

# The behavioural ecology of lowland river bream and pike

Broads Angling Services Group  
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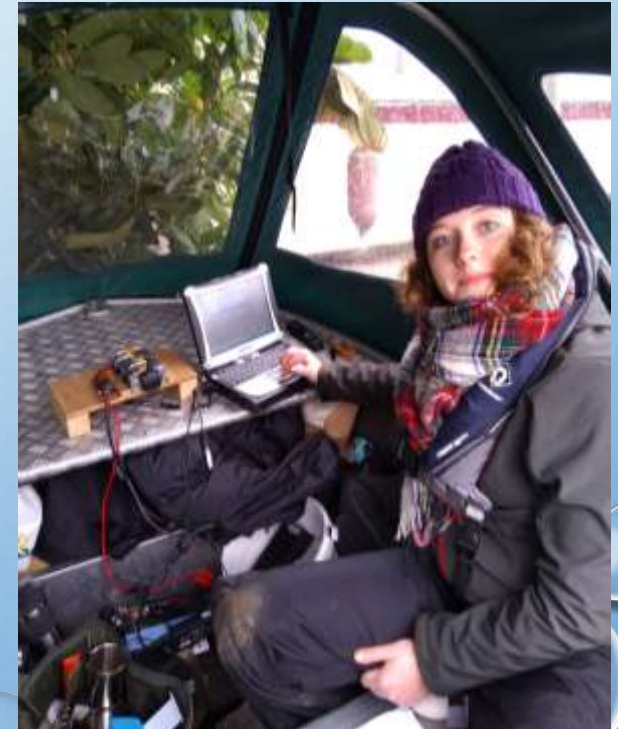


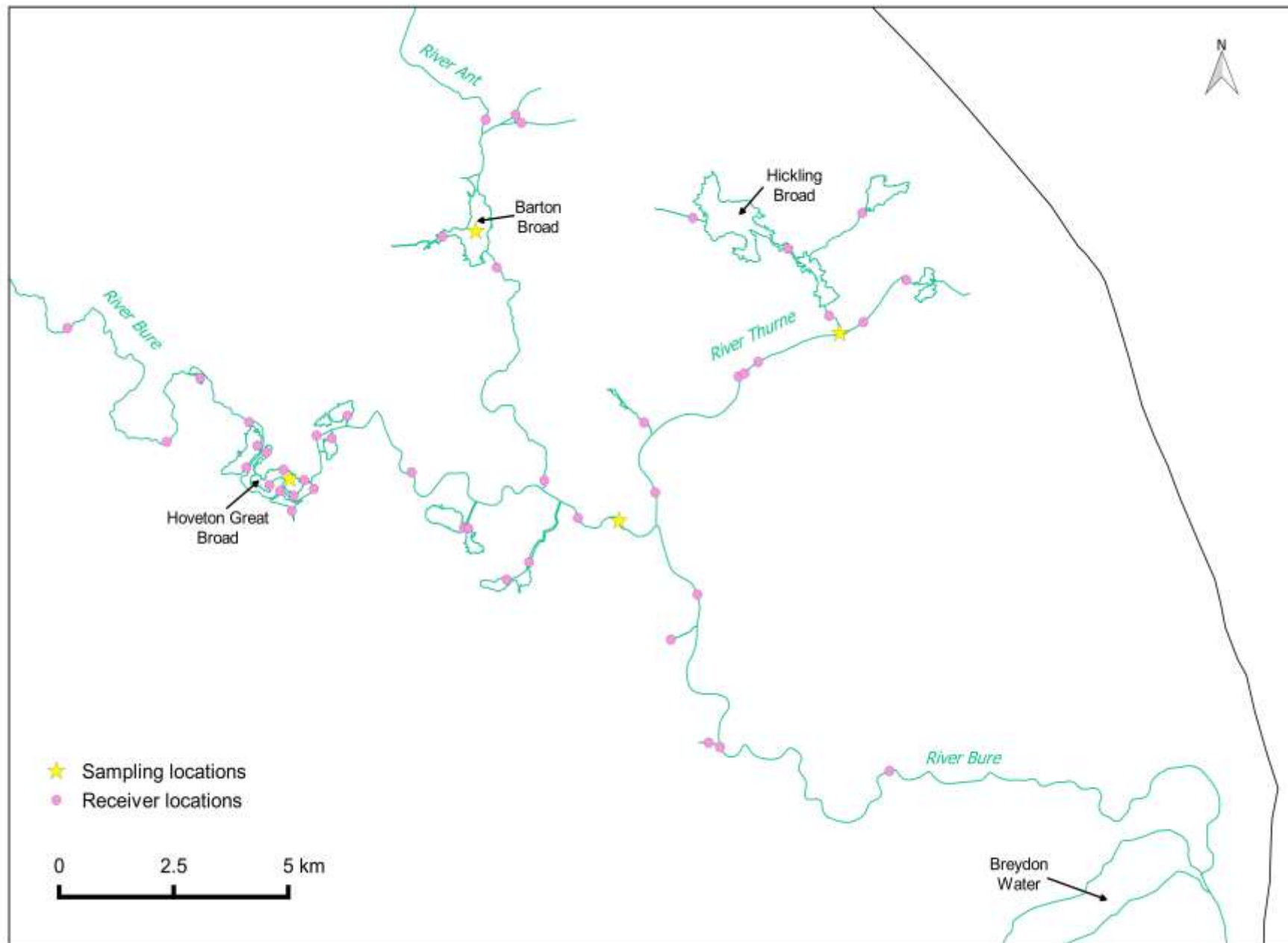
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# Acoustic Telemetry

- 181 bream and 45 pike tagged with internal acoustic transmitters
  - Emit unique ultrasonic coded 'ping'
  - Battery life approx. 2.5 - 3 years
- 45 receivers cover a river distance >60km (tidal sections of Rivers Bure, Thurne & Ant)

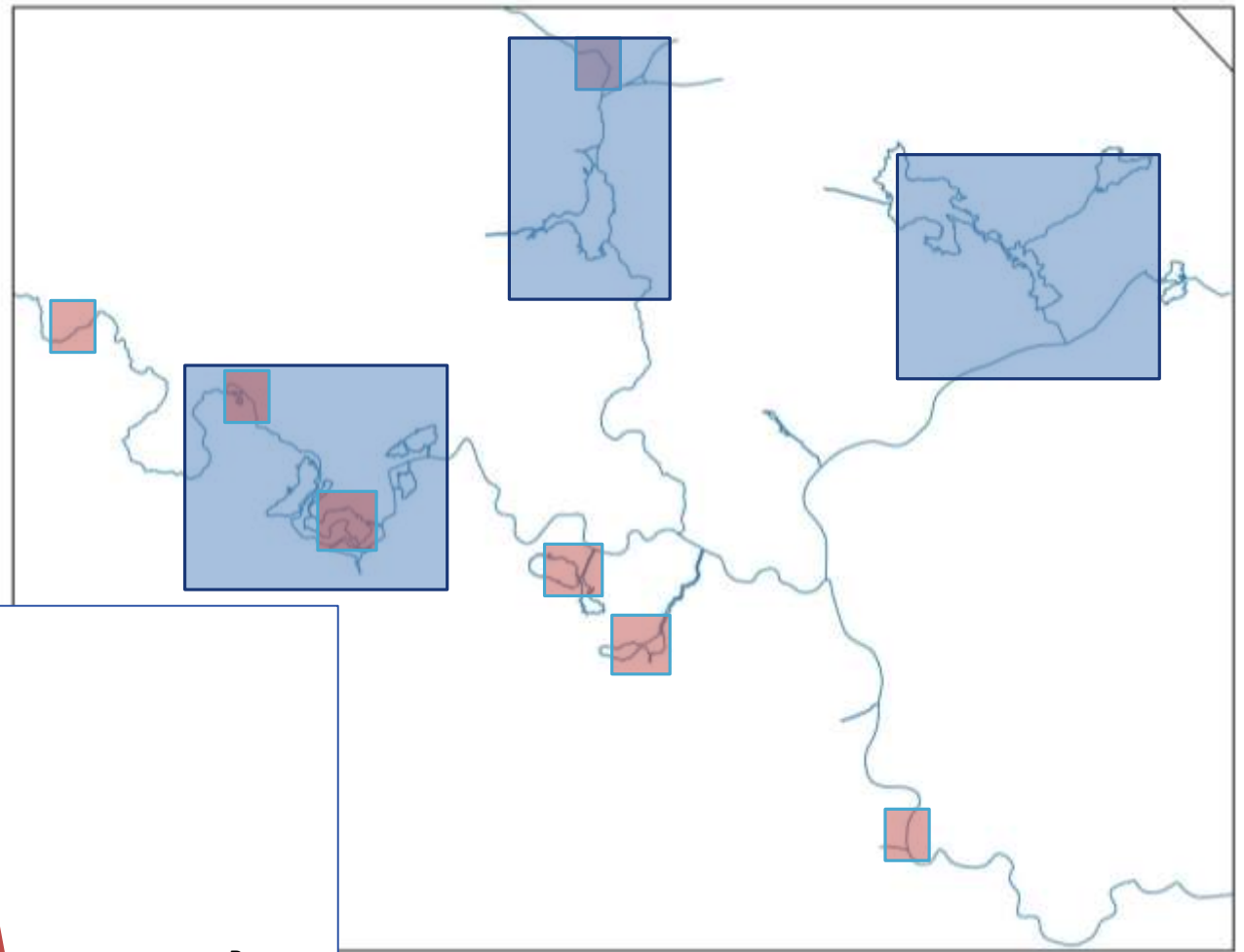




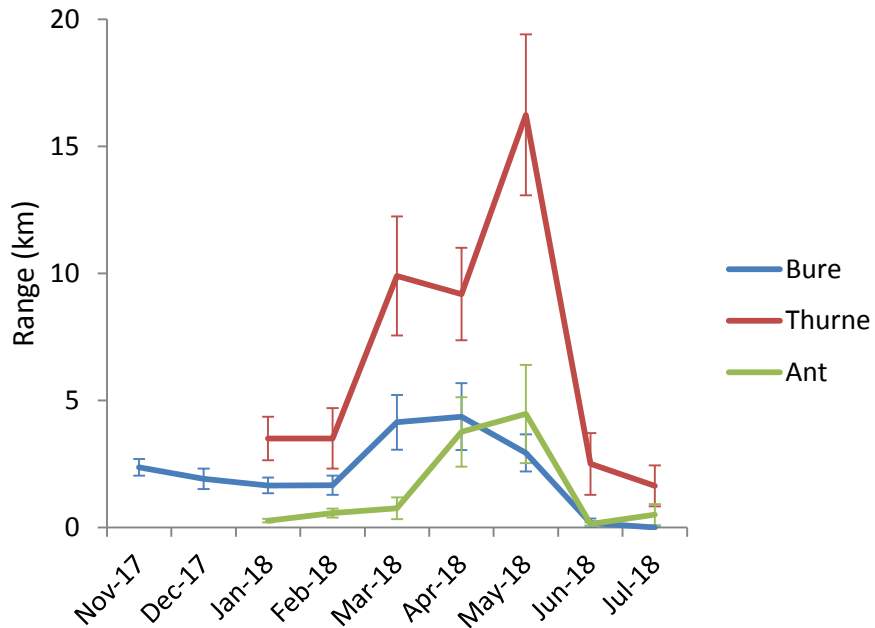


# Home Range - Bream

- Highest recorded monthly range = 27 km



Bream



- Highest recorded activity = 100km/month
- Generally most active at night, but peaks of daylight activity during March-May

# Also...

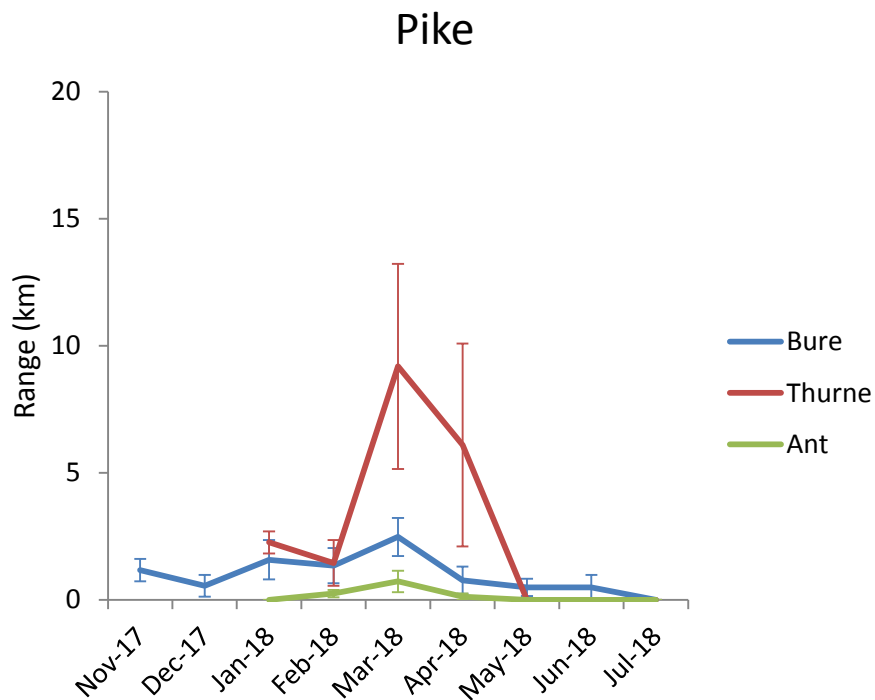
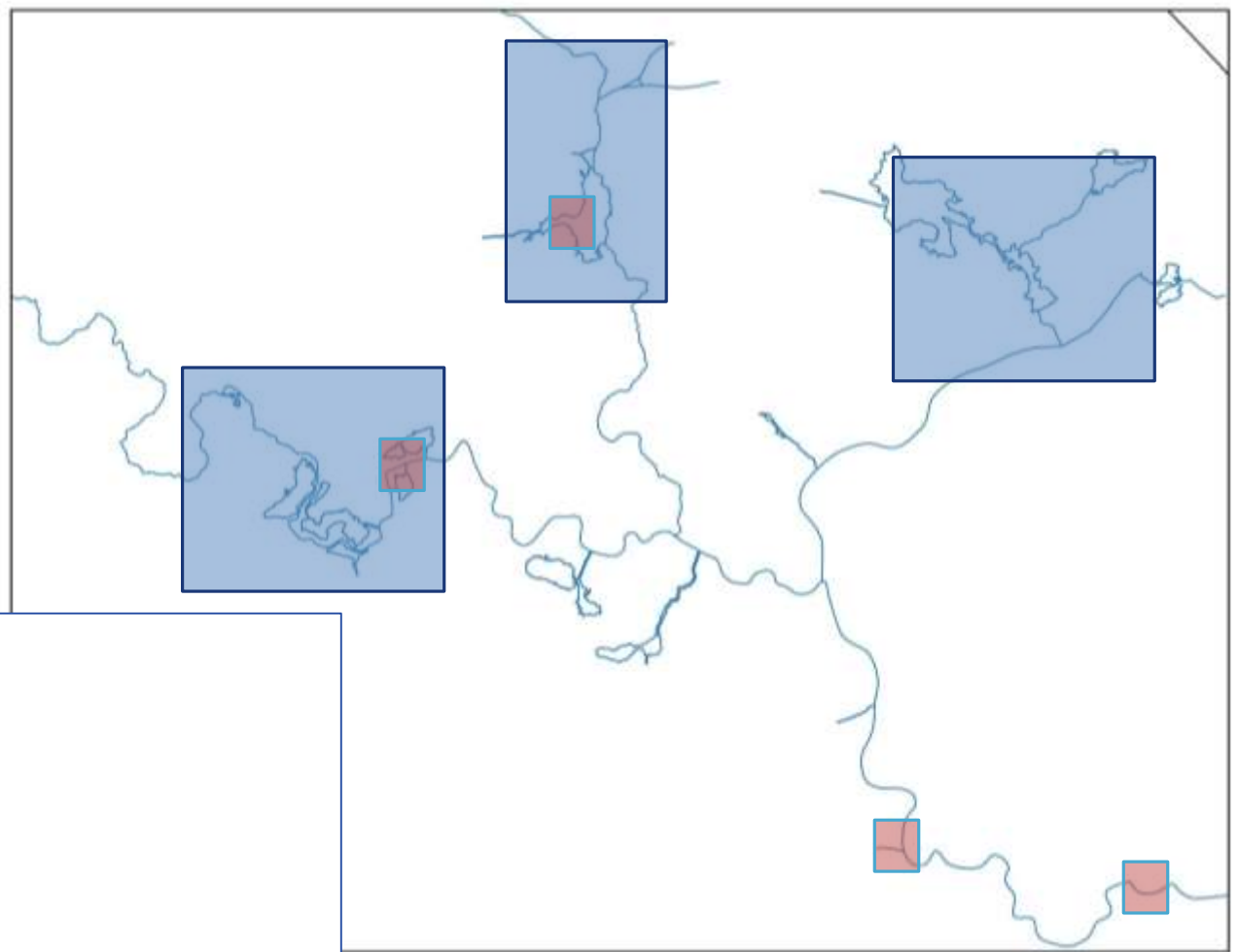
- **62 bream tagged in and around HGB in April 2018**
  - **By mid-May 27 (44%) had left HGB area**
  - **19 (31%) relocated directly to River Thurne**



Author (Year)	Location	Duration	Method	Sample size	Findings
Goldspink (1978)	Tjeukemeer, Netherlands	4 years	Mark recapture	4619	Max dispersal 60km
Schulz & Berg (1987)	Lake Constance, Europe	6 months	Acoustic telemetry	6	Diurnal migrations, sporadic peaks of activity e.g. 12.5km over 8 days
Donnelly <i>et al.</i> (1998)	Grand Canal, Ireland	6 months	Radio telemetry	1	Max home range 7 km
Lyons & Lucas (2002)	River Trent, England	3 months	Acoustic telemetry	9	Home range 0.4 – 5.4 km
Skov <i>et al.</i> (2011)	Denmark	8 months	PIT telemetry	458	Predation risk affects migration
Gardner <i>et al.</i> (2013)	River Witham, England	3.5 years	Acoustic telemetry	83	Max activity 118.5km/month
Le Pichon <i>et al.</i> (2017)	Seine River, France	3 months	Acoustic telemetry	10	Movement related to tidal phase
Jurajda <i>et al.</i> (2018)	Czech Republic	1.5 months	Radio telemetry	8	Home range 2.8 – 13.9 ha

# Home Range - Pike

- Highest recorded monthly range = 30 km



- Highest recorded activity = 71 km/month
- Generally most active at night, but peaks of daylight activity during March-May



Author (Year)	Location	Duration	Method	Sample size	Findings
Karås & Lehtonen (1993)	Baltic Sea	19 years	Mark recapture	3766	Max dispersal >20km
Rosell & Macoscar (2002)	Lower Lough Erne, N Ireland	3 years	Mark recapture	508	Max dispersal 16km
Ovidio & Philippart (2003)	River Ourthe, Belgium	1 year	Radio telemetry	6	Distinct spawning migrations; max home range 15.7km
Koed <i>et al.</i> (2006)	River Gudenå, Denmark	1 year	Radio telemetry	10	Max home range 37 km; females > males
Vehanen <i>et al.</i> (2006)	River Kajaaninjoki, Finland	1.2 years	Radio telemetry	40	Sedentary & mobile fish; Mean home range 157m <sup>2</sup>
Sandlund <i>et al.</i> (2016)	River Rena, Norway	1 year	Radio telemetry	19	Home ranges <2 – 14.4 km
Jacobsen <i>et al.</i> (2017)	Baltic Sea	1.5 years	Acoustic telemetry	22	Spawning migrations to/from brackish lagoon
Nyqvist <i>et al.</i> (2018)	River Frome, England	2.2 years	PIT telemetry	131 (juveniles)	Link between activity & growth rate

# Points to consider...

- **Reasons behind movement patterns can be difficult to interpret e.g. to identify spawning locations**
  - **but can be inferred from environmental conditions, time of year, age/sex of fish etc.**
- **Data analysis covers less than 1 year**
  - **will be interesting to see if patterns are repeated this year!**
- **Receiver coverage is densest around HGB i.e. fish more likely to be detected around HGB**

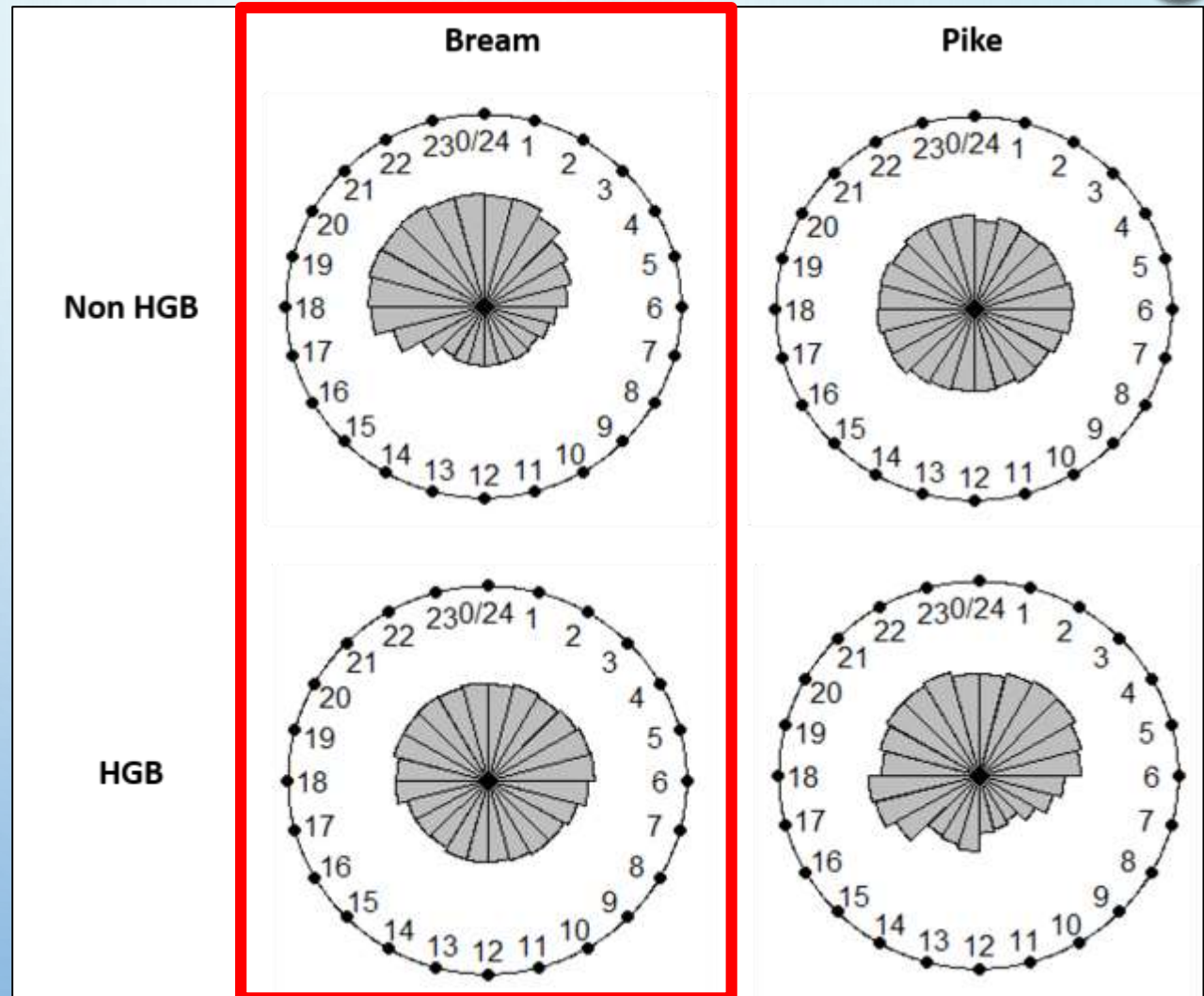
# Points to consider...

## Bream spawning behaviour...

- **Bream can spawn on a variety of substrates including macrophytes, tree roots and stones**
  - **But spawning success on each substrate unknown**
- **Multiple spawning events can be observed within one spawning season**
  - **Possibility for bream to spawn in multiple locations**

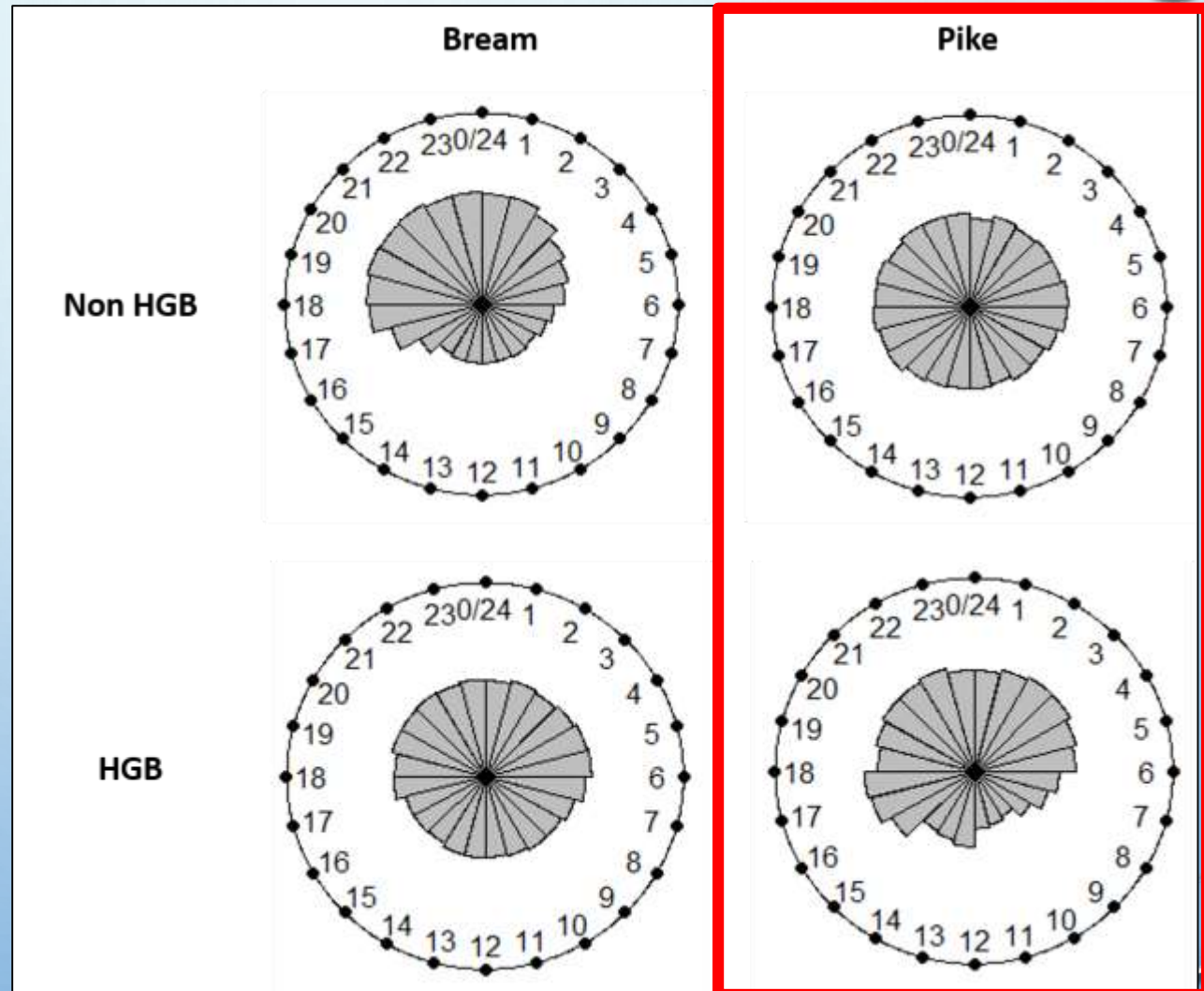
# Diurnal activity

- **Bream present in HGB throughout day & night**
- **Bream present in river at night**
- **Bream present in river during higher temperature**



# Diurnal activity

- Pike present in river throughout day and night
- Pike present in HGB during night



# Any Questions?



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