Poor protection levels

<0.5% of Mainland EEZ

Sink et al. 2012
Expanding & Diversifying Use

Rich Pickings
The mineral sands mine on the West Coast is expected to inject more than R1 billion a year into the provincial economy over the next five years.

SAND MINING BOOM

TORMIN PROJECT: Mine predicted to bring money, jobs to Western Cape
Overlap with Priority areas

Green Flash Trading **Phosphate Prospecting Areas**

GFT 251 and 257 prospecting licence areas.

Overlap with demersal trawl fishery    
Overlap with Threatened and Unprotected ecosystems
Phosphate prospecting rights

200m – 800m

Green Flash 251 (financial provision, executed)

Green Flash 257 (no financial provision)
Overlap with Proposed MPAs

Clay
Diamonds
Garnet
Heavy Minerals
Phosphate
Manganese

Also:
Petroleum
Poor decision making in coastal & ocean ecosystems

• Failure to Recognise and Plan for Connectivity in the Coast
• Terrestrial bias in legal and governance framework
• Challenges in EIA practice
• Gaps in biodiversity & use information and failure to consider ecosystem services
• Low awareness of potential impacts
• Few relevant coastal & marine guidelines for decision makers
Failure to Recognise and Plan for Connectivity in the Coast

- **Proactive** planning is needed

- Land sea **connectivity** must be maintained (estuarine management, sediment budgets, fresh water flow requirements, nutrient transfer, exchange of biota)

- **Coastal Ecological Infrastructure** must be identified and maintained
• Terrestrial bias in legal and governance framework must be addressed
• Gaps in biodiversity & use information need addressing (including ecosystem services eg. fishing must be considered)

Example from authorised marine mining application

“1.4 Confirmation that the description of the environment has been compiled with the participation of the community, the landowner and interested and affected parties:

Not applicable (since the prospect area is situated on the marine continental shelf there are no communities and landowners).”
Example of poor EIA

“No visible impacts will be seen as the ocean floor is fluid and is continually changing as a result of the currents and ocean movement.”

Green Flash Trading Phosphate Prospecting Areas
Gaps in use information and failure to consider ecosystem services

PROPOSED PROSPECTING ON THE ICENINE PROSPECT, TUGELA BANKS, FAST PACE TRADE AND INVESTMENT (PTY) LTD.

“SECTION 1.3 Map showing the spatial locality of all environmental, cultural/heritage and current land use features identified on site:
Gaps in use information and failure to consider ecosystem services

"SECTION 1.3 Map showing the spatial locality of all environmental, cultural/heritage and current land use features identified on site: None."

- Fails to recognise **coastal communities**
- Ignores 3 **fisheries sectors** operating in the area
- Does not recognise **submarine cable**
- Does not refer to any **scientific work** in area
- Fails to recognise **EBSA (Ecologically & Biologically Significant Area)**, Focus area for Offshore Protection & Phakisa **Proposed MPA**

**PROPOSED PROSPECTING ON THE ICENINE PROSPECT, TUGELA BANKS, FAST PACE TRADE AND INVESTMENT (PTY) LTD.**

**Example: Garnet Mining on East Coast**
Opportunities for better decision making

- Poised for integrated spatial planning that accounts for connectivity & Ecological Infrastructure
- Legal and governance framework for Marine Spatial Planning is under development, scope for influence & alignment. Opportunity to revise LN3* of the EIA regulations.
  *LN3 Listing Notice 3 = Sensitive areas that trigger EIAs
- Scope to implement existing spatial measures in ICMA & MLRA
- Lessons from land use planning & guidelines
- Online information dissemination opportunities eg. OCIMS, BGIS
What do we need to do???

• **Critical Biodiversity Area (CBA) maps** for coastal (cross realm including estuaries) and marine ecosystems that accounts for connectivity, food and job security and coastal ecological infrastructure

• **Reminder: What is a CBA map?** (Identifies biodiversity priority areas)
  
  A Critical Biodiversity Area (CBA) map is a spatial plan for ecological sustainability to inform coastal and marine-use planning, environmental authorisations, ecosystem based fisheries management, mining authorisations, water use licensing and other decisions that impact on the coastal and marine environment

• CBA: management objective is to keep in good condition
• ESA- keep in at least fair condition (avoid further deterioration)

• **Clear Guidance for Practitioners**
  
  AND Decision makers......

• What else?
Key aspects of a CBA Map?

- Consistent definitions and interpretations of CBAs and ESAs
- Reviewed to ensure informed by best available science and suitable data
- Meets minimum technical requirements
- CBAs and ESAs can co-exist in a matrix of multiple coast and sea uses that range from intensive uses that irreversibly modify the seascape to lower impact uses. A CBA map provides the most spatially efficient configuration of CBAs and ESAs
- If targets set for ecological processes & features representing EI – approach must be explicit with clear rationale
Some key questions

- Areas important for ecological processes for which desired state is natural /near natural (eg. spawning, nursery, aggregations, coastal ei, estuaries)
- Ecological corridors? Marine: Migration routes 3d; Estuaries
- What are the categories of broad ocean use/ sdf category/associated sea use activity examples
  - Fisheries
  - Petroleum
  - Seabed mining
  - Transport
  - Waste disposal
  - Aquaculture
  - Ports/IDZs
  - Military areas
  - Submarine cables
  - Tourism
Ocean Activities & Interests

Current MSP Framework: Activities and Interests in SA Waters

- Aquaculture
- Defence
- Environmental Protection
- Fisheries
- Heritage
- Infrastructure
- Mineral Resource Exploration and Exploitation
- Sea water abstraction and disposal
- Tourism
- Transport and Ports
- Wastewater Discharge (industrial, residential, desalination)
- Emerging uses (Renewable energy, carbon capture and sequestration)

- Coastal Development
- Environmental Monitoring and Research
CBAs and ESAs

- CBA is an area that must remain in good ecosystem condition to meet biodiversity targets (good ecosystem condition)
- CBA: management objective is to keep in good condition
- ESA: keep in at least fair condition (avoid further deterioration)

<table>
<thead>
<tr>
<th>Map Category</th>
<th>Seascape-level purpose</th>
<th>Broad management objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protected areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ONA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NNR (Areas with no natural habitat remaining)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Ecosystem Services: Fisheries

1. Fishing is an important ecosystem service that should be maintained
2. South Africa has 22 fishery sectors
3. Many associations & groups, many overlapping rights
Environmental Management Support

1. Representative PA Network
   • Include offshore ecosystems and estuaries

2. Biodiversity mainstreaming in marine industry sectors
   • Building the knowledge base
   • Protection of sensitive biodiversity
   • Good industry practice

3. Effective MSP & Management
   • Identify and communicate priority & sensitive areas
Chamber of Mines CEO Bheki Sibiya with Minister of Water and Environmental Affairs Edna Molewa
<table>
<thead>
<tr>
<th>Category</th>
<th>Biodiversity priority areas</th>
<th>Implications for mining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legally protected-mining prohibited</td>
<td>• Protected areas&lt;br&gt;• No-go areas (Sec 49 MRDA)</td>
<td>Mining is legally prohibited</td>
</tr>
<tr>
<td>Highest biodiversity importance-Highest Risk for Mining</td>
<td>• CR and EN ecosystems&lt;br&gt;• Critical Biodiversity Areas&lt;br&gt;• River and wetland Freshwater Ecosystem Priority Areas (FEPAs)&lt;br&gt;• Strategic fisheries resource areas?&lt;br&gt;• Ramsar Sites</td>
<td>The significance of the biodiversity features &amp; the associated ecosystem services, very likely to prove to be fatal flaws for mining</td>
</tr>
<tr>
<td>High biodiversity importance-High risk for mining</td>
<td>• Protected area buffers&lt;br&gt;• High water yield areas&lt;br&gt;• Coastal Protection Zone&lt;br&gt;• Estuarine functional zone</td>
<td>Mining options are limited in these areas of high biodiversity importance, and fatal flaws for mining projects are possible.</td>
</tr>
<tr>
<td>Moderate biodiversity importance – Moderate risk to mining</td>
<td>• Ecological support areas&lt;br&gt;• Vulnerable ecosystems&lt;br&gt;• Focus areas for protected area expansion (land-based and offshore protection)</td>
<td>These areas of moderate biodiversity value may constrain mining options, but are unlikely to represent a fatal flaw for mining.</td>
</tr>
</tbody>
</table>
Opportunities to support Marine Spatial Planning

• Building on biodiversity priority areas
  – MPAs and proposed MPAs
  – Fragile Ecosystem Types (VMEs)
  – Threatened ecosystems & Good bits Maps
  – EBSAs

Proposed new data layers:
• CBA Map & ESA maps
• Fishing grounds & Priority Fisheries Areas
• Strategic Fisheries Areas (Key food production Areas)
• Coastal Ecological Infrastructure
• (Strategic Coastal Tourism / Heritage Areas?)
• Sensitive areas for seismic surveys – spatio-temporal component
• New EBSAs
Ecological infrastructure
Healthy ecosystems delivering services

Strategic Fisheries Resource Areas

- x% of our ocean delivers >90% of our fisheries resources?
Strategic Fisheries Resource Areas

Tsamelo Malebu, MSc student, Nelson Mandela Metropolitan University
Supported by Sarah Wilkinson, Cap Marine Consultants

Average cumulative catch per annum

Legend

<table>
<thead>
<tr>
<th>Catch per annum (tons)</th>
<th>Shade</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 200</td>
<td>Lightest</td>
</tr>
<tr>
<td>201 - 1000</td>
<td>Light</td>
</tr>
<tr>
<td>1001 - 3000</td>
<td>Medium</td>
</tr>
<tr>
<td>3001 - 8000</td>
<td>Medium/Dark</td>
</tr>
<tr>
<td>8001 - 15500</td>
<td>Dark</td>
</tr>
</tbody>
</table>

Includes: Demersal trawl, demersal longline, pelagic longline, tuna pole, small pelagics, south coast rock lobster
First analysis.....

90% of our seafood is caught in 5% of our ocean
<table>
<thead>
<tr>
<th>Challenges</th>
<th>Progress &amp; Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited offshore information base, technological &amp; capacity challenges</td>
<td>Increasing offshore research funding, Industry Co-operation</td>
</tr>
<tr>
<td></td>
<td>International co-operation</td>
</tr>
<tr>
<td>Inadequate protection of offshore ecosystems</td>
<td>Development of a Representative Marine Protected Area Network</td>
</tr>
<tr>
<td>Weak EMPs / EIAs &amp; lack of scientific input</td>
<td>New Decision Support &amp; Mainstreaming Tools</td>
</tr>
<tr>
<td>Overlap with Biodiversity Priority Areas</td>
<td>Marine Spatial Planning</td>
</tr>
</tbody>
</table>