Boating Activity in the Florida Keys National Marine Sanctuary

June 19, 2018
FKNMS - SAC
Vessel Use in the Florida Keys National Marine Sanctuary

Final Report

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FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
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Study Objectives

- Conduct aerial survey of boaters and their activities
- Understand spatial and temporal variation in boating patterns
- Compare boating patterns between 2016 and 1992
- Develop a database to support ongoing analytical assessment of Sanctuary management issues
# 2016 Survey Effort

<table>
<thead>
<tr>
<th>Day Type</th>
<th>Number of Surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holiday</td>
<td>3</td>
</tr>
<tr>
<td>Lobster Season Opening Day</td>
<td>2</td>
</tr>
<tr>
<td>Summer Weekday</td>
<td>4</td>
</tr>
<tr>
<td>Summer Weekend</td>
<td>5</td>
</tr>
<tr>
<td>Winter Weekday</td>
<td>7</td>
</tr>
<tr>
<td>Winter Weekend</td>
<td>8</td>
</tr>
</tbody>
</table>
Categories

• Boat Size
  • Greater than or less than 30 feet in length
• Boat Type
  • Motorboat, Sailboat, PWC, Kayaks/Paddleboards
• Boater Activity
  • e.g. Fishing, Diving, Partying, Running
Overall Results

- Estimated 550,461 ±40,946 (sd) boat days

- The first day of the Lobster Sport Season had 4,818 boats and Opening Day of Lobster Season had 4,096 boats.

- Holiday weekends were the second highest boat use times, with an average of 2,875 ± 818 boats per day. Peak boat use was on Memorial Day weekend, 4,019 boats).

- Winds greater than 15 mph tended to reduce the number of boats observed.

- On windy days, more boats were concentrated nearshore, around bridges, and on the Gulfside.
Overall Results

• High-use areas of the Sanctuary were along the reef tract, nearshore, and near bridges.

• On average, 65% of all boats were observed on the Oceanside during the survey.
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<table>
<thead>
<tr>
<th>Area (nmi²)</th>
<th>Total Boats</th>
<th>Density of Boats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avg. Boats per day</td>
<td>St. Dev. Boats per day</td>
</tr>
<tr>
<td>Biscayne Ref</td>
<td>29</td>
<td>42.1</td>
</tr>
<tr>
<td>Upper Keys GS</td>
<td>81</td>
<td>121.6</td>
</tr>
<tr>
<td>Upper Keys OS</td>
<td>273</td>
<td>417.3</td>
</tr>
<tr>
<td>Middle Keys GS</td>
<td>227</td>
<td>182.3</td>
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<tr>
<td>Middle Keys OS</td>
<td>279</td>
<td>383.0</td>
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<tr>
<td>Lower Keys GS</td>
<td>419</td>
<td>285.6</td>
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<tr>
<td>Lower Keys OS</td>
<td>267</td>
<td>279.2</td>
</tr>
<tr>
<td>Marquesas North</td>
<td>473</td>
<td>36.5</td>
</tr>
<tr>
<td>Marquesas South</td>
<td>399</td>
<td>52.3</td>
</tr>
<tr>
<td>Grand Total</td>
<td>2447</td>
<td></td>
</tr>
</tbody>
</table>
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- Diving and hook-and-line fishing each represented ~ 19% of boating activities. Sandbar and watersports activities each made up ~ 9%. Boats that were running (29%) when counted were likely also participating in other activities, just not at the time and location when they were counted.
At any given time, 15-28% of vessels in the Sanctuary were fishing.

An average of 342 ± 190 vessels were observed fishing daily.

<table>
<thead>
<tr>
<th></th>
<th>Total Fishing Boats</th>
<th>Density of Fishing Boats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area (nmi²)</td>
<td>Avg. Boats per day</td>
</tr>
<tr>
<td>Biscayne Reef</td>
<td>29</td>
<td>25.0</td>
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<tr>
<td>Upper Keys GS</td>
<td>81</td>
<td>9.3</td>
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<tr>
<td>Upper Keys OS</td>
<td>273</td>
<td>73.3</td>
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<tr>
<td>Middle Keys GS</td>
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<td>Lower Keys OS</td>
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<td>48.8</td>
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<tr>
<td>Marquesas North</td>
<td>473</td>
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<tr>
<td>Marquesas South</td>
<td>399</td>
<td>9.7</td>
</tr>
<tr>
<td>Grand Total</td>
<td>2447</td>
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</table>
Hook-and-Line Fishing

- Hook-and-line fishing boats were fairly spread throughout the Sanctuary, but there were popular fishing areas – particularly along the reef tract and near bridges.
Hook-and-Line Fishing

- The majority of fishing boats were observed over hardbottom (28%) and over continuous reef (25%) habitats. Other reefs supported 13% of fishing boats, while bridges (12%) and deep areas offshore (12%) were also popular. Per area, bridges and continuous reef habitats saw the highest densities of fishing boats.
Diving

- There was an average of 172 ± 162 dive and 18 ± 10 charter dive boats observed each day.
- The greatest number of dive boats, 518 were seen on Memorial Day weekend.
- At any given time, 19% of vessels in the Sanctuary were diving. The number of dive boats varied by time of year, day of the week, and with wind speed.

<table>
<thead>
<tr>
<th>Area (nmi²)</th>
<th>Avg. Boats per day</th>
<th>St. Dev. Boats per day</th>
<th>% Boats per day</th>
<th>Avg. Boats per nmi²</th>
<th>St. Dev. per nmi²</th>
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</thead>
<tbody>
<tr>
<td><strong>Biscayne Reef</strong></td>
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<tr>
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<td><strong>Lower Keys OS</strong></td>
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<td>26.69</td>
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<tr>
<td><strong>Marquesas North</strong></td>
<td>81</td>
<td>0.38</td>
<td>0.74</td>
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<tr>
<td><strong>Marquesas South</strong></td>
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<td>6.42</td>
<td>4.72</td>
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<tr>
<td><strong>Grand Total</strong></td>
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Diving

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- Dive boats were concentrated along continuous reef habitat on the Oceanside of the Florida Keys during both the summer and winter, with 55% of all dive boats observed in FKNMS Marine Zones.
- The highest densities of dive boats were observed at Upper and Middle Keys reefs.
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The highest densities of dive boats were observed at Upper and Middle Keys reefs.

The majority of dive boats (67%) were located at the continuous reef habitat. Other reefs and hardbottom supported 19% and 9% of dive boats respectively.
Fishing vs. Diving Preferences on Coral Reefs
Includes boats/PWCs that were beached, anchored, or rafted near sandbar/party zones

On Memorial Day Weekend Sunday, there were 1200 boats at sandbars/party zones throughout the Keys

9.4% of vessels counted
Sandbar/Party Zones

![Graph showing the number of partying boats by day type](image)

- **Holiday**: 1200 boats
- **Lobster**: 500 boats
- **Summer Weekday**: 100 boats
- **Summer Weekend**: 600 boats
- **Winter Weekday**: 200 boats
- **Winter Weekend**: 300 boats

Holiday Isle - May 14, 2016
31% of observed boats were in transit
Commercial Fishing

• Includes trap boats, head boats, spongers, trawlers, and purse seines

• Commercial fishing boats make up 1.7% of all vessels in the FKNMS
Personal Watercraft (PWC)

- PWC account for 4% of vessels in the FKNMS
Kayaks and Paddleboards make up 5% of all vessels in the FKNMS Kayakers in John Pennekamp State Park
Watersports

• Includes boats actively participating in parasailing, waterskiing, and tubing

• Boats participating in watersports make up 0.3-1% of vessels observed in the Keys
Mooring Areas

Mooring Fields west of Key West
Special Thanks to:
Emily Hutchinson, Gabby Renchen,
Mike Bollinger, and our Pilots at
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NOAA Commissioned Officer Corps