ABSTRACT

- Create a buoy that can withstand up to 6 atm.
- Device does not get tangled in fishing nets.
- Allows for adequate charging.

MOTIVATION

- Fishermen in Baha catch 48 turtles per day.
- Research shows that light can be used as a deterrent.

PROBLEM STATEMENT

- Balancing pressure resistance with other criteria.
- Buoy should utilize renewable energy.
- Buoy should stay lit for up to 48 hours.

TESTING THE DEVICE

- Numerous prototypes will be 3D printed and resin coated.
- Prototypes will then be depth tested.
- 6 atm can be reached through strong material or via counter-pressurization.

Related Equations

- P=1+0.1d
- PV=nRT
- F=P/A

Where...

- P=Pressure (atm)
- V=Volume (L)
- n=moles of gas
- d=depth (m)
- T=Temp. (K)
- F=Force (N)
- A=Area (m^2)

REFERENCES


PRELIMINARY DESIGNS

- ABS
- PETG
- Nylon

<table>
<thead>
<tr>
<th>Property</th>
<th>ABS</th>
<th>PETG</th>
<th>Nylon</th>
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<tbody>
<tr>
<td>Tensile Strength (psi)</td>
<td>7.00*10^3</td>
<td>7.70*10^3</td>
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<td>Durometer</td>
<td>D100</td>
<td>D85-95</td>
<td>D80</td>
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<td>Density (g/cm^3)</td>
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<td>Transparency</td>
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Smart buoy with green LED's and solar panels.

Sensor Signal and Information Processing Center
http://sensip.asu.edu