



GMIT

INSTITIÚID TEICNEOLAÍOCHTA NA GAILLIMHE-MAIGH EO
GALWAY-MAYO INSTITUTE OF TECHNOLOGY



THE APPLICATION OF BEHAVIOURAL CONCEPTS IN THE MANAGEMENT AND CONSERVATION OF FRESHWATER ANIMALS

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CONSERVATION BEHAVIOUR

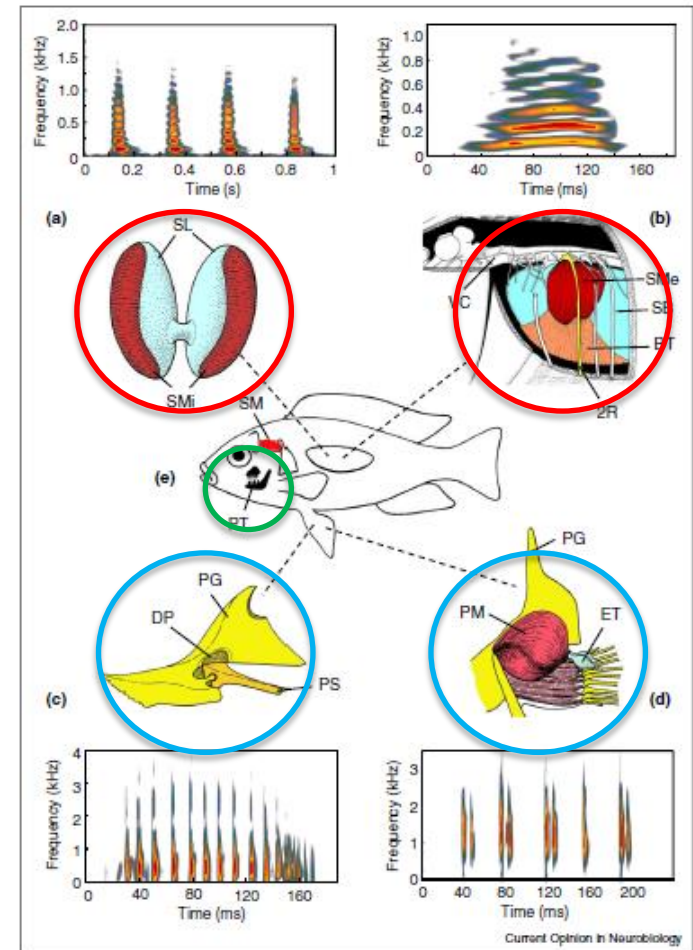
- » Using animal behaviour to address conservation and management questions

Current Research at the MFRC, GMIT

- » Acoustic communication in freshwater species
 - » Monitoring for species-specific sounds using passive acoustic techniques (hydrophones)
 - » Species presence
 - » Habitat use
 - » Effects of noise pollution on freshwater species
 - » Behaviour
 - » Survival

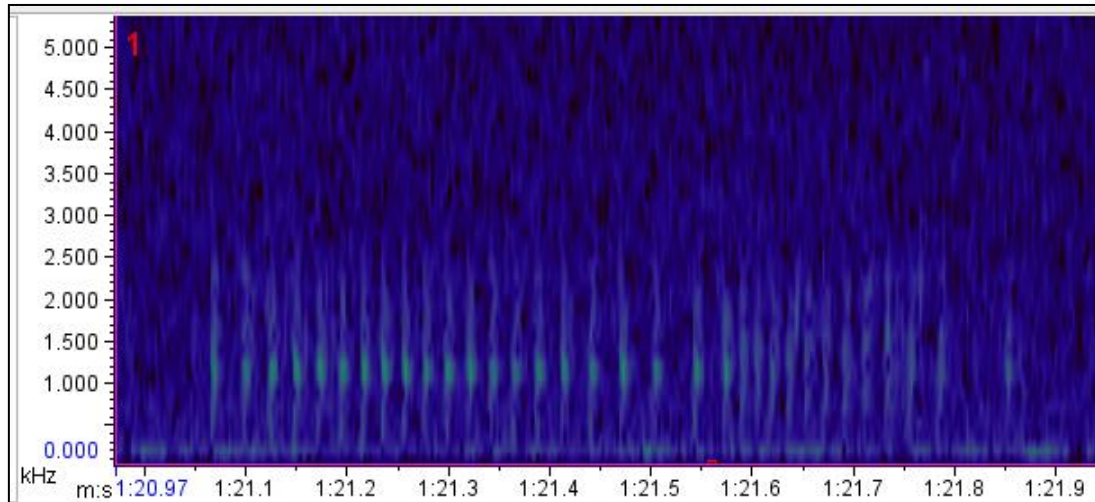
SOUND PRODUCTION IN FISH

- » Great diversity of sound generating mechanisms
 - » Sonic (Drumming) muscles for swim bladder vibration
 - » Pharyngeal teeth for stridulation
 - » Pectoral fins and girdles for stridulation, plucking and vibration



From: Ladich (2014). Fish bioacoustics. *Current Opinion in Neurobiology* 28: 121-127.

SOUND PRODUCTION IN FISH



Spectrogram of sound produced by an unidentified species, possibly brown trout

(Sound file provided by Derek O'Driscoll, GMIT)



Arctic char (PhD – Marta Bolgan)

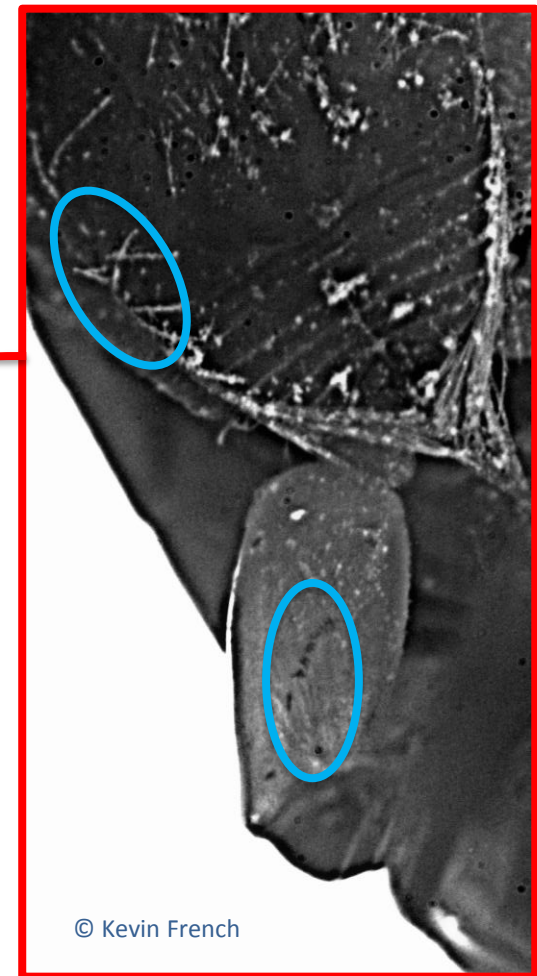
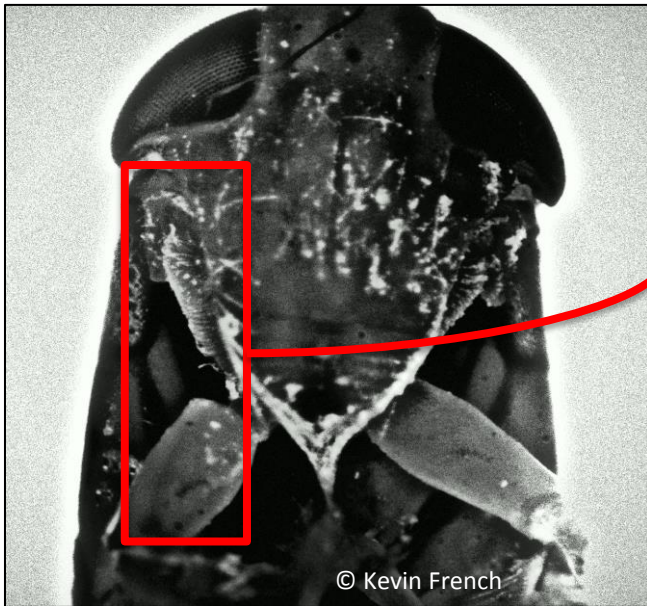
- » Do Arctic char produce identifiable sounds?
- » Can those sounds be recorded and used to identify important spawning sites?
 - » Passive Acoustic Monitoring

Atlantic salmon (MSc – Michael Griffin)

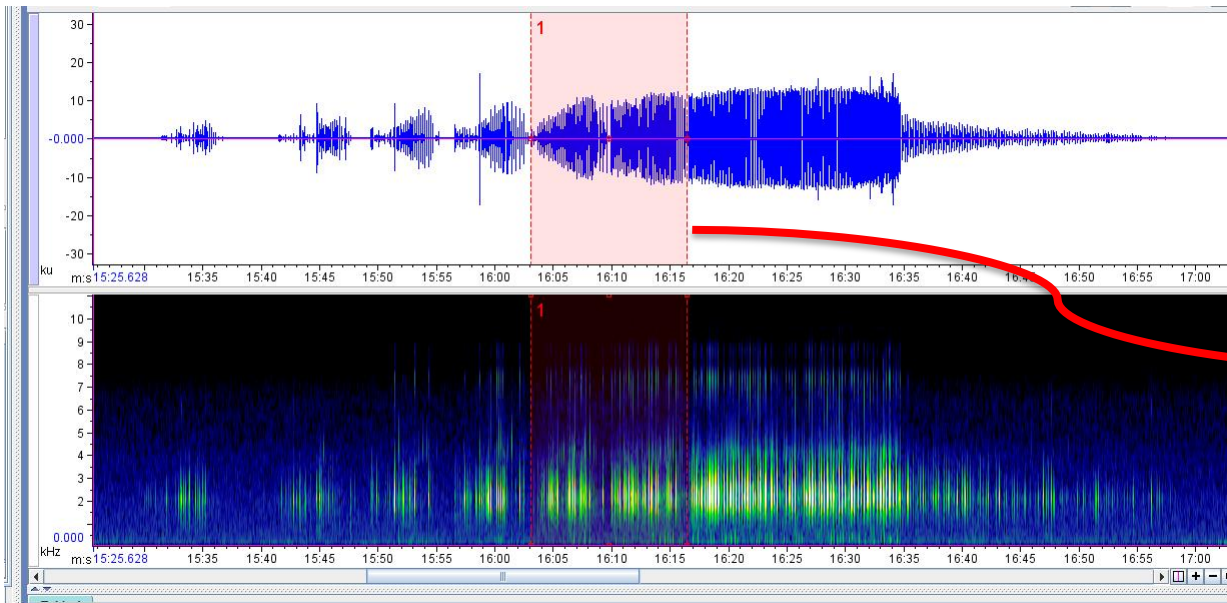
- » Do Atlantic salmon produce identifiable sounds?
- » In what contexts are sounds produced?

SOUND PRODUCTION IN AQUATIC INVERTEBRATES

Waterboatman, *Sigara distincta*



SOUND PRODUCTION IN AQUATIC INVERTEBRATES



Waveform and Spectrogram of sound produced by an unidentified species of waterboatman



Sigara distincta (MSc – Kevin French)

- » Stridulatory structures of male *S. distincta*
- » Acoustic characteristics of *S. distincta* calls
- » Response to playbacks of male calls
- » Response to noise pollution

White-clawed crayfish

- » Identify and describe acoustic signals
- » Assess the usefulness of passive acoustic monitoring for detecting crayfish and estimating population size

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Marta Bolgan



Marta Bolgan, Michael Griffin

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