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FISH

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Fish and Floods
and Realising Sustainable Fisheries

In this edition:

Front Cover Picture © Jack Perks brown trout Lincolnshire

Inside this edition

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Fish 113

January 2014 was the wettest month in the UK for almost 250 years. An estimated 7,000 properties and businesses across England were flooded this year causing misery to householders and communities. Flooding dominated the news headlines for weeks. As part of the Environment Agency's response, I too got involved and worked with a wide range of organisations and the community to protect property from flooding in Winchester. However, whilst the effect on human inhabitations and livelihoods is all too obvious, what about its impact on fish? In our opening article, Dr Mark Everard and I discuss the topic of fish and floods.

The IFM is dedicated to the advancement of sustainable fisheries management. But what does this mean? Dr Mark Everard deconstructs this term and plays a game of 'snakes and ladders': from repeated stocking to maintain fishery interest to ecosystem-centred fisheries management.

Stocking can be seen as a quick and easy fix to improve fisheries. But why are there no salmon in the Yemen? Dr Carlos Garcia de Leaniz of Swansea University highlights ten lessons that have been learnt from salmon and trout stocking studies around the world.

The Environmental Policy Forum of which the IFM is a member, has written to the Secretary of State over its concerns about fracking. Lawrence Hemmings provides an update on this controversial industry after attending the launch of a report by leading conservation charities the RSPB, Angling Trust, National Trust, Salmon and Trout Association, Wildlife Trusts and Wildfowl and Wetlands Trust, which asks the question 'are we fit to frack?'

Finally, I want to thank everyone who has contributed to this edition and for the support that we have received from our advertisers.

Our next edition will look at marine fisheries.

Lawrence Talks - FISH editor
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Eamon Cusack
IFM Chairman

View from the Chair

As the new life of spring takes hold, and the first warm days of May cause the mayfly to hatch, our thoughts turn to those glorious days ahead, perhaps on a wild brown trout lake with rod in hand, and it seems some time since the dark, cold, watery days of winter. Floods and gales throughout our countries caused extensive damage, devastation and hardship to many. The calls for rivers to be dredged were to be heard from many quarters. Landing the fish and their habitat on the river bank is not the answer to this complex question. We as a society have made choices to live the way we do, to farm the way we do, to build the way we do. This has impacted devastatingly on the environment, which some think they can control, but it has a habit of biting back.

Fisheries professionals must have an integrated role in developing the solutions to this major problem to ensure that our fish habitat is protected and, yes, our communities are protected also, not just from the water but also from bad planning, poor land use and reckless spending by governments. We must seek to work with our environment and not fight against it.

Back in the days when rivers throughout Ireland were dredged, as they were in many countries, battles raged to seek ways to mitigate the damage caused, but little consideration was given to the views of the fisheries professionals. Roll on time and now the same drainage authority is spending €25 million, with the assistance of fisheries professionals, to reverse some of the damage caused.

There is amazing work being undertaken around Europe to reinstate rivers and prevent flooding, protecting people and the fish environment, but wouldn't it be great if the information gained from years of research by fisheries professionals was used in drawing up future drainage plans to manage our waterways. Indeed it was heartening to see on BBC a number of programmes dealing with alternative techniques to prevent flooding, such as the upland schemes to slow river flow or the use of natural flood management techniques.

This is not just an environment versus flooding question but a much larger question for our societies, whether you live in Somerset, Armagh, Aberdeenshire, Caerphilly or Limerick. A clear, ecologically-sound strategy is required for the long-term management of waters. We need to push for fisheries involvement in the development of such a strategy.

It's important that the fisheries sector has a strong voice in this changing world. It is easy to concentrate solely on the work in hand and not look at the wider picture. As we go to press, there are three major reviews underway which will affect the future of those working in fisheries. In Scotland, we have a root and branch review of how fisheries are to be managed. In England, the Environment Agency is undergoing an appraisal of its fisheries service, together with managing cutbacks. In Ireland, our main fisheries legislation is being rewritten, not to mention the bedding down of new fisheries systems in Northern Ireland and Wales. The Institute on your behalf is making its voice heard on the best way forward, but you need to have a say as to how your sector will look in five years time. I would urge you all to make your voice heard to the various review groups or, if you wish, through the Institute. It's your career; it's your passion; have your say.

This year's Annual Conference is being held in Liverpool and promises to be an exciting event in a new format. Again we have made every effort to reduce costs to encourage as many of you as possible to attend. It will be an excellent opportunity to expand your fisheries knowledge, meet fisheries experts across the sector and meet fellow members. Paul Coulson has also put together a wide range of fisheries training courses and events. More information can be found on our website www.ifm.org.uk

Now that many of you will be heading out on to our waterways to carry out field studies and protect our fisheries, please be safety conscious and stay safe.

Eamon Cusack
IFM Chairman

View from the Chair

Fish and Floods

Lawrence Talks FISH editor and Dr Mark Everard discuss the topic of fish and floods.

What a winter! January 2014 was the wettest month in the UK for almost 250 years.

In response to the torrential rainfall, we saw normally passive rivers become raging torrents, overwhelming weir structures and riverbanks and spilling out into their floodplains; creating vast washlands in areas such as the Somerset Levels. Turbid, fast-flowing water cut into river banks, trees were swept away and river beds were mobilised and reshaped.

An estimated 7,000 properties and businesses across the UK were flooded this year causing misery to householders and communities. Flooding dominated the news headlines for weeks. However, whilst the effect on human inhabitations and livelihoods is all too obvious, what about its impact on fish?

Fish have evolved with floods

When you see a river transformed into a raging torrent, you have to wonder how a fish could survive such power. Fish, however, have evolved with floods over thousands of years and, because floods present a strong evolutionarily selective force, they either adapt or die. So contemporary fish species have adapted to survive and even thrive under certain flood conditions, at least within the bounds of natural variability. But adaptability can be seriously compromised where rivers and floodplains have been heavily engineered, drained or otherwise modified.

River Thames in flood 11th Feb 14 © Environment Agency

Salmon and sea trout are built to respond to flood flow conditions

Adult salmon and sea trout, with their streamlined forms and powerful flank muscles and tail fins, are built to respond to flood flow conditions in their migration upriver to spawn. High flows provide salmon and sea trout the opportunity to overcome normally impassable obstructions, and to gain access to otherwise inaccessible or even seasonally dry spawning grounds. The availability of these open gravel spawning habitats, and the flow conditions required to make them accessible, are significant factors limiting salmon and sea trout populations.

Spawning in headwaters is not without its risks. If the water recedes too quickly, eggs can be stranded high and dry, or emerging fry may find themselves cut off from fresh flows and connections with the wider river network in ever-decreasing pools. Conversely, significant floods, even in headwater reaches, bring with them risks of eggs being washed out of the gravel, and indeed eroded silt from the catchment being washed in to blind the gravel and rob it of oxygen. Salmon and sea trout though, seem to know these risks intuitively, and so the overwhelming majority spawn in areas where flows are maintained, where washout of redds is less likely, and where optimum conditions for egg incubation are provided. In these headwater reaches, hatching success is likely to be higher as the water quality is usually better, and eggs are also less prone to suffocation by silt smothering the redd. When fry emerge, headwaters commonly, though far from invariably in heavily farmed regions, have more cover for fish to forage in and evade predation. Also, as fry have the ability to then drift downstream to utilise other reaches of the catchment, there is less likelihood of density-dependent mortality.

Flood flows can also be a significant bonus as parr undergo the perilous smoltification process, enabling them to migrate downriver faster and, under the cover of increased turbidity, more successfully evading predation by piscivorous bird and fish species.

Rheophilic fish species seek back-eddies and pockets of slower flowing water

Rheophilic (flow-loving) fish species, such as trout, grayling and barbel, are potentially threatened by the violence of flood flow conditions. However, they are adapted to avoid extreme flows, and move to the gentler flows of back-eddies and pockets of slower flowing water behind tree roots or boulders and the gentler currents near the river's bed or banks. And, of course, riverine species, such as bullhead and stone loach, make permanent use of the slack water in spaces under rocks and woody debris. This emphasises the importance of a diversity of habitat features in rivers if fish are to survive and thrive; without them, there is a real risk of fish populations being displaced downstream or lost entirely.

During the extreme floods experienced in southern Britain this winter, large gravel shoals were displaced and reshaped on many rivers. One of the consequences of this is that silt was flushed from many reaches, creating new spawning gravels which, together with the creation of new scour pools, bodes well for next year's spawning season, at least for gravel-spawning species, such as salmonids, barbel and chub. With the high winds that also occurred during the winter, considerable woody debris entered many rivers. This serves an important role in providing a rich matrix of habitats in which some other fish species can spawn and most species can exploit as nursery areas, which provide refuge from predation and spate, and which serve as a larder of invertebrates and other important food. However, as observed for salmon and sea trout, extreme floods may wash out eggs if they occur during the spawning season (generally springtime for species other than salmon and trout) with species such as grayling, which create shallow redds, being particularly vulnerable to spring floods.

Eurytopic fish take avoiding action from high flows and move into backwaters

Whilst salmonids and other rheophilic fish species have adapted to fast flows, species such as roach, bream, pike and carp endeavour to take avoiding action from high flows. These eurytopic fishes (able to tolerate a wide range of habitats or ecological conditions) tend to move into backwaters, ditches or floodplain habitat, which

Environment Agency rescue fish from Worcester racecourse

provide refuge during times of flood. Also, the fry of many species tend to follow floodwater margins onto floodplains as river levels overtop the channel. As the floods recede, the fish then seek to return to the river channels.

Depending on the timing and severity of the floods, fish such as pike take advantage of higher water levels and seek out vegetated backwaters in which to spawn. These habitats are quicker to warm up and provide a rich source of food for fry to grow quickly, which is vital if they are going to survive and successfully overwinter. Indeed, pike are amongst the first freshwater fish species to spawn in the British Isles, exploiting high river levels to give them access to well-vegetated backwaters and then enabling their hatchlings to make use of the explosion of fry of other species as they emerge throughout the year from later spawning periods.

Just as winter floods may be important for regenerating spawning habitats, summer low flows and the warming of shallow marginal and backwater habitat is essential to promote the growth of fish fry and their food such that the juveniles grow strong enough to survive the forthcoming autumnal and winter spates.

However, if floods arrive before the young of the year have had a chance to grow, particularly the summer floods that seem to be becoming an increasingly common occurrence, there is a very real risk that these vulnerable early life stages may be washed downstream, with heavy shortfalls in recruitment during such years. Cold summers too can compromise summer growth and hence winter survival, explaining much of the high variability in year classes of river species such as chub and barbel that are at the northern limit of their Eurasian distribution here in the British Isles. Furthermore, if fish are unable to find their way to the main river channels as flood waters recede, they can become stranded in stagnating pools where they can fall prey to gulls, herons, egrets and other piscivorous birds.

Fish have evolved in complex natural river systems

Whilst fish have adapted to survive, indeed to take advantage of flood flow conditions, this is only possible where natural river attributes exist, such as pools, riffles, heterogeneous river bed form, woody debris, spawning gravel, meanders, braided complex channels, backwaters and good

connectivity with surrounding floodplain habitats. All these features provide refuge and slow the flow. For much of their evolutionary history, when the landscape was more heavily wooded and rivers formed many channels, meandering and occasionally naturally dammed in broad floodplains, habitat was not a principal limiting factor. Our modern rivers are, by comparison, heavily engineered, disconnected from floodplains and marginal habitat, and otherwise treated as little more than drainage channels.

Where rivers have been heavily modified, flood flows can be intensified and fish can lose out

In England under the Water Framework Directive, 46.6% of our rivers are judged to be heavily modified and are far from a natural state. They are, indeed, very far from what might be deemed a semi-natural state, accepting that we are never going back to truly wild wooded landscapes with unconstrained and meandering river channels. We have inflicted upon them a plague of canalisation, dredging, bank reinforcement, weirs, abstraction, mills and hydropower; the legacy of engineering works for navigation, industrialisation, flood defences and constraint of rivers to exploit floodplains for development and agriculture and also the result of changes in catchment land use. None of England's rivers can be considered even remotely wild or natural, with favoured riverscapes, as for example depicted in classic paintings, reflecting extensive human modification.

In heavily modified river reaches, floods can have a significant impact on fish stocks. During the recent floods, when the River Severn overtopped its banks, pike, roach, carp and perch were left stranded on Worcester racecourse and had to be rescued by the Environment Agency. The fish couldn't return to the river as the racecourse is lower-lying than the river's banks. When the Thames flooded out of bank at Goring, thousands of fish were lost, unable to return to the river due to a lack of connectivity between the floodplain and the river.

Distressing though the images are, these are in fact merely a small but visible subset of wider impacts on fish stocks. Massive losses are almost certain to have been inflicted on young fish caught by flood flows in rivers with reinforced banks and no marginal or backwater habitat in which to find refuge.

Larger specimens may be displaced downstream by extreme flows. However, even if some of the displaced fish survive, which is often unlikely, weirs and other man-made structures frequently create impassable barriers preventing species such as bream, dace and roach from moving back upstream, or from accessing suitable spawning and nursery habitat. The situation is compounded where habitat is fragmented, leading to a lack of longitudinal connectivity. The problem is most extreme in rivers channelised for land drainage, which are designed to get water out to sea as quickly as possible. Here water velocities can be so great that they prevent weaker-swimming fish species from migrating upstream to more preferable habitat.

Where rivers have been dredged to maintain channel depth, the lack of shelter from flood flows that would normally be provided by in-stream habitat and bed/bank topography can result in highly inhospitable environments for fish. Redds too are more likely to be washed out as water velocities increase and scour the bed of engineered river channels.

Where rivers meet the sea, water may be pumped over flood walls that prevent coastal flooding. If intakes are not adequately screened or 'fish-friendly' pumps are not used, fish can be chopped up or end up in saline water unable to return to freshwater, thence falling easy prey to waiting gulls.

A further impact of floods on fish is the swamping of lakes and ponds in the floodplain, which can cause the spread of non-native fish species into nearby rivers. In February, when the River Test burst its banks, the Romsey World of Water aquatic superstore became inundated allowing 'Steve' the sturgeon, amongst other non-native refugees, to escape. Luckily, Steve was found alive and well in a deep puddle downstream. Chadwick the koi carp is still at large!

River Thames Wallingford 6th Jan 2014

Dredging and concrete – fighting against natural processes

Channelised rivers with engineered flood defences will provide effective flood defences up to a certain level of flow. However, if breached or overwhelmed, significant flooding can occur, as observed at Datchet on the River Thames in early 2014. Such constricted channels, which are designed to get the water out to sea as quickly as possible, can exacerbate flood risk downstream as they effectively accelerate the water and so flood risk to downstream communities. As described above, engineered channels that increase water velocities and have no backwaters in which fish can take refuge may cause significant losses to fish populations in times of flood.

With floods forecast to become more frequent and more intense as a consequence of climate change, more will need to be done to protect people and property from flooding. Reinforcing flood defences will be necessary in places. However, there are limits to how high you can build flood banks. Dredging is another mechanical flood management solution that is often suggested, even though it is usually of limited value for flood relief and almost always detrimental to fish stocks and a wide range of other ecosystem services. Hard engineering and dredging are, in many ways, designed to contain and control a river by fighting against the natural processes of scour, erosion, deposition and floodplain inundation. This approach to flood defence incurs and perpetuates high maintenance and capital costs, whilst at the same time resulting in a wide range of damaging impacts on fish stocks, wetland wildlife and public enjoyment.

There is another way: working with nature to slow the flow and give space to water

As recognised by Defra initiatives such as 'Slowing the flow' and 'Making space for water', a complementary approach to flood risk management is to take a catchment-based approach to slow water runoff and reconnect rivers with their floodplains. Water held or delayed in the upper catchment is water that will not contribute to peak levels at often urban flood-prone 'bottlenecks' downstream. Measures such as blocking moorland ditches, leaving field headlands uncultivated to allow rainwater infiltration, contour ploughing to avert erosion and scour flows in fields, and fencing off buffer strips on river/field margins can all reduce and slow runoff, amongst a wide range of additional benefits. Reconnecting rivers to their floodplains stores floodwater, and so attenuates peak flood flows and reduces flood risk downstream. These approaches work with nature to reduce flood risk, are less capital and revenue intensive, and not only provide benefits for fish including places to take refuge during times of flood and less likelihood of red washout, but also perform valuable processes such as cleansing water, buffering flow recession to low summer flows, creating space for wildlife and enhancing the landscape. These services are of at least as substantial net public value as using land simply for food production, values that policy measures should therefore progressively evolve to embrace.

Natural processes contain 'intelligence' honed by billions of years of evolution: **if we get it right for fish, we get it right for flood risk management too!**

Realising Sustainable Fisheries

Dr Mark Everard asks the question, "So what does 'sustainable fisheries' mean in practice?"

Perch © Jack Perks

Realising Sustainable Fisheries...

Let's start by deconstructing the term. Scientific and policy understanding of 'sustainability' has advanced considerably since its popularisation with the 'Brundtland Report' in 1987. Public understanding is more mixed, and some specialist audiences have modified the definition for self-serving ends. So, rather than getting mired in contested technicalities, dictionary definitions describing sustainability as a capacity for indefinite continuance are more useful.

The term 'fisheries' is no less heterogeneous, with three principal meanings. First, some definitions address exploitation of fish stocks for food. Second, we have recreational fisheries, a more familiar situation today in British inland waters. Third, fisheries comprise ecosystems supporting viable fish populations.

British inland fisheries are managed in diverse ways spanning these understandings: as capture fisheries (e.g. put-and-take trout reservoirs); as recreational resources (generally controlled by some form of angling club); and as ecosystems managed for charismatic and other legally designated fish species (particularly under the EU Habitats Directive) or other interests.

Snakes and ladders

Some forms of fishery management focus solely on ensuring reliable returns per unit effort for paying anglers. At the other end of the spectrum are ecosystem-centred management practices focused on natural regeneration of fish stocks, from which angling benefit is one amongst many valuable outcomes. Today we see management right from the lowest rung of this 'ladder', such as the common clamour at many a fishing club AGM for stocking and predator control as a perceived panacea, to efforts to achieve longer-term benefits from ecosystem-based management. Rungs on this 'ladder' are considered in the table opposite.

Level of 'ladder' of fishery management approaches, with examples	Positive features	Negative features
Stocking: Repeated stocking to maintain fishery interest	• Fish of the desired • species present after stocking • Perception of doing something positive	• Costly, generally needing periodic restocking • Doesn't address core problems compromising fish stock regeneration • Inappropriate introduced species may change ecosystem balance
Predator culling: Campaigns against perceived problem predators have a long history, including zander (1970s), pike (up to the 1980s), cormorants (from the 2000s), otters (from 2010s), etc., including campaigning against Eastern European communities	Limited reduction in pressure on fish stocks if predator control is appropriate and sustained • Perception of doing something positive • Can address problems where predation is proven to be a limiting factor	• Risk of alienating the public • Intensive continuous effort required • Costly • Does not address problems of stock recruitment • Often a purely political gesture, commonly lacking solid evidence of cause and efficacy • Tends to demonise selected predators, but not others (chub, kingfishers, etc.), potentially overlooking more fundamental ecological problems • Overlooks the natural role of predators in fisheries
'Gardening' to create preferred habitat type: Early iteration of river restoration and fishery habitat enhancement techniques, predicated on creating preferred habitat features (gravel introduced to create riffles, etc.) yet without necessarily considering the context of wider hydromorphological processes	• Provides desired habitat features	• Likely to wash out or silt up if working against geomorphological processes
Functional fishery habitat management: Installation of river habitat features in the context of the needs of fish, more or less consistent with 'natural' river features, with fishery outcomes the sole or dominant preoccupation	• Promotes self-regulating fishery by enhancing breeding, nursery, feeding, refuge from predation and spate, and food for all life stages • Lower lifetime cost	• Up-front costs and labour inputs may be significant • If perceived solely as a 'fishery scheme', can be costly and also potentially conflicting with other management approaches • Can alienate other river users

Level of 'ladder' of fishery management approaches, with examples	Positive features	Negative features
Ecosystem-centred management: Enhancement of functional habitat beneficial to the breeding, nursery, feeding and refuge needs of fish, planned as part of wider consideration of improved river and land/water interface functioning optimising outcomes across a range of ecosystem services (water quality, hydrology, amenity, aesthetics, biodiversity, etc.) Useful case studies include: • Wider benefits of buffer zones (Everard and Jevons, 2010) • Tamar 2000 outcomes (Everard, 2009) • Upstream Thinking (South West Water) • Catchment-based Approach (Defra, 2013)	• Addresses co-benefits of improved river functioning (such as reduced farmland diffuse pollution and improved water quality, wider biodiversity gains, aesthetic improvement, etc.) • Net economic value accrues from benefits to multiple interests in the river ecosystem • Potential for pooled funding for improvement of river habitat and functioning • Durable solutions • Ecosystem-based water service company, urban regeneration and other schemes can coincidently enhance fishery • Engenders wider community support	• Up-front costs and labour inputs may be significant • Greater time and flexibility required to network with wider beneficiaries of improved ecosystem structure and functioning

Unfortunately, this table presents the 'ladder' in upside-down order. This is purely presentational, as it makes sense to emphasise from top to bottom, the increase in cumulative benefits, reduced lifetime costs and resource inputs, and wider societal benefits stemming from progressively more ecosystem and community-centred approaches to fishery management.

The bottom of the ladder (the top of the table) reflects an earlier model of fishery management focused purely on current fish numbers and potential returns to the paying angler. Towards the top end of the ladder (the bottom of the table), management becomes increasingly consistent with the Ecosystem Approach, promoted by the Convention on Biological Diversity as a: "… a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way" (www.cbd.int/ecosystem). The essence of the Ecosystem Approach is management working with or restoring natural processes, providing wide-ranging benefits to multiple societal interests all of which are integral to the planning process.

Habitat diversity offers different fish species suitable spawning media, harbour from strong flows and predation, and sources of food for all life stages. But these habitat functions are also consistent with the kind of pollution attenuation, self-purification and flow buffering benefits that are seeing water service companies investing increasingly in catchment management as a cost-efficient alternative to treatment of more contaminated water downstream, and which serve a range of additional flow-buffering and natural flood management, carbon-storing, nutrient cycling, geomorphological, aesthetic and other beneficial services to wider constituencies of society.

This breaks the practice and perception of 'fishery management' out of a stand-alone activity that may potentially conflict with other management objectives, to one where ecosystem-based fishery management becomes an integrated contribution to better-functioning aquatic ecosystems. Fishery management based on an Ecosystem Approach thereby creates positive economic value, with ecosystem enhancement to support fish and other biodiversity perceived not as a costly pacifier to anglers and 'bunny huggers', but as a positive contribution to the multiple dimensions of human wellbeing, supported by better-functioning, more resilient aquatic ecosystems. This transition engenders wider public support, and can open the doors to collaborative funding and management efforts recognising thriving fish population as a key indicator of aquatic ecosystem health and hence cumulative value to society.

A truly sustainable fishery offers benefits for all in society

A truly sustainable fishery is part of a resilient ecosystem that can continue indefinitely, embedded within ecological, recreational but also wider socio-economic contexts. It does not depend on repeated costly stocking, predator control and reinstatement of preferred habitat features, except where seriously compromised by past development, but seeks instead to work with natural processes supporting the needs of multiple beneficiaries of thriving aquatic ecosystems. Such an ecosystem-based approach works with the best interests and economic forces of society, offering benefits to all and engendering greater public support.

As with clamours for dredging, which does little or nothing to alleviate flooding but rips the soul out of rivers and many of the beneficial services they provide, fishery managers can expect periodic 'knee jerk' demands to address perceived short-term fishery problems. It is important to avoid these particular 'snakes' in pursuit of short-term gratification, as they are likely only to reduce fishery resilience and waste investment. Better to bring people 'up the ladder' of increasingly sustainable management approaches through patient argument about how a thriving fishery is not only a prominent and valuable indicator of a better-functioning ecosystem, but is also more durable as the ecosystem as a whole functions better with benefits for all in society... including those interested in fish.

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No Salmon in the Yemen

Dr Carlos Garcia de Leaniz of Swansea University highlights ten lessons that have been learnt from salmon and trout stocking studies carried out in Wales and elsewhere over the past few decades, and examines how research can inform management and help to produce more natural, fitter fish for restoration.

Salmonids have been dammed, choked with pollutants, and fished to extinction over much of their native range

They have also been translocated with mixed fortunes all over the world. Yet, there is poor understanding of the successes and failures in salmonid conservation, and fishery managers continue to have limited ability to predict - let alone prevent, impending extinctions. Deliberate releases of captive-reared fish (stocking) are widely carried out in an attempt to restore natural populations, but survival of hatchery-reared fish is typically low for reasons that are increasingly becoming clearer.

The man on the moon syndrome

There are no salmon in the Yemen. The country is too hot for it. But as the popular book by Paul Torday fantasized, could a determined (albeit reluctant) salmon biologist bring salmon fishing to the Yemen? If we can put a man on the moon, surely we can put salmon in the Yemen. This is 'The man on the moon syndrome'. It contends that technology can solve any environmental problem no matter how difficult, provided we are prepared to invest sufficient time and resources on it. Accordingly, hatcheries can halt salmon declines, boost fisheries and mitigate for environmental insults. They can even propagate salmon and trout where none existed, such as Patagonia, Australia or South Africa.

Hatcheries can be seen as a quick, easy 'fix' for boosting salmon numbers. And yet, it is now more than 20 years ago that Garry Meffe and others before him termed this 'techno-arrogance' and 'halfway-technologies', and argued that stocking merely addresses the symptoms, not the causes of salmon declines. So why do people continue to stock hatchery–reared salmon and trout all over the world? Is it because stocking works? Is it because we still don't know whether it works or not and folks think they can always do better? Three very useful summaries of thousands of salmonid stocking studies can be found in Kerr (2000), Kerr and Lasenby (2001) and Lasenby and Kerr (2001). Most of these refer to brown trout and brook trout but lessons learned are probably applicable to Atlantic salmon as well.

10 lessons we have learned from salmon and trout stocking

Much more is known about salmon and trout biology, particularly about salmonid genetics, than has ever been known before, and yet the success of salmonid conservation efforts continues to lag behind. If I Google 'salmon' I get a staggering 41.6 million hits, but less than 0.2% of these are about conserving salmon. Somehow, knowledge is not being translated into better management or more efficient conservation programmes, what in conservation has been termed 'science for the eulogy'. Below I summarise some of the lessons that have been learnt during salmon and trout stocking over the last few decades that can inform conservation. Although these are drawn mostly from my own experience, I believe these are broad enough and typical of many other situations.

Lesson 1 - Few hatchery-reared fish survive in the wild, but some do

Monitoring the results of stocking is not easy. Recent developments in molecular tags, stable isotopes and otolith micro-chemistry make it now possible to assess with greater certainty the contribution of stocked fish. Results indicate that hatchery fish typically make up a very small contribution to wild populations. There are several reasons for this, which are explored next.

Lesson 2 - Hatchery sex is dull; it negates the benefits of mate choice

Few animals mate at random, and salmon and trout are no exception. But in hatcheries salmon and trout are typically crossed arbitrarily, without the benefits of mate choice. The result is that fish are 'mongrelised' and may have a weaker immune system and greater susceptibility to parasites and disease.

No Salmon in the Yemen...

Lesson 3 - Hatchery survivors are not random, they are special

Recent studies indicate that hatchery survivors are not a random sample of the fish that are released. They tend to display longer pectoral fins, better camouflage, more streamlined bodies and are also more symmetrical. In other words, they are the ones that resemble wild fish the most.

Lesson 4 - Salmonids are locally adapted: one size doesn't fit all

Salmonids are locally adapted but this has often been overlooked in stocking programmes. Genetic studies indicate that the spatial scale of local adaptations may be finer than previously thought. Trout living upstream of impassable obstacles may have become reproductively isolated and developed adaptations to 'stay put' and avoid being displaced downstream. Moving salmonids around is therefore not a good idea.

Lesson 5 - Good housing makes a difference

Hatcheries are rather dull places for salmon and trout to live in, certainly very different from natural streams. Research shows that fish reared in hatcheries have less developed brains and poorer cognitive abilities than their wild counterparts and that this may in part explain their poor post-release performance. Improvements can be can be made by rearing them as nature does: lowering the density, enriching the tanks, feeding natural prey, exposing them to predators, and making their environment less predictable; in other words, rearing them in a stream, not in a hatchery tank.

Lesson 6 - With stocking, less is often more

Juvenile salmonids are subjected to a kind of law of diminishing returns: at higher densities they don't grow and survive as well as they do at low densities. This is termed negative density-dependence. Some evidence indicates that stocking effort is negatively associated with salmon return rates, and that the most heavily stocked rivers are the ones where salmon are doing less well, which may indicate negative density-dependence due to stocking. The carrying capacity of the system must be considered before introducing any fish.

Lesson 7 - Predators will eat your fish

Predation is one of the most pervasive forms of natural mortality of juvenile salmonids. Hatchery fish do not recognise predators as such and appear to be particularly vulnerable to predation during the first few days post release, when predators will commonly target stocked fish. Exposure to mock predators has been shown in some studies to make hatchery fish less bold and more wary, which may increase their survival in the wild.

Lesson 8 - How and when you stock is important

Salmonids generally migrate at night to reduce the risk of predation but people normally release them during the day, when they may be most vulnerable. Some results indicate that stocking at night may facilitate downstream migration and enhance survival by giving fish a better chance to recover from handling and transportation stress. Likewise, other studies have shown that the fate of stocked fish may depend on social status and prior residence so where and how one stocks may be important.

Lesson 9 - Hatcheries are a trade-off between fitness loss and survival gain

Hatchery rearing represents an inescapable trade-off between survival gains and fitness losses caused by relaxed natural selection in captivity (protection from predators, plentiful food, disease management, etc.). The longer fish are kept in hatcheries the greater the survival gains are relative to natural conditions but also the less well adapted fish become to survive in the wild (Figure 1).

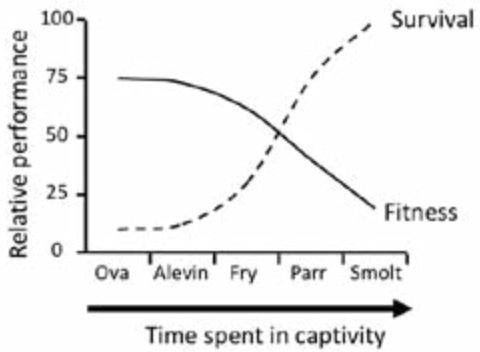

Figure 1. Hatcheries are a trade-off between survival gain and fitness loss.

Lesson 10 - We need to recognize Yemen situations when we see them

Salmon and trout hatcheries cannot compensate for lost habitats, excessive water abstraction or poor water quality. Nor can they generate more fish than the environment can support, or deliver the promise of increasing angling catches when people cry grief but mean greed. We can put a man on the moon but no amount of stocking will bring salmon to the Yemen, at least as we know it (but see what Mike Kinnison, 2012 had to say - http://www.youtube.com/watch?v=-axyP9yK8p8

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Chalk streams such as the River Till are very vulnerable to pollution © Lawrence Talks

Are We Fit To Frack?

Are We Fit To Frack?

Lawrence Hemmings provides an update on this controversial industry after attending the launch of a new report.

Poorly regulated fracking risks harming threatened species and polluting our waterways, says a recently published report by leading conservation charities the RSPB, Angling Trust, National Trust, Salmon and Trout Association, Wildlife Trusts and Wildfowl and Wetlands Trust, which asks the question 'are we fit to frack?'

Impacts

The government is keen to see shale gas extraction rolled out quickly, but the RSPB led evidence-based report highlights that fracking could cause serious impacts on a range of threatened species including pink footed geese, salmon and barbastelle bats. It raises serious concerns about the impact of drilling and water contamination on some of our most precious natural habitats such as chalk streams of which England has 85% of the world's resource.

The shale gas industry could require 25,000 cubic metres of water per well from already water over-stressed areas.

Flowback of waste water from the fracking process tends to have a high concentration of chloride (100,000 mg/L) and be contaminated with natural isotopes, though it is not yet clear where this wastewater will be treated.

Shale gas drilling activity, construction noise and the increased movements of vehicles and people are likely to have adverse impacts on wildlife.

Estimates vary but hundreds or even thousands of well pads could be required in the Bowland shale region alone. Each will require 2-3 hectares of land, as well as land for a storm water system, new roads, compressor stations and pipelines. Together this could cause significant loss or fragmentation of important habitats for wildlife.

Avoiding dangerous levels of climate change requires fossil fuels to remain unexploited.

Recommendations

The report calls for all protected wildlife areas, nature reserves and national parks to be frack-free zones, for full environmental assessments to be carried out for each drilling proposal, and for the shale gas industry to pay the costs of its regulation and any pollution clean-ups.

Government response

At the launch of the report the head of the Department of Energy and Climate Change, Duater Figueira, stressed that at present the method of fracking was only at an exploratory stage and there was no indication of potential productivity. Nevertheless, natural gas sourced this way could become part of the "energy mix". He made reference to a "regulatory roadmap" which has been designed to guide Local Planning Authorities on licensing fracking, though this had not been seen by any of the conservation bodies present.

Simon Moore of Policy Exchange think tank, said that gas is a vital back up to renewables.

Tony Grayling, head of climate change, at the Environment Agency considered that the regulatory framework was already robust. Drilling boreholes near potable water would not be permitted and gas companies would be required to capture harmful methane gases.

Conservation organisations remain seriously concerned about the impact of fracking

Urgent improvements are needed to the regulatory framework for shale gas extraction so that negative impacts can be avoided or at least minimised.

The full 'Are We Fit To Frack?' report is available at http://www.rspb.org.uk/ourwork/policy/climatechange/action/ukenergy/fit-to-frack.aspx

The Conservation Column

Valerie Holt

Underwater Wonders

Are you passionate about fish? Have you always wanted to see fish in their natural habitat? These are probably the dreams of fisheries managers and fishermen everywhere.

Eel © Jack Perks

Underwater Wonders...

Valerie Holt has met one man who is making this come true by making fish interesting for a whole new audience.

Jack Perks is a wildlife photographer with a difference, capturing wonderful underwater images of fish, diving birds, amphibians and all things watery.

Jack lives in Nottingham and has always been a wildlife enthusiast, volunteering with the Wildlife Trusts and the Canal and River Trust. His third year project whilst studying for a degree in Marine and Natural History Photography BA (Hons) was looking at the adaptation of fish to survive in rivers. This led him to the career he now has, a freelance photographer who is leading the way in a new project to raise the profile of fish.

The project is entitled 'Beneath the Waterline' and he is undertaking this with a minimal amount of finance and a lot of his time and enthusiasm. The Fisheries Society of the British Isles helped with some funding but the sum is very modest and only covers travel and the occasional accommodation costs. Details of the project can be found on the website www.btwlfishproject.com

The project entails filming every species of freshwater fish found in rivers and lakes in the UK. The list does include non-native species such as grass carp and wels catfish and also some species that are found in tidal waters such as flounder and smelt. So far he has filmed 33 of the 54 species on his list. Next in line to be done are sea lamprey in the Sussex Ouse and twaite and allis shad in the River Wye.

Almost all will be filmed in their natural habitat rather than tanks, but small species that burrow into mud will have to be captured and filmed in a tank e.g. spined loach and sticklebacks.

This project should be concluded in early 2015 and the resultant film will be launched at the Broadway Cinema in Nottingham, with further showings in Bristol (which will involve the BBC), London and Carlisle. The film will be in two parts, one showing interviews with bodies such as the Environment Agency and Wild Trout Trust highlighting issues such as threats and ways to improve fish habitat. The second part will be of the actual fish and it is intended that this will be broken down to show two minute shots of the fish on the website. This will help tremendously with fish identification for all types of people, from students and fishermen to conservationists. Of particular help will be the shots of the rarer species and a DVD will be available for sale after the launch.

The whole spectrum of underwater photography can assist understanding of the aquatic environment. Many conservationists often forget about fish because you do not see them. It is not just about identifying species but about understanding the behavioural habits, the way fish use their natural habitat and how invasive species can change these. He has done some quite detailed studies of grayling and the way they use their fins to signal and their aggressive fighting behaviour.

He does the filming in several ways depending on the water body, scuba diving in deeper waters, snorkelling, wading or using a boat with the camera on a pole.

Jack is very keen to get children involved in looking at fish and will be using his talents at a special event at Attenborough Nature Reserve; doing some underwater surveying and will possibly be giving a lecture on fish identification. He is keen to encourage people at nature reserves to think about fish, with posters of fish that are found in the water being displayed. There are often pictures of birds and other wildlife at such reserves and fish should be included as well. Another idea would be a raised pond with a viewing screen to allow children (and adults) to look at fish in a natural habitat and using tanks with native fish so people can become acquainted with some of our little wonders that are rarely seen.

For further information visit www.jackperksphotography.com

Jack Perks
© Jack Perks

The Staff at Electrafish Ltd are dedicated to the design and manufacture of high quality electric fishing equipment and have been for more than 35 years. We manufacture 1, 2, 3, 4, 5, and 6 anode generator controlled fishing boxes with complimentary electric fishing generators. Approximately 1KW of electric fishing generator power is required for each anode deployed. Boxes can be fitted with multiple cathode sockets if required. We also make battery powered fishing gear from 120-400 watts

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The Paul Coulson BLOG

New PB barbel

I write this Blog at the end of the Lamprey Conference and what a great three days it was. We will come to that in more detail shortly but firstly I should update you on some of my other activities over the last few months.

Training and Events

In March we held the second of our combined estuarine and marine fish identification and monitoring courses. This time we decided to move away from the tropical conditions that we had during the last course in Southampton and move to the considerably colder and wetter north east. We based ourselves at the Dove Marine Lab in Cullercoates bay, which is run by Newcastle University and is a great venue for this kind of course, especially as you can see the sea from the classrooms.

Peter Henderson and his team at Pisces Conservation really pulled out all the stops to get us some excellent samples and we had 86 different species for the trainees to look at. Considering I am used to dealing with about a dozen coarse fish at best normally, it is a great opportunity for me increase my fish knowledge as well. Along with Pete we also had the two Steve's (Messrs' Colclough and Coates) who led the course along with Rafael Perez-Dominguez of APEM who kindly lent his skills for the id part of the course. With 18 trainees and 80+ species it was great to have so many experts on hand to help out.

Estuarine and Marine Fish ID classroom

We were pleased to welcome four members of staff from Bio-Consult in Germany to the course, which just shows that the good name of the IFM and its reputation for first class training is growing and not only in the UK and Ireland.

Although it was far from T-shirt weather for the monitoring part of the course, we were still able to get out in the bay and demonstrate the various techniques that can be used under the Water Framework Directive for collecting fish samples. In the seine net sample we managed to catch a turbot the size of a 50p which was possibly the best looking fish I have ever seen, although it would have been better if it was about 3lb heavier and lightly grilled with a squeeze of lemon.

Hot on the heels of the estuarine fish course, Mike Lee and I were back on the road to deliver a couple of our electric fishing training courses. The first of these was a course for staff from the West Country Rivers Trust followed a couple of weeks later by our own spring course. Again it was great to see the diverse range of people who are attending our training courses. We had academics, consultants, river keepers, diploma students and Wildlife Trust staff on our course. Both courses went really well and we managed to catch a range of fish species during the practical part of the course as well as signal crayfish.

The second in the series of Fishery Enforcement Workshops took place on the 3rd of May, this time in the South West. A number of angling club representatives were in attendance as well as a couple of members of the local police force, it is great to see that they are starting to engage with angling clubs and taking the issue of illegal fishing and poaching seriously. It is at this point that I have to say a massive thanks to Sam Chapman of the SW Branch. Sam very kindly attended the workshop on our behalf and delivered the Health and Safety session for me, as I was otherwise engaged with Lamprey Conference prep. Cheers Sam.

In between these events I have also been working on the preparation for both the Tagging and Telemetry workshop and the Annual Conference. Both events are coming along nicely and we will very shortly have the full programmes out for both events. The tagging workshop will also have a number of different companies in attendance showing their latest equipment, so this is a great opportunity to get up to date on the latest developments.

The Annual Conference to be held in Liverpool on the 7th- 9th October looks like being a very diverse event with papers already submitted on everything from the impacts of offshore wind farms on fish to river restoration and fish passage. The annual poster session will form the opening event of the conference and will take place at the Maritime Museum on the evening of the 6th. We still have space for a more posters if you would like to submit one.

We can now turn our attentions to the IFM Lamprey Conference that was held in York on May 6th – 8th. What a great few days it was. The omens were good for the week ahead as on the Monday night before the conference we visited the local pub for a welcome drink. Whilst we were there we took part in the pub quiz. Our team made up of myself, Art Niven, Nicola Teague, Jim Kerr, Charles Crundwell, Emma Keenan and Edith Guilloton from France swept to victory in emphatic style. We did feel a little guilty as outsiders and gave away our winnings (15 drinks vouchers) to the locals. I felt a bit like Robin Hood.

The conference itself was excellent (even if I do say so myself) and 90 delegates from 17 countries were treated to presentations on subjects as diverse as looking for e-DNA in Canada to the potential for re-stocking of brook lamprey in the Netherlands. The conference dinner took place in the historic surroundings of the Merchant Taylors Hall and the field trips also had a historic feel to them as we had refreshments in the Georgian Aldby Hall on the Buttercrambe Estate after visiting the hydro power scheme there.

The presentations and posters from the conference are on the website, so check them out.

Angling Success.....twice

In a shock to the system, I did manage to get out on the bank in the last week of the season. I went with another old friend Chris Evans (not he of radio fame) to the River Trent in search of a barbel. Now the section of the Trent that we fish is wide, deep and tidal, none of this weedy chalk stream nonsense for us northerners. Five ounce feeders loaded with pellets, carp rods and boillies are the order of the day down there. I managed to catch two barbel one of which was 9lb 3oz which was a new PB whilst Chris caught a 7lber. As I have only managed to get out twice after a barbel this season it was great to catch one and a new PB at that.

You may remember in my last blog that in the winter leagues Mike Lee and I were doing quite well in both the pairs and teams of three events that we fish. Due to work and family commitments I didn't manage to make any more pairs matches and needless to say we finished well down. The teams of three was a different story, however, as we both managed to fish most of them along with the third member of the team. After six rounds we were declared the winners and I now have a shiny new trophy on my desk. This is the second time in three years that we have won it.

As the nights are now getting longer I plan to make a few evening matches on some local ponds as well as throwing some frogs on the canal, rubber ones not real of course.

My little boy Noah will be three shortly and I think he is now old enough to venture on to the bank this summer. I think it is vitally important that we engage children with the countryside and that they get an understanding of what is around them, and if we can do it with a rod and reel in hand all the better. And besides, I need to get him fishing before his mum tries to take him to the dark side of equestrianism. How much chance I will have of influencing Lily I am not sure, but I will give it a good go as soon as she is old enough to join her big brother.

Until next time...

Tight lines

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Best Fishes for 2014

IFM News

IFM concerned about Environment Agency reorganisation and effects on fisheries

In a letter to the Environment Agency's Operations Director David Jordan, IFM President Dr Peter Spillett, asserts that the more than one-and-a-quarter million anglers in England paying £22 million a year for fishing rod licences are being short changed because the money is not being spent to maintain and develop freshwater fisheries, as the law requires.

The Environment Agency has cut the number of qualified employees in its fisheries service. Without skilled professionals the Environment Agency is unlikely to be able to make the right decisions to enable it to conduct its duties competently. It needs to demonstrate to anglers that they are getting the service for which they are paying.

The Institute is concerned that the Environment Agency is reviewing its corporate ambitions and rapidly restructuring itself without waiting for the results of its internal Fisheries Refresh project which has already identified a number of concerns.

The lack of a separate fisheries function at operational level…means that the limited opportunities for skills development and career progression will be further restricted.

Staff, he said, should be encouraged to improve their skills. Much expertise had already been lost and more would be if regional fisheries specialists were removed, as seems likely in the new structure of the Environment Agency.

Replying, Mr Jordan said the Environment Agency shared the IFM's determination to secure the best deal for fisheries. Issues reflecting the Institute's concerns had been identified and he was confident it would deliver the best options the Environment Agency can achieve.

The Environment Agency's aim, he said, was to simplify how it worked, reduce bureaucracy, have the right people in the right place with the right skills and learn from experience outside the organisation, including the IFM, the Angling Trust and associated bodies.

Dr. Spillett said the Environment Agency should show how its fishing licence income is spent. It is evident that a very large slice funds its head office, with only about 40 per cent going to its regions and areas to spend on fisheries.

Because the Environment Agency is required to spend its licence income on fisheries, the work ought to be unaffected by cuts in Government grant-in-aid.

Dr. Spillett said much fisheries work appeared to be directed at mitigating and preventing damage caused by others, including other Environment Agency functions such as flood defence.

Andy Don becomes a Fellow of the Institute of Fisheries Management

Andy Don qualified from the Hampshire College of Agriculture with a HND in Fisheries Management. After a brief period as a fishery manager, he joined the National Rivers Authority as a Fisheries Officer in the Wessex Area.

He has extensive experience of technical fisheries management and research gained in the South West Region of the National Rivers Authority and Environment Agency where he has served in a number of fisheries posts. He has demonstrated substantial strategic and technical skills for the benefit of fisheries culminating in his current post within the Agency's National Fisheries Team as a technical specialist focussing on eels.

Examples of his achievements include developing and running a 'screening helpdesk', which provides support to Agency teams in their delivery of actions under the Eel Regulations. Andy was also responsible for the innovation, design and production of various technical solutions for eel passage, including self-adjusting passes for tilting weirs, trap and transport schemes, associated monitoring formats and the novel 'Eel Pass Tile'.

Andy was responsible for the original concept, and additionally co-organised two of the most successful IFM events of the past few years, the first Eel Conference in Bridgwater in 2009 and the International Eel Conference held in London in 2013. Both events resulted in a raised profile, and brought additional income into the Institute. Andy is also the 'Government and Scientific Advisor to the Sustainable Eel group, and is a member of the Anguillid specialist sub-group of the International Union for Nature Conservation.

"There is no hurry in Africa"

This was one of the first things a fellow volunteer told me, says IFM sponsored Voluntary Service Overseas (VSO) volunteer Elaine Taguando in her latest newsletter. It didn't take me a long time to find out that this is true. For over the last few months I have grown accustomed to delays and learned to take almost everything slowly. If something needs to be done, wait for a good five to seven days before it gets done. Call a meeting with the community members at nine in the morning and they start arriving at one in the afternoon! Everyone and everything takes its own sweet time.

The remoteness of Gairezi Ecotourism Project gives a glimpse into the unspoiled beauty of parts of Africa with its stunning landscapes, culture and people's genuine kindness and hospitality. Without doubt, Gairezi is definitely the most beautiful place in this part of Zimbabwe. I continue to be amazed by the breathtaking view just outside my doorstep, and it makes it even more special when various brightly coloured birds fly just above me. However, coming from a tropical country, I find it very cold here and despite layers of thick fleece I'm often freezing and it still isn't the winter season!

Typical afternoon in Gairezi

Zimbabweans are known to be warm and friendly, full of smiles and greetings. And when I say full of greetings, I mean every single person you meet when you are walking on a street greets and asks how your day is. When you go to a store to buy some sweets, you always have to say 'hello, how are you?' and not dive directly into asking for sweets. In the morning, it is customary to ask the people you meet, how they slept or woke up, while cupping your hands and bobbing your head, which is very traditional and I love doing it. After some time, I am now used to these 'hello, how are you' exchanges. It becomes like a reflex. In a place where almost everyone calls me murora (daughter in law), you just have to show respect by holding your right elbow with your left hand when you are shaking hands or handing out something, always with the right hand.

Gairezi Ecotourism Project Office and my kumba (house) next door

IFM News

In the Mashona language, they do not usually use the letter 'L', so a lot of people just find it too hard to pronounce my name Elaine. That is why a few weeks after meeting with the elders, they baptized me Erina. Erina murora, in fact, Elaine our daughter in law.

For the past few months we have done a series of community consultations over the renewal of the 5-year Memorandum of Agreement between the Nyanga Rural District Council, Nyanga Downs Fly Fishing Club and the Gairezi Development Trust, who are the three parties responsible for the Gairezi Ecotourism Project. Some days, there would only be 60 project members attending, out of 306. Some say that a lot of them are reluctant to attend meetings, some do not have any idea what the project is all about, even after being a member for 10 years, while some just do not care. This is indicative of a lack of awareness of their potential to influence decisions that affect them and their responsibilities as a member. But eventually, as they began to realise that they had a stake in the project, more members started to take part in community meetings.

Training for Transformation Participants,,with me in the middle

After each community meeting, some youngsters would tug my shirt and point at my camera. Everybody just loves to have their photos taken. Other times, they would take photos of me with their phones and ask a lot of questions about the Philippines. Once, I was asking them about 'lobola', their version of dowry, where a groom gives cows, chickens and dresses up the parents of his bride. My curiosity met theirs and they asked how we do things back home. As I answer with fondness, it made me realise how, even across millions of miles, we share the same cultural things.

To help community members actively participate in the drafting of project byelaws, a five-day Training for Transformation workshop was conducted for the Gairezi Development Trust and a participatory approach was taken to preparing the byelaws with the project members. They suggested rules and sanctions and wanted more involvement in managing the project. It was very encouraging to receive their input and to see that they recognised the Ecotourism Project as a means to uplift them from poverty. They expressed the need for all members to participate in improving the secondary roads and building more chalets, which could increase economic benefits.

Project Members during one of their group activities

Community consultation workshop for the project byelaws

The Gairezi Ecotourism Project is regarded as one the most successful CAMPFIRE (Communal Area Management Programme for Indigenous Resources) projects in Zimbabwe. There are a number of challenges, which includes trout poaching and there are some grey areas in the Deed of Trust and memorandum of agreement, such as membership qualification, beneficiary rights in case of divorce and sanctions for individuals who engage in unlawful activities, amongst other matters. It is hoped that these can be addressed through the creation of a project byelaw. I am presently preparing the draft set of byelaws, which will also be translated in vernacular for circulation to all members.

The past months have proved to be very challenging for me. I have struggled with the situation I am in, absence of electricity, inaccessibility and isolation from anything that has something to do with modern civilization. But being here has taught me how to be more resourceful, to make do with what I have. That is why I never forget to remind myself to be thankful for being here. It is a struggle every day, but I try to do things that make me feel some normality, like having a cup of good coffee in the morning and taking hot showers before I go to bed.

I keep on battling with the challenging and sometimes lonesome situation that I am in, except on Friday afternoons, when school children pass by my house whistling so as to catch my attention. I peek through my window and say 'Hi'. They all answer with a giggle 'Hello, I'm fine' and run away. This always makes me smile.

IFM Training Update

The IFM Training Team was really pleased with the uptake on to the new Certificate Course, with over 50 new students joining from September to January. The first set of exams for the new course took place in January and we are proud to report that there was a 100% pass rate. Well done to all those who sat them. This has, of course, set a very high standard for the next round of exams in June when we have even more students due to sit them.

The Diploma students are gearing up for their exams in June, unlike the Certificate, the Diploma students only have one set of exams per year and have to submit assignments as they move through the various units. Good luck to all.

The Training Team were out in force in March when the Yorkshire Branch held a Fishery Management Workshop on behalf of the Environment Agency. Pete Turner led the day with both Ian Wellby and Paul Coulson making presentations on biosecurity and invasive species respectively. There were over 20 different angling clubs in attendance and all of them went away with loads of information to help them better manage their fisheries.

If you add the workshop to the estuarine fish course, electric fishing, effective engineering and freshwater fish identification courses that we have run in the last few months you can see that the training team continues to go from strength to strength.

We are always looking to develop some new courses, so if there is anything you would like us to consider, please get in touch with Scott at training@ifm.org.uk or Paul on paul.coulson@ifm.org.uk

Looking for a new Challenge?

Want to do some career progression?

Want to help the next generation of Fisheries Managers?

Then why not join the IFM Training Team

We have a number of opportunities within the team as Module Tutors, Short Course Tutors and other exciting opportunities soon to be announced.

IFM Training is a tight knit group of motivated individuals who are growing the training offer provided by the Institute. We can offer full support to anyone wanting to become a new tutor, particularly from our group of trained teachers and lecturers. IFM Training also offers expense payments for writing course material as well as setting and marking papers.

Not only do we have a solid portfolio of excellent correspondence courses but we have developed some excellent short courses as well. IFM Training see exciting opportunities in the future and we are looking for motivated people to join this team to help us make the most of these opportunities.

So if you think you can help then please contact Ian Wellby 01664 820383 – 07800 632419 or email ian@blueroof.co.uk

Ian Wellby

Training Chair
training@ifm.org.uk

IFM News

Membership Report

Renewals are still coming in (slowly), there are still a number of members who have overlooked sending me their renewal payment. All those members who do not renew by the end of June will be deleted from the FISH mailing list – so if you want to keep receiving this excellent magazine, please renew now!

You can do this:

- online at www.ifm.org.uk
- by post to 24 Heslington Lane, York, YO10 4LX
- by direct debit – there is a form which can be downloaded from the website and sent to me.

We have recruited 38 new members so far in 2014 and 6 Registered members have applied to become Chartered Environmentalists.

Welcome to:

Associate: Miss Evonne Maxwell, Dr Melanie Broadhurst, Miss Lauren McIntyre, Mr Paddy Greene

Corporate: Aquibrium Ltd

Registered: Mr John Macleod, Mr Niall Cook, Mr Richard Jenkins, Mrs Pamela Ernstberger, Mr Philip Swaile, Mr John Pollock, Mr Richard Steel, Mr Declan Quigley, Dr Robert Morgan, Mr Michael Tweddle.

Student: Mr Matthew Newton, Mr Michael Stinson, Mr Seyed Ehsan Mousavi, Mr Oliver Floyd, Mr Daniel Upsher, Mr Matthew Mahatme, Mr James McNamara, Mr Jamie Dodd, Mr Nicholas Hoad, Miss Camilla Piggott, Mr Niall Gauld, Mr Arnold Warsop, Mr Timothy Hughes, Mr Joseph Huddart

Subscriber: Mr Dave Charlesworth, Mr Andy Bettiss, Mr James Skinner, Mr Allan Bayman, Mrs Victoria Rutherford, Mr Terry Boulton

If you have any membership queries please contact me at members@ifm.org.uk or to the address above. Also, if you are unable to access the members section of the website, or need a password reset, please contact me.

Ian Dolben

Hon. Membership Secretary
members@ifm.org.uk

Branch Contacts

If you want more information on IFM activities in your region, please contact the branch secretaries through the email addresses below:

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Obituaries

Dick Hodges
FIFM 1922-2013

It is with great regret that we announce the death of Dick Hodges, champion for angling and the environment and Honorary President of the IFM Greater London and SE Branch, who passed away peacefully on 22 December 2013 at the ripe old age of 91.

Arthur Edward Hodges, affectionately and commonly known as Dick, was born in the East End of London in Bow in 1922 alongside the River Lea. In his youth he was a gifted swimmer, diver and water polo player and had a long association with the Eton Manor Club, but fishing soon became a major passion. Dick's first rod was a sixpenny bamboo cane from the local oil shop in Roman Road Market, his 'tackle' came from the local tobacconist. He started fishing on the local Hertford Union, moving on to the Lee, Essex Colne and Kentish Stour. He also tried East End canal fly fishing, using an old bamboo roach pole, a Vasolined line and real bluebottles caught on the adjacent factory walls - but nothing as fancy as a reel!

Leaving school at 14, he worked in the electricity industry around the country, allowing him to fish many rivers. On the outbreak of World War II at the age of 19, he joined the Royal Navy and travelled the world (fishing, of course, in exotic places!), eventually serving 12 years in the wartime and reserve service.

After the war, he worked as an engineer at Barking power station for 37 years until retiring in 1983, having been made a Life Member of the Electrical Power Engineers Association. It was here that he began his mission to clean up the grossly-polluted Thames and other London waters, working with first the Port of London Authority and then the Greater London Council and later the Thames Water Authority, National Rivers Authority and Environment Agency. He joined the Anglers' Conservation Association, leading to the institution of a fishing match in the tidal Thames (still held annually) with the aim of monitoring fish diversity and encouraging the clean-up of the Thames. To many people, he will be forever fondly regarded as 'Mr. Thames'.

However, Dick had interests in an even wider range of fishery-related activities; the list of organisations he was associated with (often playing a role in their inception and management) reads like an encyclopedia, from the local to the national level. He was a founder member of the Institute of Fisheries Management and was later made a Fellow. He was also instrumental in setting up and running the IFM Greater London and SE Branch and was elected Honorary President in 1991. He helped set up and was Chairman or similar of organisations as diverse as the Anglers' Conservation Association, London Anglers' Association and Thames Angling Preservation Society. He played important roles in the National Association of Fisheries and Angling Consultatives, Thames Fisheries Consultative Council, National Anglers Council and the Angling Foundation. Dick was also very influential in the Fisheries and Recreation, Flood and Sea Fisheries Committees of the Environment Agency Thames and Southern Regions – and their forerunners in Thames Water Authority and National Rivers Authority days. His interests in angling and other water-based sports are reflected in his long associations with the Central Council of Physical Recreation Sports Council (later the Sports Council) – for example, he served on the Central Council of Physical Recreation Water Recreation Division for 23 years, 12 as its Chairman.

Dick was renowned and highly respected for his knowledge and experience, good humour and helpfulness - the long list of posts he held is fitting testament to a man who dedicated so much of his time over decades to the good of angling and the environment.

Dick is survived by his wife Pat, three children, eight grandchildren and four great-grandchildren.

He will be sorely missed.

Obituaries

It is with regret that we inform you that Chris Newton a fellow of the IFM died aged 57 on 4 December 2013 in a tragic boating accident off the Lizard in Cornwall.

For those that do not know him, Chris had a long and distinguished career over 30 years in fisheries, environmental management and sustainable development in the UK.

Chris was born and bought up in Sheffield near the Peak District and in his school years he developed a love for the environment, wildlife and fishing. This led him to become scientifically trained in freshwater fisheries at Liverpool University, and in 1977 he was awarded a B.Sc.(Hons) degree in Zoology.

He then pursued a career in fisheries in the water industry and was Fisheries Biologist with South West Water Authority in Exeter (1977-79), Fisheries Assistant with North West Water Authority in Warrington (1979-86), and then Area Fisheries Manager in Carlisle (1986-88) during which time he radically reduced salmon poaching in Cumbria and was an Advisor to the Government's Salmon Advisory Panel.

When the National Rivers Authority was created he was appointed Regional Fisheries, Conservation and Recreation Manager and then Regional Environmental Quality and Protection Manager in Warrington (1988-1997). In this period he secured major improvements in the quality of rivers and fisheries in the NW of England including the River Mersey and obtained the first ever £1m fine for an environmental crime.

Soon after the Environment Agency was created he was appointed Head of Sustainable Development in Bristol (1997-2002) where he developed new strategies and policies on sustainability, climate change, and renewable energy. During this period he was a UK expert on sustainability and took part in UK delegations to the United Nations in New York.

Subsequently he was appointed Director of the Environment for the States of Jersey (2002-2009) where he developed and implemented an integrated strategy, with detailed plans and regulatory policy across environmental disciplines, including: water resources, water quality,

waste management, renewable energy, wildlife conservation, animal welfare, environmental taxes, as well as Jersey's coastal and marine fisheries. The latter involved managing often very challenging relationships with the adjoining French fisheries authorities. In 2010 Chris retired to Ruan Minor on the Lizard in Cornwall.

Chris was a profound strategic thinker, a good communicator, with a lovely dry sense of humour. He had a huge lifelong passion for the environment, wildlife, and fisheries. He was also a very skilled and successful angler and excellent fish cook. He loved planning fishing trips, buying and making fishing tackle, going salmon fishing, reservoir trout fishing, coarse fishing and sea fishing around Jersey or in Cornwall where he was Secretary of Helston Angling Club and overall Club Champion in 2012.

Chris is survived by his wife Liz and two grown-up children and will be sorely missed by all who knew him.

Institute of Fisheries Management
45th Annual Conference

Fisheries Management from Sea to Source
Maritime Museum, Liverpool

October 7th – 9th 2014

The 45th Annual IFM Conference will be taking place in the historic docklands area of Liverpool from October 7th – 9th. This year we will be taking a holistic approach to fisheries management and will be covering marine, estuarine and freshwaters.

Booking will be open shortly through the IFM website.

www.ifm.org.uk

Sessions will include:

- **Ecological significance of sea-run and estuarine fish**
- **Management of transitional fish and fisheries**
- **Catchment management for fisheries**
- **Marine development and fisheries management**
- **Estuary habitat restoration**
- **Catchment connectivity, fish passage and barrier removal**

In a slight change to the usual format of the conference, we will be holding two full days of presentations followed by a third day for field trips. We will be holding the poster session as the opening event of the conference on the evening of October 6th with the dinner on the 7th.

As the title suggests, the programme will be very diverse and will be of interest to a multitude of people engaged in fishery work across both the fresh and saltwater fields.

Although the programme is now full we would still welcome poster submissions and these can be sent directly to Paul on paul.coulson@ifm.org.uk

Once again we will be holding a trade event so if you would like to have a stand please get in touch.

Atlantic salmon
© Bergen Aquarium

Breaking News...

Farm salmon pose clear reproductive threat to wild gene pools.

Farmed salmon show full reproductive potential to invade wild gene pools and should be sterilised - according to new research from the University of East Anglia (UEA).

While farmed salmon are genetically different to their wild counterparts, they are just as fertile. This is important information because millions of farmed salmon escape into the wild – posing threats to wild gene pools.

Lead Researcher Prof Matt Gage from UEA's school of Biological Sciences said: "Around 95 per cent of all salmon in existence are farmed, and domestication has made them very different to wild populations, each of which is locally adapted to its own river system.
Farmed salmon grow very fast, are aggressive, and not as clever as wild salmon when it comes to dealing with predators. These domestic traits are good for producing fish for the table, but not for the stability of wild populations.

The problem is that farmed salmon can escape each year in their millions, getting into wild spawning populations, where they can then reproduce and erode wild gene pools, introducing these negative traits.

A viable solution is to induce 'triploidy' by fertilisation - where the fish grows as normal, but with both sex chromosomes; this is normal for farming rainbow trout. The resulting adult develops testes and ovaries but both are much reduced and most triploids are sterile. These triploid fish can't reproduce if they escape, but the aquaculture industry has not embraced this technology yet because of fears that triploids don't perform as well in farms as normal diploid fish, eroding profits."

The River Wensum is the winner of the first England River Prize

The England River Prize has been established by the River Restoration Centre, WWF-UK, the Environment Agency and the International River Foundation to celebrate successful approaches to river restoration that deliver a wide range of benefits.

The inaugural prize has been won by the Environment Agency, as lead partner, in partnership with riparian landowners, Natural England and Atkins for an ambitious project to restore the whole of the 70km River Wensum in Norfolk. So far 12km have been restored.

In restoring the River Wensum, which is an internationally recognised chalk stream, a multi-disciplinary catchment-based approach is being taken to get the whole river into 'good ecological status', under the Water Framework Directive from its headwaters in Fakenham to its tidal limit in Norwich. The aim has been to work with natural processes to restore river habitat, reconnect the river to its floodplain, enhance wetlands, reduce flood risk, improve water quality and angling.

The Wensum partnership will use the £10,000 prize to further the aims of river restoration, develop links with universities to monitor success, provide interpretation boards at sites accessible to the public, host a competition for local communities and share lessons learned.

Sainsbury's encourages shoppers to Switch the Fish.

In March Sainsbury gave away seven tonnes of alternative fish to encourage customers to try lesser known species: lemon sole, mussels, sea bass, coley fillets or rainbow trout fillets. At present 80% of the UK's favourite fish is made up of the Big Five: cod, haddock, tuna, salmon and prawns.

EU/Faroe Island agreement for 2014 increases quota for UK fishermen.

Fisheries Minister George Eustice said: "This is an important deal which will open up the waters around the Faroe Islands to our fishing fleets. Our share of EU quotas for cod and haddock will be 817 tonnes which is almost double our previous share. This, with other quotas gained, is worth around £3 million to UK fishermen and is a great result for our Scottish fishermen who will catch almost three quarters of this quota."

The International Court of Justice has ordered Japan to revoke its scientific whaling permits and not to grant future permits under the current research programme.

The Court held the design and implementation of Japan's scientific research programme on whaling to be in breach of the International Convention for the Regulation of Whaling.

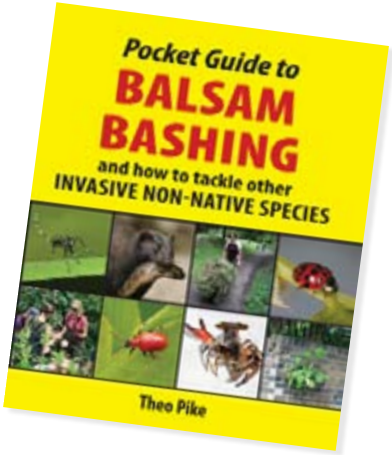
Sarah Gregerson ClientEarth's lawyer working on whale and dolphin conservation said: "This case is emblematic of the issues surrounding our attempts to protect wildlife around the world. The Court's decision is a ringing endorsement of the importance of international law to environmental protection."

Home Office Code for Theft of Fishing Rights: 116/11.

Every offence which the police are duty bound to deal with has a unique Home Office Code. If anglers quote this when reporting incidents, the police are duty bound to deal with the matter, rather than misinterpret the situation as a civil matter and/or attempt to pass the job over to the Environment Agency.

The Pocket Guide to Balsam Bashing and how to tackle other Invasive Non-Native Species

FISH editor Lawrence Talks reviews Theo Pike's latest book.



Invasive Non-Native Species (INNS) periodically hit the headlines with recent revelations including last year's alarming news of ash dieback (*Chalara fraxinea*) and before that killer shrimp (*Dikerogammarus villosus*). But what can be done about them? Knowing a bit more about this serious threat to our native wildlife is a good first step.

I like the format of this book, which is designed to be a handy field guide, as it can easily fit into your coat pocket. Over 40 Invasive Non-Native Species are covered from Himalayan balsam and Japanese knotweed to New Zealand flatworm and floating pennywort. Each species is illustrated by a colour photograph and there are sections that describe where it came from and how it got here; what problems it causes; and what can be done about it.

There are some useful facts and figures. I didn't realise that around 2,000 invasive species are now present on our shores and it cost £70 million to eradicate Japanese knotweed from the London Olympics site.

The section I like best is where it says how you can help. Recommendations include report any sightings, find and join a local action group such as the Rivers Trusts, Widlife Trusts or conservation volunteers, take careful biosecurity measures and spread the word.

Invasive Non-Native Species destroy crops and forestry, dump silt into rivers, sabotage drains and electrical infrastructure, cut off access to beautiful places, and drive native rare and iconic species to extinction. And they cost us all a lot of money – at least £1.8bn to the UK economy each year.

As the book recommends, read this book and then roll up your sleeves!

The Pocket Guide to Balsam Bashing and how to tackle other Invasive Non-Native Species
Theo Pike

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Paperback 96 pages
Price: £7.99

Members and their fish

Steve Chambers with a 2lb, 1 oz crucian carp.

Do you have a picture of yourself with a fish?

If so FISH would like to hear from you.

Ecosystem approach simplified:

- **Don't be stupid**
- **Don't be greedy**
- **Don't be short term**

Send your images to: fish@ifm.org.uk