plenary meetings that will be held at Mexico City in November 2015. Jörg Freyhof, the Executive Director for the GEO Biodiversity Observation Network (GEO BON) and a member of the Freshwater Ecosystem Change Working Group of GEO BON has recommended that the GEO Plenary be used as an opportunity to promote a variety of freshwater focused projects via side events at the Plenary.

Migratory Species Projects

The FFSG has been deliberating on the best way to address the myriad of issues facing migratory fish species. At the Annual Meeting, it was decided to hold off on creating a specific Migratory Species Sub-Group for the time being. However, the FFSG placed a renewed emphasis on dedicating its efforts towards migratory species issues. One such goal is to work closely with Dr. Zeb Hogan on his paper reviewing migratory fish species for the Convention on Migratory Species (CMS). Other efforts will likely include collaboration with the World Fish Migration Platform (WFMP), of which the FFSG is a partner organization. Specifically, the FFSG will contribute to the Fish Passage Conference in the Netherlands in June 2015 and other projects as they arise.

Finance

In early 2014 the Chester Zoo stepped down as host organization for the FFSG. However, they still made several invaluable contributions to keep our group moving forward as it seeks out a new host. We would like to graciously thank the Chester Zoo for their support since 2004. Without their help we would have likely lost much of the momentum that we carried through 2014.

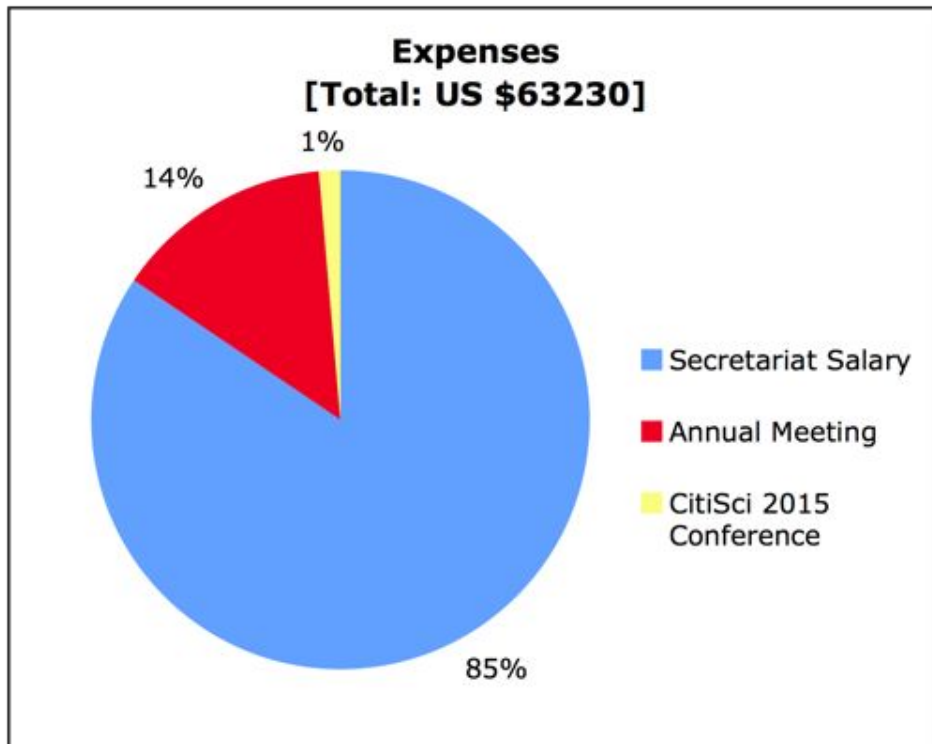
The main running costs of the FFSG are for the salary of the Programme Officer and Technical Officer positions. Thanks to the kind support of IUCN-SSC and the Zoological Society of London, funds were secured to ensure that the Programme Officer position was maintained for six months even without a host organization. Following this period, the Global Chair, Richard Sneider, provided support to keep on the Programme Officer temporarily as other funding options were explored. Additionally, the Global Chair provided all of the funding for the Technical Officer throughout 2014.

The pie chart below shows a breakdown of expenditure, as a percentage, on the following items:

- Secretariat Salary Support (US \$53,359), which funded the Programme Officer at 24 hours per week and the Technical Officer at 14 hours per week
- Annual Meeting costs (US \$8995), which covered costs for several members of the Steering Committee and Secretariat to attend the FFSG Annual Meetings in Cuernavaca, Mexico
- Citizen Science Association Conference costs (US \$876)

Funding for the Annual Meeting was generously provided by the IUCN Species Survival Commission as well as the government of the state of Morelos, Mexico. Funding for the Citizen Science Association Conference was provided by WWF, GEO BON, CSA, and the FFSG Global Chair.

Please note that the finances reported here only cover the FFSG Secretariat, Annual Meeting, and presenting at one conference. Income and expenses from the FFSG regions, sub-groups and regional offices are not included in this annual report.



FFSG Officials



Dr Richard Sneider

Global Chair

Richard is the CEO of One World Apparel LLC and Unger Fabrik LLC. He is a member of the Chairman's Council of Conservation International, the Board at the Los Angeles Zoo, and the Board of the Humpty Dumpty Institute. Fascinated by nature, human societies, and their interaction, he has visited some of the most interesting and pristine places in the Americas, Africa, and Asia, and participated in biodiversity monitoring programs, often in areas not previously surveyed. He has been deeply involved in the world of aquaria for 35 years and designs, builds, and sustains freshwater eco-systems, as well as participated in freshwater fish field surveys in the Amazon, Mexico and Western Papua.

Richard took on the role of Global Chair in December 2013.



Dr Ian Harrison

Technical Officer

Ian obtained his Ph.D. in systematic ichthyology at the University of Bristol, UK. He has conducted postdoctoral research on marine and freshwater fishes in universities and museums in France, Italy, Belgium, and the USA. He has conducted fieldwork in Europe, Central and South America, West and Western Central Africa, the Philippines, and the Central Pacific. Ian has assisted IUCN's Global Species Programme, coordinating activities for the Global Freshwater Biodiversity Assessment. He is also currently working for Conservation International and the University of Minnesota.

Ian joined the FFSG, as Technical Officer, at the end of 2013 to assist Dr Richard Sneider.



Alex Mauroner

Programme Officer

Alex has a B.A. in Biology from Westminster College (MO, USA) and a PSM in Environmental Science from Oregon State University (USA). He's volunteered as a Research Assistant for a leatherback turtle conservation organization in Granada and served as an intern for the Alliance for Global Water Adaptation (AGWA) where he studied the freshwater aspects of climate adaptation. While gaining his Master's degree, he concentrated in Natural Resources, business, and communication. He still works for AGWA in a part-time capacity as a Research Assistant.

Alex joined the FFSG in June 2014 as part-time Programme Officer to take over for Suzanne Turnock.



Suzanne Turnock

Programme Officer

Suzanne has a B.Sc. in Wildlife Conservation from Liverpool John Moores University, and an M.Sc. in Primate Conservation from Oxford Brookes University. Following university, Suzanne worked with various conservation organisations on a voluntary basis gaining valuable experience, particularly in fundraising and communications. After working as Assistant Primatologist for Operation Wallacea in Honduras for the 2010 field season, she joined Chester Zoo as Research Assistant. In this role, she coordinated scientific research at the zoo and conducted zoo-commissioned behavioural research.

Suzanne was recruited as interim Programme Officer whilst Katalin was on maternity leave during 2013 and stayed with the FFSG after Katalin returned to work. She stepped down as Programme Officer in April 2014 to begin her work for the Orangutan Tropical Peatland Project in Indonesia

FFSG Officials

Sub Group Chair

Anguillid Specialist Sub-Group	Dr Matthew Gollock (Zoological Society of London, UK)
Home Aquarium Fish Sub-Group	Scott Dowd (New England Aquarium, USA)

Regional Chairs 2013 - 2016

Australasia/ Oceania	Dr Mark Lintermans (Applied Ecology, University of Canberra, Australia)
Central Asia	Dr. Bakhtiyor Karimov (Uzbekistan Academy of Sciences, Uzbekistan) & Bakhtiyar Kamilov (Uzbekistan Academy of Sciences, Uzbekistan)
China	Professor Junxing Yang (Kunming Institute of Zoology, China)
Eastern and Central Africa	Dr Jos Snoeks (Biology Department, Royal Museum for Central Africa, Belgium)
Europe	Dr Jörg Freyhof (Independent Research Scientist, Germany)
Japan	Dr Katsutoshi Watanabe (Department of Zoology, Kyoto University, Japan)
Madagascar	Professor Melanie Stiassny (American Museum of Natural History, USA)
Mesoamerica	Professor Topiltzin Contreras MacBeath (University of Morelos, Mexico)
North America	Dr Richard Mayden (Department of Biology, St. Louis University, USA)
North America	Dr Steven Walsh (U.S. Geological Survey, Southeast Ecological Science Center, USA)
Northern Africa	Dr Abebe Getahun (Department of Zoological Sciences, Addis Ababa University, Ethiopia)
Northern Asia	Dr Nina Bogustskaya (Zoological Institute , Russian Academy of Sciences, Russia)
South America	Dr Roberto Reis (Catholic Pontifical University of Rio Grande do Sul, Brazil)
Southeast Asia (Mekong)	Dr Chavalit Vidthayanon (Environment Division, Mekong River Commission, Lao PDR)
Southern Africa	Professor Paul Skelton (South African Institute for Aquatic Biodiversity, South Africa)
Southern Asia	Dr Rajeev Raghavan (Conservation Research Group, St. Albert's College, Kochi, India)
Southern Asia	Professor Vishwanath Waikhom (Department of Life Sciences, Manipur University, India)
Western Africa	Dr Mamaa Entsua-Mensah (Council for Scientific and Industrial Research, Ghana)

Find out more about the regions on the FFSG website at <http://www.iucnffsg.org/about-ffsg-2/ffsg-regions/>

Special Advisors

Biodiversity	Michele Thieme (World Wildlife Fund, USA)
Communications	Professor Topis Contreras MacBeath (University of Morelos, Mexico)
Cryobiology	Professor Krishen Rana (University of Stirling, UK)
Development	Dr Tony Whitten (Fauna and Flora International, UK)
FishBase	Dr Rainer Froese (FishBase)
Freshwater representative to the IUCN SSC Red List Committee	Dr Rajeev Raghavan (Conservation Research Group, St. Albert's College, Kochi, India)
Fundraising	Dr Ian Harrison (FFSG and Conservation International, USA)
Gene banking	Professor David Rawson (University of Bedfordshire, UK)
Geographic databases	Kevin Smith (IUCN Freshwater Biodiversity Unit, UK)
Impacts of dams and canals on biodiversity	Dr Carmen Revenga (The Nature Conservancy, USA)
Migratory species	Dr Zeb Hogan (University of Nevada-Reno, USA) and Dr Claudio Baigún (Wetlands International, Argentina)
Re-introductions and <i>ex-situ</i> conservation	Dr Heather Koldewey (Zoological Society of London, UK)
Subterranean fishes	Graham Proudlove (University of Manchester, UK)
Sustainable Trade in Ornamental Fishes	Scott Dowd (New England Aquarium, USA)
Systematics/taxonomy	Dr Richard Vari (National Museum of Natural History, Smithsonian Institution, USA)

Steering Committee (affiliation included if not already listed above)

Claudio Baigún; David Cooper (Mahurangi Technical Institute, New Zealand); Harmony Patricio (FishBio, USA/Lao); Heather Koldewey; Ian Harrison; Jörg Freyhof; Mamaa Entsua-Mensah; Mark Lintermans; Matthew Gollock; Melanie Stiassny; Michele Thieme; Nicolas Tubbs (RSPB, UK); Paul Skelton; Pete Rand (IUCN Salmon Specialist Group); Rajeev Raghavan; Richard Vari; Roberto E. Reis; Tony Whitten; Topiltzin Contreras MacBeath; Ward Hagemeijer (Wetlands International, The Netherlands); William Darwall (IUCN Freshwater Biodiversity Unit, UK); Zeb Hogan



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