Using Habitat Traps (Pipes, Tiling) for European Green Crab:

Guidance for Managers

Background and Rationale

Shellfish growers have long observed that European green crab (*Carcinus maenas*) aggregate around aquaculture gear, particularly during colder months. Recent observations (March 2026) from the Port of Nahcotta in Willapa Bay documented elevated numbers of egg-bearing females sheltering in PVC pipes on intertidal mudflats. These observations align with research on habitat selection of brooding females done in California and a long history of 'crab-tiling' in southwest UK, where artificial structures are used to aggregate crabs for bait fisheries. Together, these lines of evidence highlight the strong affinity of green crab for structure and provide a clear rationale for tiling as a removal tool. Yet, the approach should be used prudently to maximize efficacy and avoid unintended consequences.

Key Insights

- Green crabs tend to aggregate under **structure for refuge**.
- **Ovigerous females** show particularly high use of structure in late winter to early spring.
- Added structure is especially attractive in **sandy habitats**, which provide opportunities for females to burrow underneath.
- Brooding females often avoid baited traps, making tiling a useful **complementary control** method.

When to Use Caution

- **Low-density populations**, where tiling is typically ineffective.
- Environments with abundant **natural refuge** where habitat is not limiting (e.g., eelgrass, rip-rap, marsh vegetation).
- **Undisturbed locations** if trampling while checking tiles/pipes will have outsized impact.
- Areas where structure is left **unmonitored**, effectively creating habitat rather than traps.

Important Risk: Habitat Enhancement

Evidence from UK estuaries (see reverse for more detail) shows that tiling without sufficient removal can increase green crab abundance by adding refuge and reducing predation. This can lead to a positive feedback loop where habitat provision supports population growth.

Practical Recommendations

- Use artificial structure as an active removal tool, not passive structure
- Prioritize habitat-limited, "working" tidelands, where high foot traffic will not damage ecosystem
- Focus effort in late winter–early spring to target ovigerous females
- Check pipes/tiles frequently (at least weekly), consistently; avoid leaving unused structure in place
- Pair with other removal methods when possible

Bottom Line

Tiling can improve removal efficiency under certain conditions, particularly for brooding females that evade baited traps. It is, however, a double-edged sword. Without sustained and intensive removal, tiling may actually increase local green crab abundance rather than reduce it or unnecessarily impact native ecosystems and add plastic marine debris to nearshore habitats.

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Case Study: Tiling in the UK

A Cautionary Tale of Unintended Consequences and Positive Feedback

Efforts to use habitat traps (or tiling) in Washington State might be informed by experience elsewhere. There is in fact a long history of "crab-tiling" in estuaries of the southwest United Kingdom, where the practice has been used commercially for at least three decades, not only to aggregate green crabs but to increase their populations by protecting them from predators. Bait collectors ("crab-tilers") place hard structures such as roof tiles, half-round guttering, and other materials on intertidal mudflats to create shelter that green crab burrow beneath. This fishery removes over 1 million green crabs annually, though only about 10% of crabs found under tiles are retained (typically larger, pre-molt individuals suitable for bait). Tens of thousands of tiles (estimated ~77,000) are deployed across estuaries, demonstrating the strong and predictable aggregation response of green crab to added structure (Sheehan et al. 2008).

At the same time, this history highlights an important management tension: tiling is effective at concentrating crabs, but it also represents large-scale habitat addition in otherwise structure-limited environments. The ecological consequences of this added habitat, particularly when not paired with intensive removal, remain a central concern. Known impacts in the UK involve decreased diversity and abundance of native benthic invertebrates due to habitat disturbance (i.e., trampling of tideflats, Sheehan et al. 2010) and modified behavior of shorebirds in tiled environments (Sheehan et al. 2012).

Research by Sheehan et al. (2008) suggests that tiling could unintentionally increase green crab abundance when it is not paired with sufficiently intensive removal. Tiled systems in UK estuaries supported higher numbers of green crabs than non-tiled areas, likely because added structure reduced predation and improved survival. Populations in these areas also skewed toward smaller size classes, suggesting enhanced recruitment and retention, while overall abundance increased despite differences in the proportion of reproductively active individuals. Taken together, these findings highlight that tiling can create a positive feedback loop, where added habitat supports population growth unless removal efforts are strong enough to offset it.

Research cited:

- Sheehan, E. V., Thompson, R. C., Coleman, R. A., & Attrill, M. J. (2008). Positive feedback fishery: population consequences of 'crab-tiling'on the green crab Carcinus maenas. *Journal of Sea Research*, *60*(4), 303-309.
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- Sheehan, E. V., Attrill, M. J., Thompson, R. C., & Coleman, R. A. (2012). Changes in shorebird behaviour and distribution associated with an intertidal crab fishery. *Aquatic Conservation: Marine and Freshwater Ecosystems*, *22*(5), 683-694.

This summary document was prepared by P. Sean McDonald and Washington Sea Grant Crab Team. Guidance and best practices will be updated as additional information becomes available. Contact crabteam@uw.edu for more information.

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