

Trialling crayfish Artificial Refuge Traps in stillwaters

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Crayfish survey methods

- Manual methods: hand searches, kick sampling, netting, torch surveys, dive surveys
- Mechanical methods: traps, nets
 - Baited traps
 - **Artificial refuge traps**
 - Fyke nets
- eDNA
- Dewatering



Artificial refuge traps (ARTs)

- First use – Hampshire EA early 2000's; used in Devon with EA from c. 2004
- Developed design 2005 – present, ongoing research into effectiveness & applications
- Manufacture & sale since 2008 – supports research
- Benefits:
 - Detect crayfish at very low density
 - Low labour input - don't need daily checking
 - Suitable for shallower, faster waters
 - Capture equal sex ratios
 - Capture wide range of size classes
 - No bycatch
 - Catch berried and moulting animals
 - Design can be altered to target different size classes

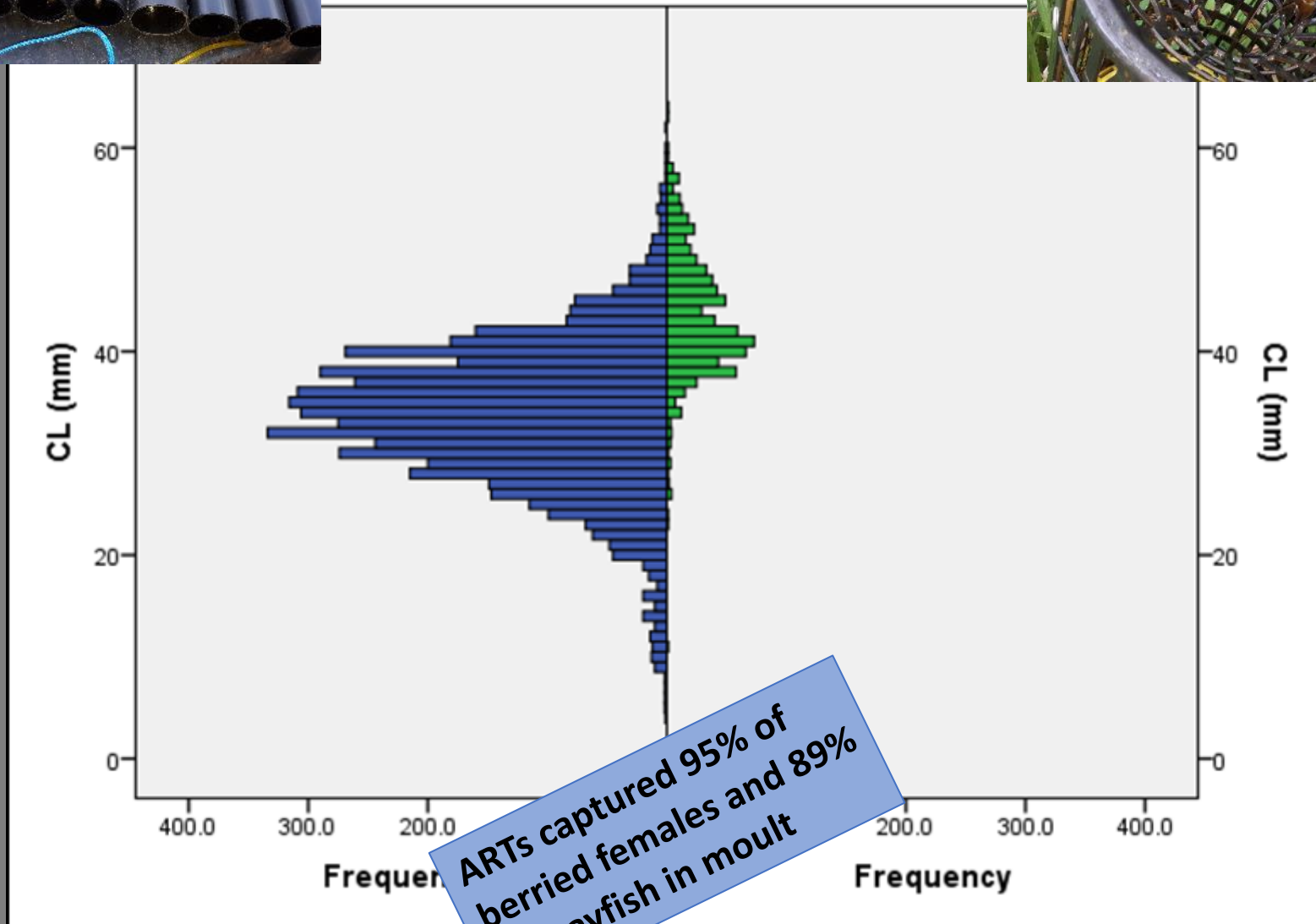




River Barle Size vs Trap Type 2015 - 16

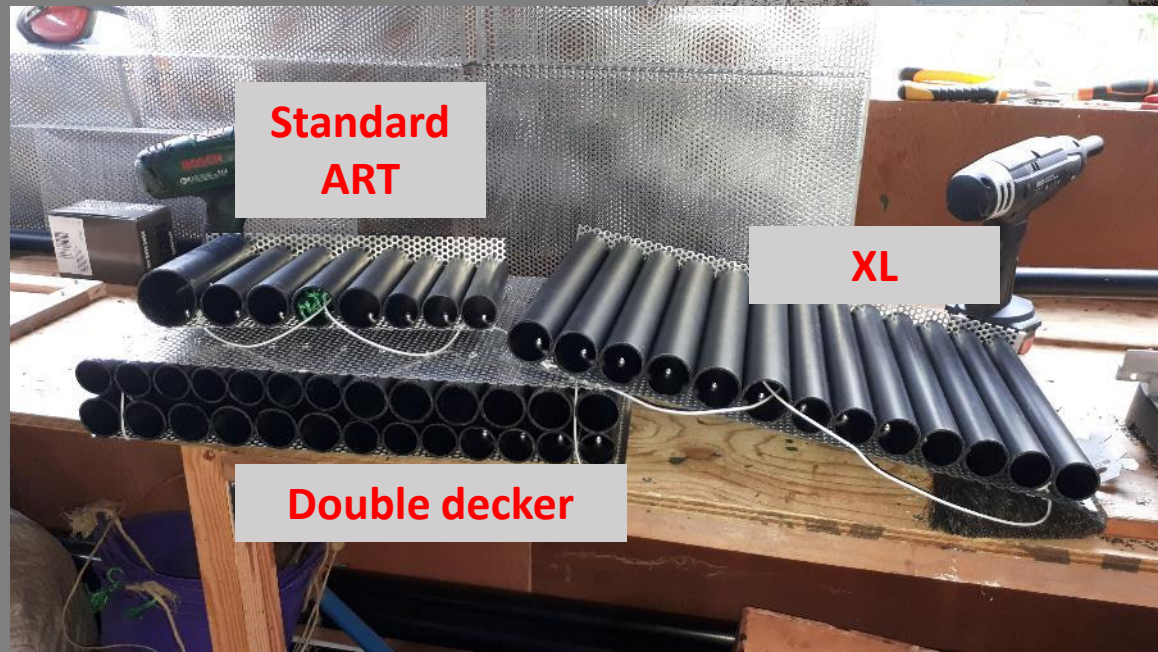
ART

BT



Methods

- Deployed in two SWW reservoirs
- Compared standard ARTs with two types of high capacity trap
- Left in situ Dec 2021 – Aug 2022, compared with baited traps June and July 2022
- Checked monthly



Technical challenges

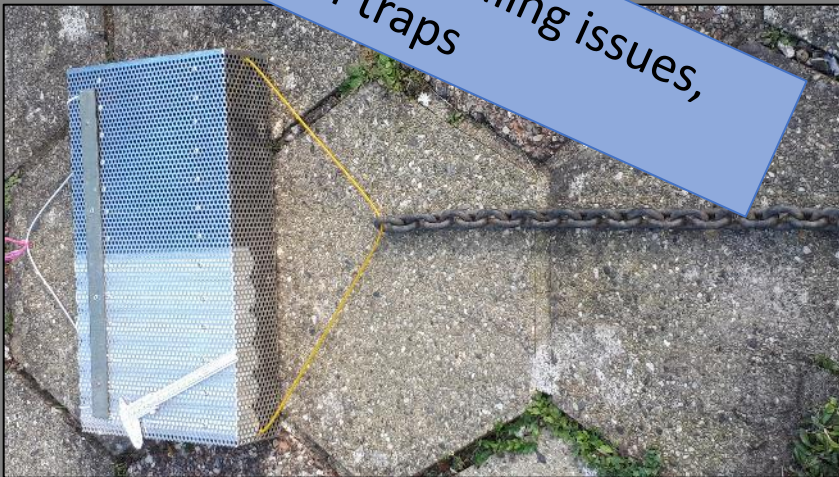
Need to lie flat on the bottom and avoid wind drag



Prevent 'planing' and crayfish escapes



Tangling/fouling issues, loss of traps



Varying water depths

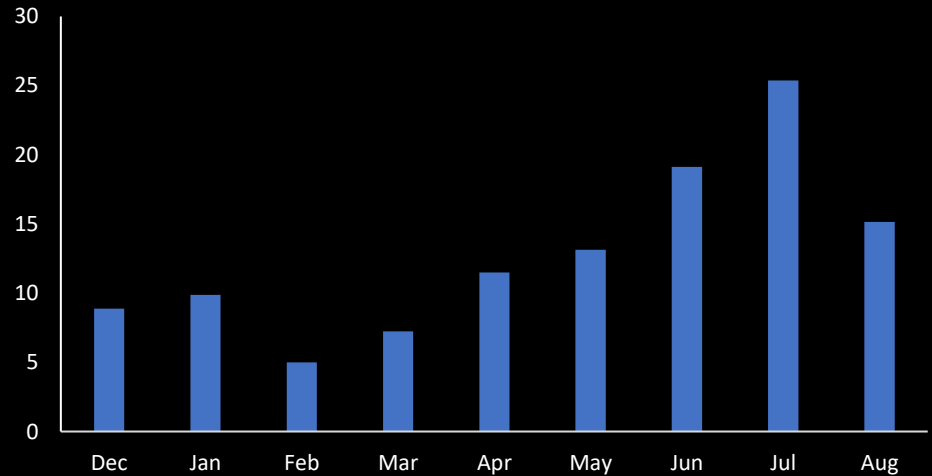


Results – Burrator

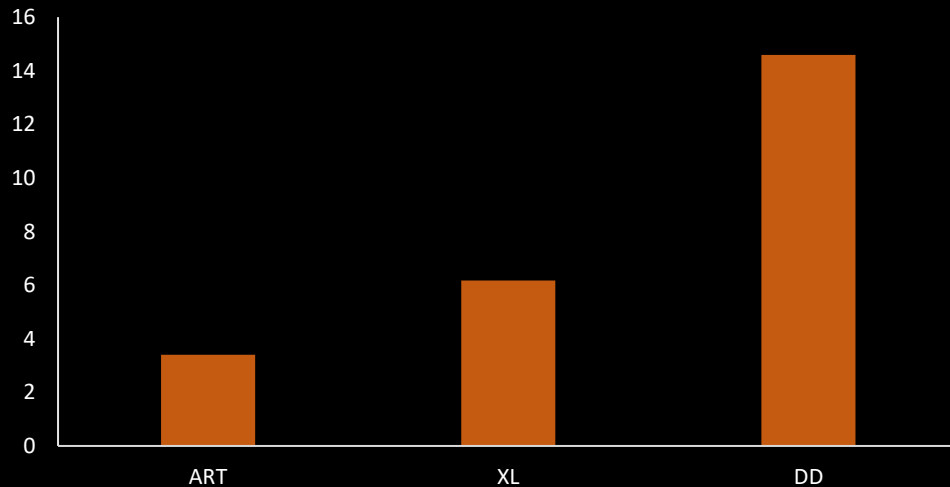
ARTs effective in winter but
best catches May - Aug

Double deckers have by far the
highest ART catch rate and are
directly comparable to baited
traps

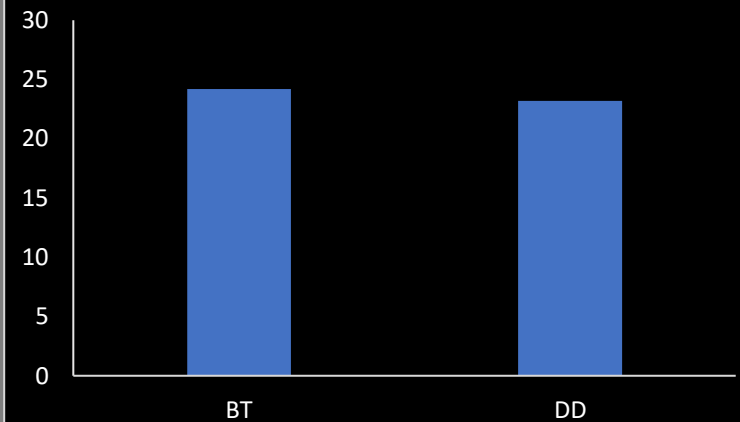
Monthly CPUE all ARTs



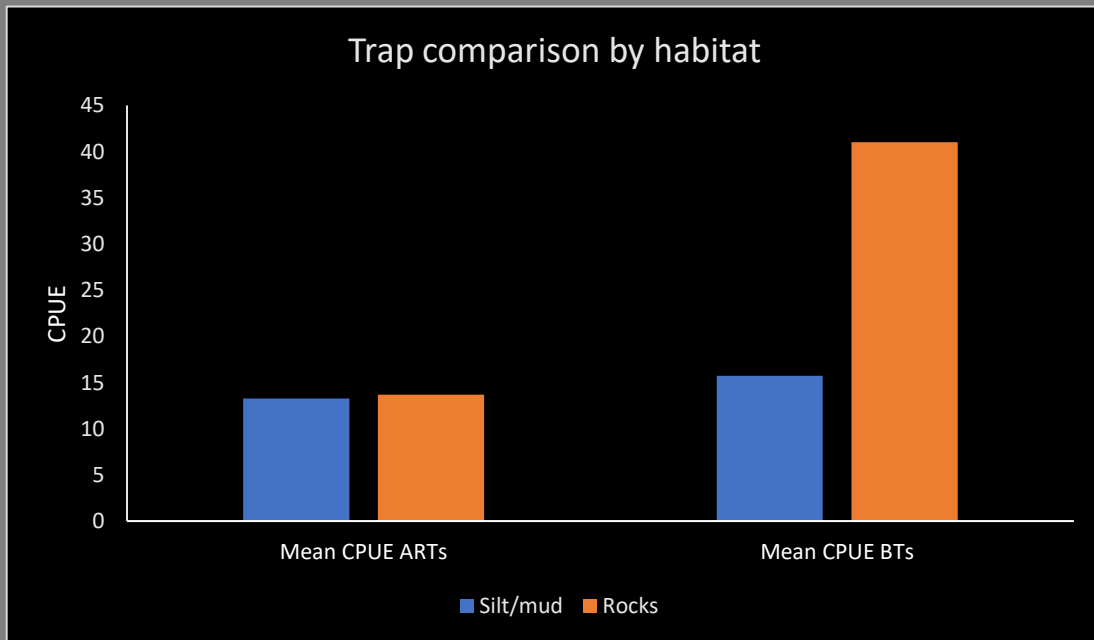
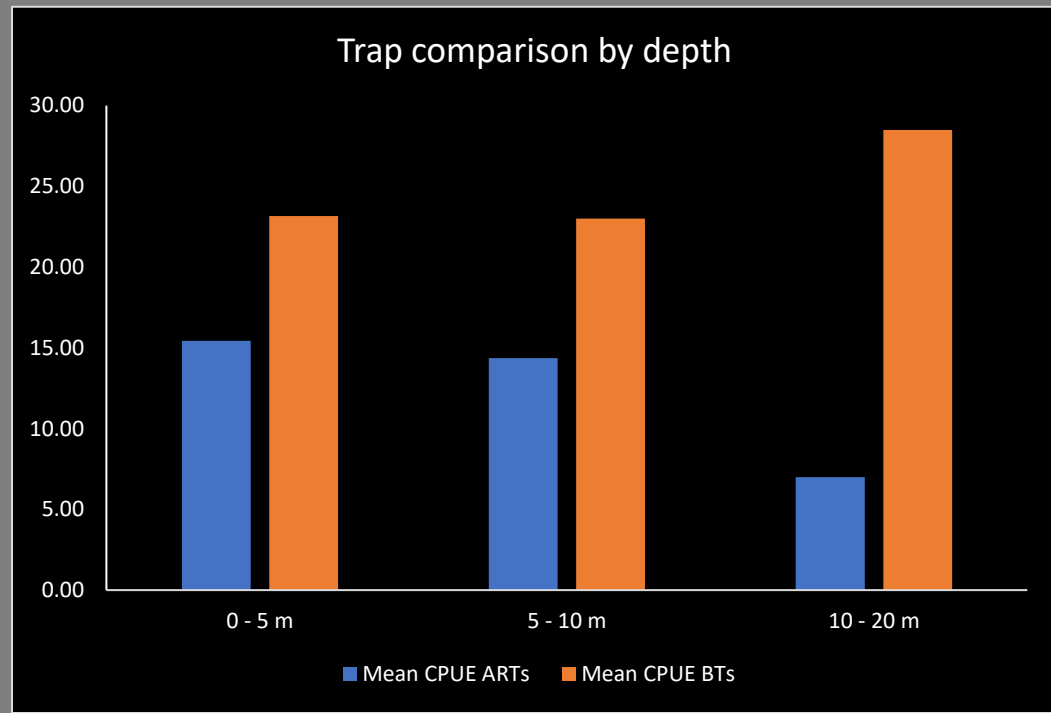
CPUE by ART type



Mean CPUE DDs vs. BTs June & Aug 2022



BTs more effective in rocky habitats ($U = 9; P = 0.036$)
ARTs equally effective in rocky and open habitats



No statistical relationship between trap type and depth ($H = 2; P = 0.37$)

Thanks to South West Water for funding this research...



**South West
Water**



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