Does recreational diving impact hawksbill sea turtle foraging behavior? Results from a marine protected area, Honduras

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RESULTS FROM A MARINE PROTECTED AREA, HONDURAS

Christian Hayes, Dustin Baumbach, David Juma, and Stephen Dunbar
Goal

To quantify the effects of human diving on hawksbill foraging behavior.
In-water Observations

• Carried out focal and video observations of 61 hawksbills.
### In-water Observations

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Mean time of each activity ± S.E.</th>
<th>Range (min)</th>
<th>Proportion of observation time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swimming</td>
<td>7.8 ± 0.7</td>
<td>0.0 – 25.5</td>
<td>57.9</td>
</tr>
<tr>
<td>Eating</td>
<td>2.2 ± 0.5</td>
<td>0.0 – 15.9</td>
<td>16.5</td>
</tr>
<tr>
<td>Investigating</td>
<td>2.2 ± 0.4</td>
<td>0.0 – 12.8</td>
<td>16.3</td>
</tr>
<tr>
<td>Breathing</td>
<td>0.5 ± 0.1</td>
<td>0.0 – 3.6</td>
<td>4</td>
</tr>
<tr>
<td>Reacting</td>
<td>0.5 ± 0.2</td>
<td>0.0 – 7.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Interacting</td>
<td>0.2 ± 0.1</td>
<td>0.0 – 5.8</td>
<td>1.4</td>
</tr>
<tr>
<td>Resting</td>
<td>0.1 ± 0.1</td>
<td>0.0 – 3.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Scratching</td>
<td>0.1 ± 0.1</td>
<td>0.0 – 0.5</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Impact of Diver Approach

A. Swimming

B. Eating, Investigating

Results
Impact of Diver Approach

- **ANCOVA**
  - Diver approach ≠ behavior bouts
  - Diver approach → behavior time
Conclusion

Turtle interaction with recreational divers may cause reduction in eating, investigating, and breathing behavior.

Turtle habituation may cause unintended behavior changes over time.
Impacts of recreational diving on hawksbill sea turtle (Eretmochelys imbricata) behaviour in a marine protected area

Christian T. Hayes, Dustin S. Baumbach, David Juma & Stephen G. Dunbar

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Future Work

• Compare diving impacts within and outside MPAs

• Quantify impacts for other sea turtle species
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Questions?