Role of Maritime Domain Awareness and Maritime Governance

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Dr. Christopher Merritt, U.S. Mission to ASEAN
Maritime Domain Awareness

- The effective understanding of anything associated with the maritime domain that could impact the security, safety, economy, or environment.

MDA enables a nation to effectively govern its own waters and to contribute to strengthening the international rules based order that protects the global maritime commons from all threats.
Relevance for PESF Education Session

• Technology and Resources
  – Satellite Technology
  – Vessel Tracking and Monitoring
  – Environmental Monitoring

• Using the Technology and Resources to Influence Policy and Enforcement
  – Databases and Organizational
  – Fusion Centers
Maritime Domain Awareness
Boat detection based on lights
Purse seiner and ring net boats commonly carry string of bare bulbs
Low light imaging data are collected at night to enable detection of moonlit clouds. Electric lighting is also detected.

Manila, March 23, 2016
Mindoro Strait
March 23, 2016
High moon DNB data.
Algorithms run on images, output points, vast data volume reduction

VIIRS day/night band (DNB) nighttime image data

Boat detection data (points)
Data Access

- Nightly, monthly and annual data files are available at: [https://eogdata.mines.edu/vbd/](https://eogdata.mines.edu/vbd/).
- Global annual summary grid for 2017: [https://eogdata.mines.edu/trip_the_light_fantastic/](https://eogdata.mines.edu/trip_the_light_fantastic/)
- Temporal loops of monthly summary grids: [https://www.ngdc.noaa.gov/eog/nighttime_lights_loops.html](https://www.ngdc.noaa.gov/eog/nighttime_lights_loops.html)
Nightly global data with product release target of four hour from observation.
VBD alerts sent by email, SMS, and Telegram

Negros Occidental Daily Summary

UTC Time: 2019-02-08 16:37:33
Local Time: 2019-02-09 00:37:33
Latitude: 10.946325
Longitude: 123.054108
Color: red
Quality flag= 2 (Medium)

Indonesia WPP715 Daily Summary 2018-02-13
Total detections: 27
goo.gl/Hd7n1u

Kepulauan Anambas Marine Conservation Area - Boat Detection Alert 2018-02-13
Total detections: 12
goo.gl/jQSpRb
Summary of VBD detections in protected areas 2017 to 2018

<table>
<thead>
<tr>
<th>Countries</th>
<th>Number of units</th>
<th>Area in sq. km.</th>
<th>VBD counts- 2017</th>
<th>VBD counts- 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philippine-LGU Municipal waters</td>
<td>814</td>
<td>311,853</td>
<td>52,745</td>
<td>59,703</td>
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<tr>
<td>Philippine-NIPAS MPAs</td>
<td>28</td>
<td>16,132</td>
<td>589</td>
<td>743</td>
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<tr>
<td>Philippine-Seasonal Closures</td>
<td>4</td>
<td>82,733</td>
<td>1395</td>
<td>1171</td>
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<tr>
<td>Indonesia</td>
<td>192</td>
<td>252,242</td>
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<td>Cambodia</td>
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<td>8,758</td>
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<td>Myanmar</td>
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<td>11,801</td>
<td>100</td>
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<tr>
<td>Thailand</td>
<td>49</td>
<td>13,733</td>
<td>8,530</td>
<td>8,857</td>
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<td>Vietnam</td>
<td>30</td>
<td>8,106</td>
<td>41,918</td>
<td>46,454</td>
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<tr>
<td><strong>TOTALS</strong></td>
<td><strong>1171</strong></td>
<td><strong>708,649</strong></td>
<td><strong>129,798</strong></td>
<td><strong>145,541</strong></td>
</tr>
</tbody>
</table>
Maritime Domain Awareness

Maritime Single Points of Contacts

- Thailand Maritime Enforcement Coordination Center
- Philippine National Coast Watch Center
- Brunei National Coordination Center
- Changi Information Fusion Center
- Malaysia, Vietnam, Cambodia, etc...

Changi IFC

Philippines National Coastwatch Center
Linchpins for Governance of the Marine Environment

- By identifying potential threats, and enhancing effective decision-making, a coordinated and collaborate response to a variety of maritime threats is achievable within Southeast Asia.