Alternative Usages of Sharks and Rays

Shark and Ray Fisheries
- Overexploitation
- Ecological impacts
- Socio-economic impacts
  - Fisheries
  - Tourism

Shark and Ray Dive Tourism
- Socio-economic benefits
  - Renewable value
  - Business and tax revenues
  - Jobs
- Argument for shark and ray conservation
The Value of Sharks and Rays

- **Maldives**: US$51.4 M, US$8.1 M
- **Sabah?**
- **Palau**: US$18 M, US$2.5 M
- **Bahamas**: US$68.4 M
- **French Polynesia**: US$5.4 M, US$1.4 M

Shark sanctuaries
Research Questions

- What is the current socio-economic value of shark and ray diving in Semporna?

- How does the implementation of a shark sanctuary influence the dive trip demand of tourists in Semporna?

- What are the economic consequences of changing dive trip demand to the economy in Semporna?

- Is a tourist user fee a viable finance scheme for a shark sanctuary?
Methods

- Data collection
  - Feb. 2018
  - Dive operator surveys (n = 11)
  - Dive tourist surveys (n = 451)
Tourist Surveys

Revealed preferences

Observed tourist behavior

- Number of dive trips in the last 5 years → Dive trip demand
- Travel expenses → Business revenues
- Tourist’s characteristics (e.g. age, satisfaction with trip, origin)

Stated preferences

Future tourist behavior

- Number of dive trips in the next 5 years
- Change in dive trip demand
- Change in business revenues
- Willingness to pay for a user fee

Status Quo

Shark Sanctuary
Revenues from Shark-Diving

55.3 million US$/year

29% Shark Divers

Local Businesses

Shark divers

All divers

Taxes

3.6 million US$/year
# Shark Sanctuary Scenario

How many times are you planning to visit Semporna for diving in the next 5 years?

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Total Days [#/ 5 years]</th>
<th>Business Revenue [US$ M/a (95% CI)]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed</td>
<td>10</td>
<td>US$ 55.3 M (50.24 – 60.36)</td>
</tr>
<tr>
<td>Status Quo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario: Shark Sanctuary</td>
<td></td>
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</tr>
</tbody>
</table>
Jobs and Salaries

- 796 employees
- Aggregated salary of US$ 2.8 million/year
- 91% of employees Malaysian locals
- Inequality between ethnic groups
Willingness to Pay

- Tourist fee for the support of local communities and enforcement of regulations

- Average willingness to pay for a tourist fee:
  US$ 9.5 / tourist and day

- Potential annual revenues:
  US$ 2.7 million/year
Conclusions

- Shark diving industry generates substantial socio-economic benefits to local communities

- The implementation of a shark sanctuary can increase local business revenues by 20% 

- User fees can be a viable finance scheme for a potential shark sanctuary in Sabah
Thank you for your attention!

Acknowledgements

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Attachments
Tourist Preferences

- **Most interested**: 29% Shark Divers
- **Least interested**: 60% Would return without sharks and rays
- **Would not return**: 40% Would not return without sharks and rays
Business Revenues

- **Revenues (million US$/year)**
  - **Dive Businesses**: 6.4
  - **Local Businesses**: 49.5
  - **Local Businesses (2018)**: 11.2
  - **Shark divers**: 55.3
  - **All divers**: 16.6
  - **Taxes**: 2.3
  - **Taxes (2018)**: 3.6
Sharks and Rays in Sabah

Tun Mustapha Park
Tunku Abdul Rahman Park
Tiga Island Park
Tun Sakaran Marine Park
Turtle Island Park
Sipadan Island Park
Sabah
Semporna