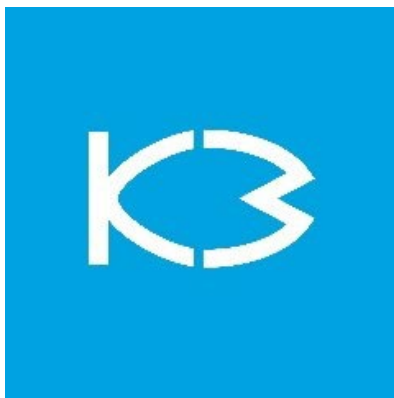




Freshwater Fish in Ireland – How to Protect & Restore Biodiversity ?

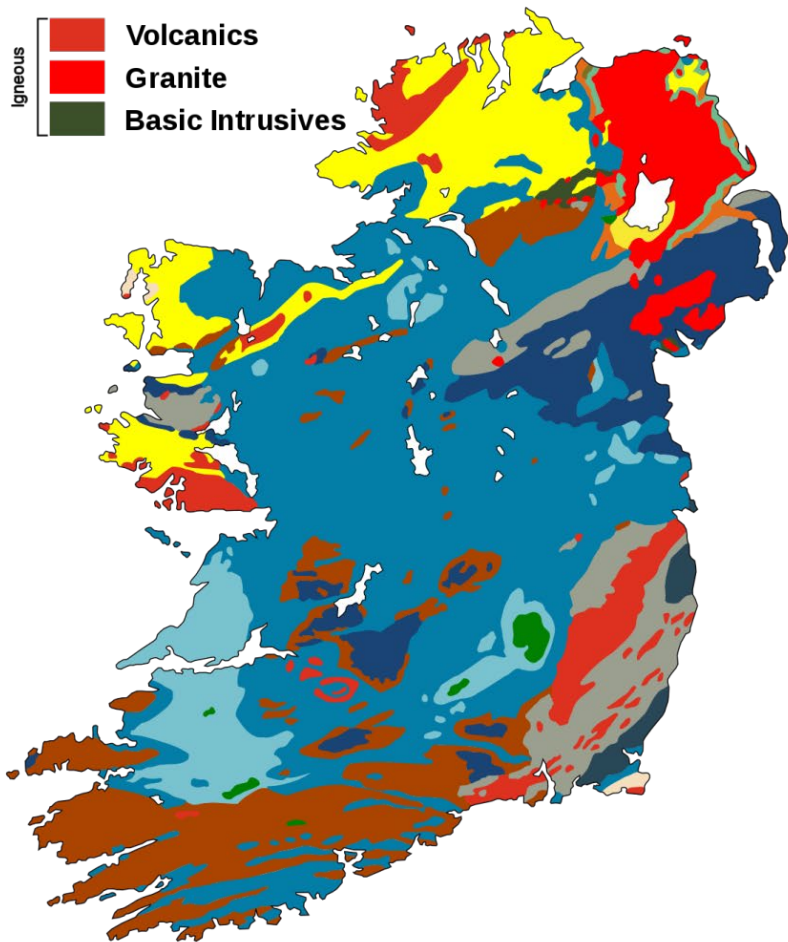
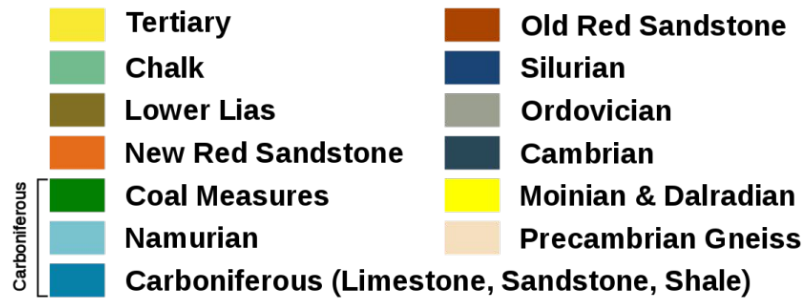
Citizens Assembly on Biodiversity Loss
5th November 2022,
Grand Hotel Malahide, Dublin

Ken Whelan



The Freshwater Resource

- Unique Features – Saucer shaped
- Limestone in the centre and hard rocks – granite / harder sandstones on the edge
- Huge freshwater resource
- > 12000 lakes
- Ireland has > 73,000 km of river channels. If placed end-to-end, they could encircle the Earth almost twice.



The Freshwater Fish Resource

- Native Fish Fauna was much like Alaska of today
- System driven by: **Cold, Clean, Water**
- **The native Irish freshwater fish community contained just 14 species:** Three salmonids: salmon, brown / sea trout and Arctic char, one white fish: pollan, European eel, two species of sticklebacks, three species of lamprey, flounder and three species of shad

A Selection of Ireland's Freshwater Fish



The Current Assemblage of Freshwater Fish

- 29 species of fish are currently known to occur in Irish freshwaters – resident and diadromous
- Non-native fish have been introduced since around the year 1000
- Many species naturalised and are looked on as benign – e.g. bream, minnow and tench
- More recent invaders such as roach and dace are problematic seen as invasive
- Warming waters favour those related to the carp family: dace, roach and bream

Rudd





Figure 9.4: Killarney (left) and Twaite shads (right).
(Photos: Inland Fisheries Ireland and John Lucey ©)

Why are Freshwater Fish Important?

- Great ecological importance – drivers of biodiversity – unique genetic resource (salmon / trout)
- Indicator species – salmonids – keystone species - demand the highest of water quality
- Cultural importance – myths/ stories/ legends
- Economic importance – tourism, sport fisheries
- Ecosystem services – monitor our water quality for free / valuable recreational resource





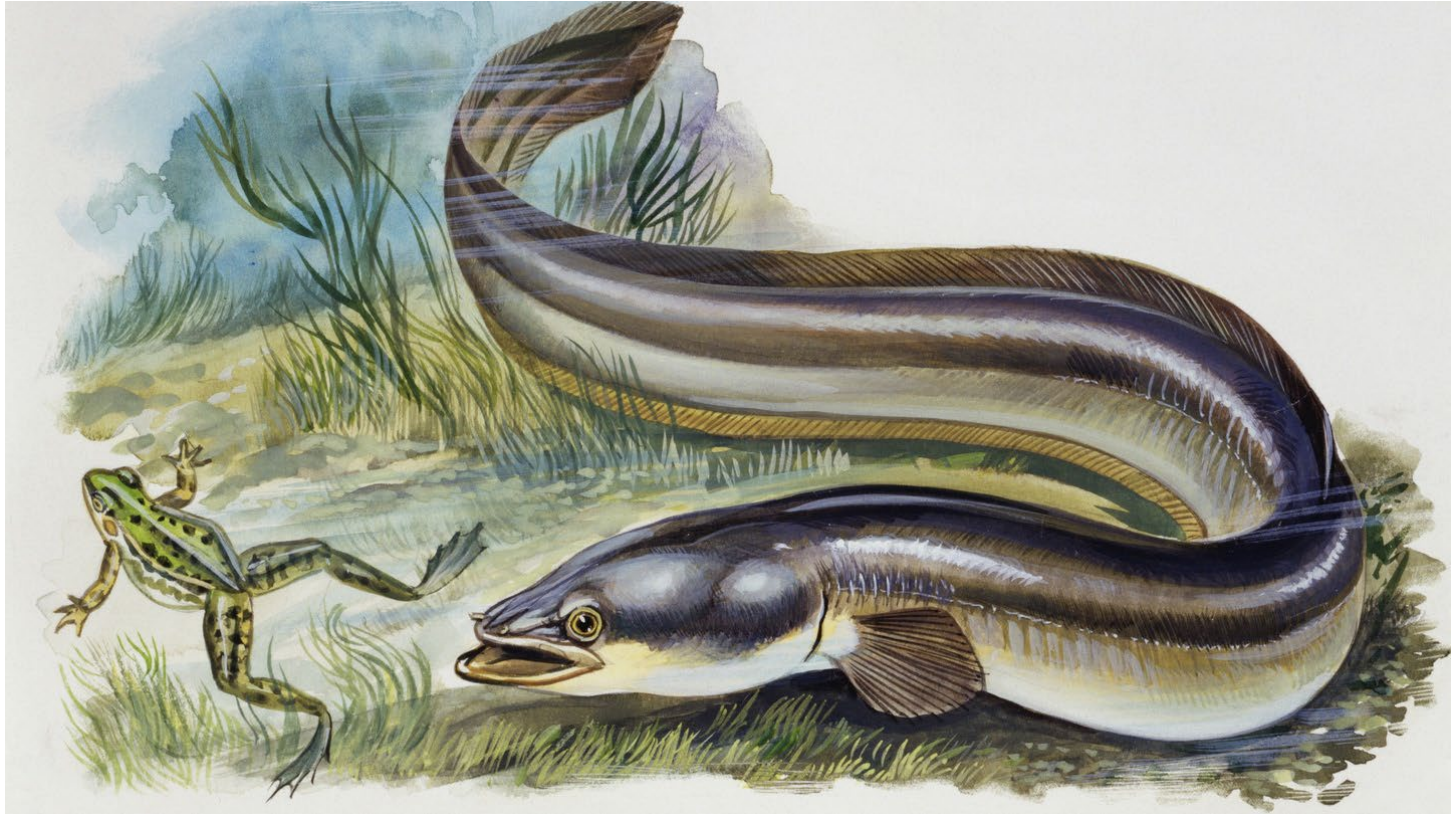
Protection of our Freshwater Fisheries Resource

- The Water Framework Directive Legislation - defines ecological quality for sensitive species such as salmon, brown trout and Arctic char
- 26 Special Areas of Conservation (SAC's) for salmon, 10 for sea lamprey, 9 for river lamprey, 10 for brook lamprey, 4 for twaite shad and one for Killarney Shad.
- Species under pressure: salmon /eel/lamprey/char /pollan
- Strong legal protection: harvest of salmon only when above Conservation Limits – enough adults to guarantee a self-sustaining population
- Eel Management Plan – cessation of the fishery and closed the eel market

Sea and River Lamprey



European Eel



Pressures Leading to Biodiversity Loss

- Land management practices
- Physical damage to river corridors
- Barriers and loss of connectivity
- Water quality
- Non-native alien species – plants / fish and invertebrates
- Parasites – sea lice
- Climate change impacts – river flows / water temperatures /warming oceans





Options to Protect and Recover Freshwater Fish Biodiversity

- **Water** – abstraction / diversion / arterial drainage / flood protection ...adopt nature based solutions – engineers need designs..... not well meaning submissions!
- **Barriers / blockages/ fish passage** - National Committee – fish passage / fish passes — restore connectivity – alien species issues /catchment access ??
- **Identify the pristine areas + Citizen Scientists** - protect / rebuild what we have – identify and protect the remaining pristine freshwater areas
- **Invasive species and biosecurity** – major threats – poor response to date
- **Climate Change** – temperature control on rivers – take account of the delicate nature of freshwater ecosystems – rivers = living breathing entities - not “channels” that can be altered and rearranged at will.
- **Complex nature of diadromous fish** – marine energy resource areas (wind / turbines / wave) - careful assessments - learn lessons from the past – marine aquaculture and severe impacts on sea trout populations – sea lice and genetic introgression
- **Emerging threats** – non-native pink salmon and red skin disease / other skin diseases
- **Regard freshwater resources as part of the asset base for land based activities**
- farming and forestry - manage water local resources - See those working the land as *water stewards*











