Field techniques used to tag large pelagics species in the North Pacific

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Study area: North Pacific
Primarily in waters around the main Hawaiian Islands

(oceanography adapted from Roden (1991) & Seki et al. (in press))
Platform opportunities: Hawaii-based commercial longline vessels

- F/V Sea Pearl (94 ft. schooner)

Deck low to the water surface!
Longline vessels

- Advantage: Can travel great distances (cruise range 4,000 km) and catch an average of 400 pelagic animals per/trip

- Disadvantage: Commercial gear difficult to work with (i.e., haul back speed and gear type)
Researcher food...Yum!
Equipment

Loppers

WC Pop-up Archival Transmitting (PAT) tag
Subject animals

Large pelagics (18 - 100 kg): Tuna, billfish and sharks

15 Bigeye tuna
1 Albacore tuna
7 Opah
2 Shortfin mako
1 Monchong
Target area: opah
Target area: tuna
Tagging instruments and hardware

Applicator heads

Lopper

Shark setup
**Field notes**

<table>
<thead>
<tr>
<th>Spp./Sex</th>
<th>Est. Wt. (lbs)</th>
<th>Tag No.</th>
<th>Date</th>
<th>Time (h)</th>
<th>Set No.</th>
<th>Lat. (N)</th>
<th>Long. (W)</th>
<th>SST (F)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE</td>
<td>110</td>
<td>6</td>
<td>4/25</td>
<td>1202</td>
<td>4</td>
<td>15.35.16</td>
<td>146.36.68</td>
<td>78.0</td>
<td>Fish appeared exhausted but in good shape, tag was implanted a little more lateral than expected, hook to the side of mouth with 4 in. of leader, swam away slowly.</td>
</tr>
<tr>
<td>BE</td>
<td>80</td>
<td>1</td>
<td>4/26</td>
<td>2310</td>
<td>5</td>
<td>18.40.25</td>
<td>147.13.39</td>
<td>76.5</td>
<td>Good tag, once tagged and released, BE swam away in a quick dart maneuver (strong swim)</td>
</tr>
<tr>
<td>SFM/F</td>
<td>130</td>
<td>7</td>
<td>5/1</td>
<td>2018</td>
<td>9</td>
<td>19.15.22</td>
<td>151.22.16</td>
<td>75.1</td>
<td>Female SFM appeared in good shape, hook inside of mouth, 6 in of leader remaining in shark, video footage available</td>
</tr>
<tr>
<td>OPAH/F</td>
<td>85</td>
<td>8</td>
<td>5/1</td>
<td>1838</td>
<td>9</td>
<td>19.15.84</td>
<td>151.26.20</td>
<td>77.3</td>
<td>Opah appeared in excellent shape, tail spanking when leadered near boat, swam away quickly, video footage available</td>
</tr>
<tr>
<td>BE</td>
<td>70</td>
<td>3</td>
<td>5/6</td>
<td>550</td>
<td>13</td>
<td>19.06.13</td>
<td>151.03.88</td>
<td>76.8</td>
<td>BE in great shape no line damage, strong swim away, 6 in leader remaining in fish</td>
</tr>
</tbody>
</table>
Bigeye tuna, opah and monchong habitat

Bigeye Tuna average core temp 76.5°F (n=69)

Opah average core temp 58.4°F (n=8)