Search for the unseen: Are derelict crab pots prevalent in Delaware’s Inland Bays?

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Derelict Crab Pots

Northwest Straits Foundation
Implications

- Ghost Fishing
  - Blue Crabs: Starvation, cannibalism, infection, disease, exposure to poor water quality
  - Terrapins: Drowning

- Navigation Hazard
- Habitat scouring
A Common Coastal Problem

- NC: recovered 35,000 (since 2003)
- LA: recovered 37,000 (since 2004)
- DE Bay: 500 detected off Woodland Beach

Estimated 145,000 derelict crab pots
Delaware Inland Bays?

- Recreational Blue Crab Fishery
Curtailing Pot Abandonment
Directed Effort: CIB Winter 2012

• Volunteer-based recovery of ~70 pots
• Opportunistically located through visual surveys
• No data collected
Interviews with:
DNREC-DFW (Enforcement, blue crab biologist),
Recreational Crabber, Center for Inland Bays
Search for submerged Derelict crab pots

R/V Dogfish
Humminbird Solix Mega SI: 1200 kHz
Effective swath: 50 ft. in 2 ft. of water
Ground-truthing

Assessed bycatch present

Pot status
Surveys: Bay Cove

Bay Cove

78 Pots

74 Pots in 21 acres
3.5 pots/acre
Love Creek ~100 acres
Bay Cove 78
Herring Creek 160 Pots ~100 acres
Guinea Creek ~20,000 acres in Rehoboth and Indian River Bay
Ground-Truth Results

Hauled 6 derelict crab pots
## Bycatch

### Deceased

<table>
<thead>
<tr>
<th>Species</th>
<th># of Pots</th>
<th>Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Crabs</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Sunfish</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Deceased bycatch</strong></td>
<td><strong>3</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

### Live

<table>
<thead>
<tr>
<th>Species</th>
<th># of Pots</th>
<th>Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Crabs</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Largemouth bass</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Oyster toadfish</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total Live Bycatch</strong></td>
<td><strong>5</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

Additional buoyed pot with 8 blue crabs
Pot Status

- Cull rings: 1/6
- Bycatch Reduction Device: 1/6
- Biodegradable escape panels: 0/6
Conclusions

• Potential for ~38,000 derelict crab pots in Rehoboth & Indian River Bays, associated creeks
• Solix mounted to pontoon works well in 0.5 -1.5 m waters
• Sonar combined with grappling hooks worked well
• Drones did not work well to document submerged pots
• BRD Compliance issue?
Future Work:
Recreational Crabbing Effort
Future Work: Comprehensive Assessment

- Side-scan sonar surveys
  - Assess distribution and abundance of derelict pots
  - Replacement and accumulation rates

- Removal
  - Diversity and abundance of marine fauna
  - Assess Bycatch Reduction Device compliance
Future Work: Outreach and Extension

- Reduce overall pot loss
- Minimize impact of lost pots
Future Work: Coordination
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