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
ARTs captured 95% of berried females and 89% of crayfish in moult
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

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

ARTs effective in winter but best catches May - Aug

Monthly CPUE all ARTs

Mean CPUE DDs vs. BTs June & Aug 2022

CPUE by ART type
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 ($H = 2, P = 0.37$)
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