

Area Closures and Dugong Conservation

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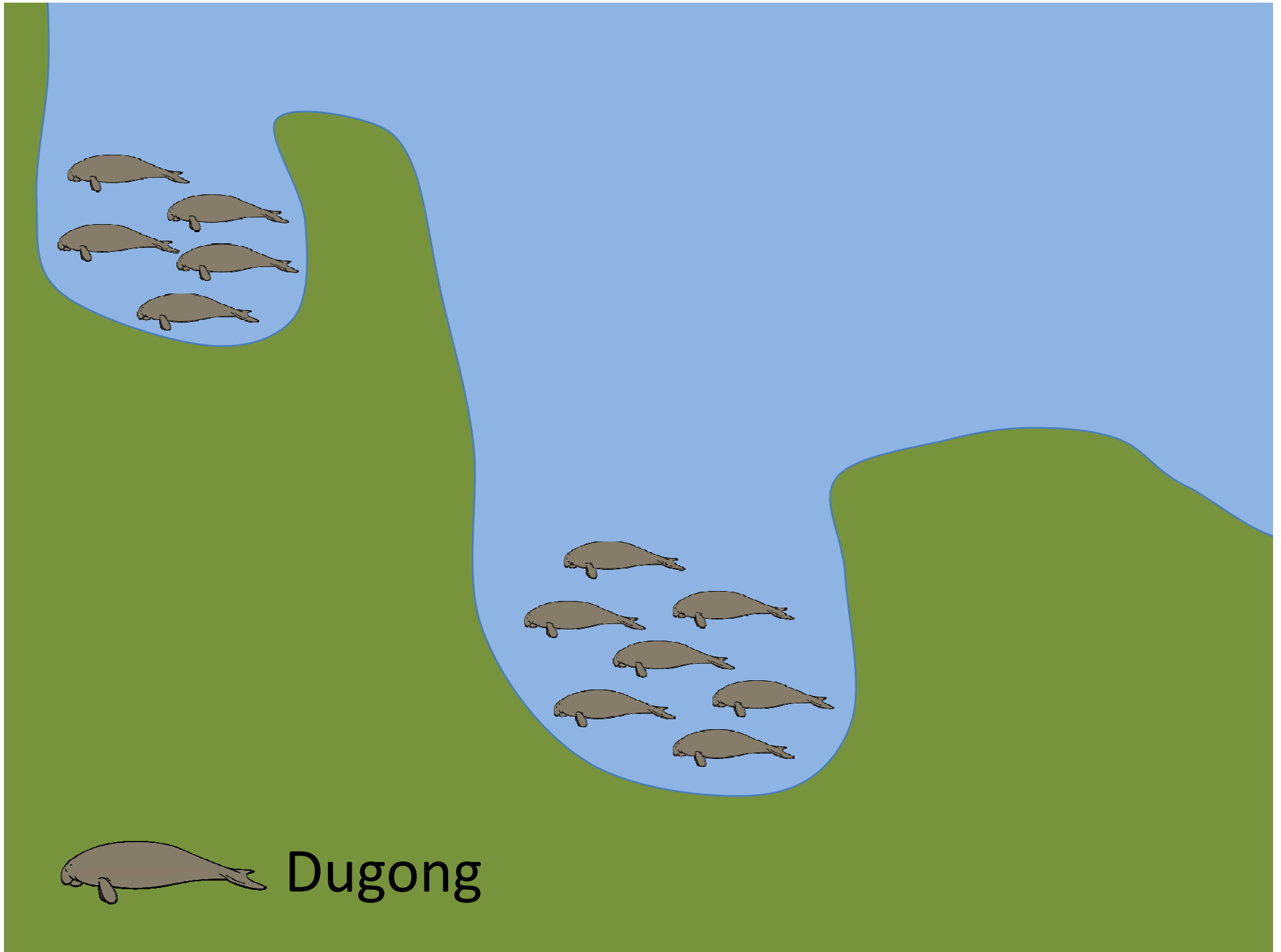
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Area Closures

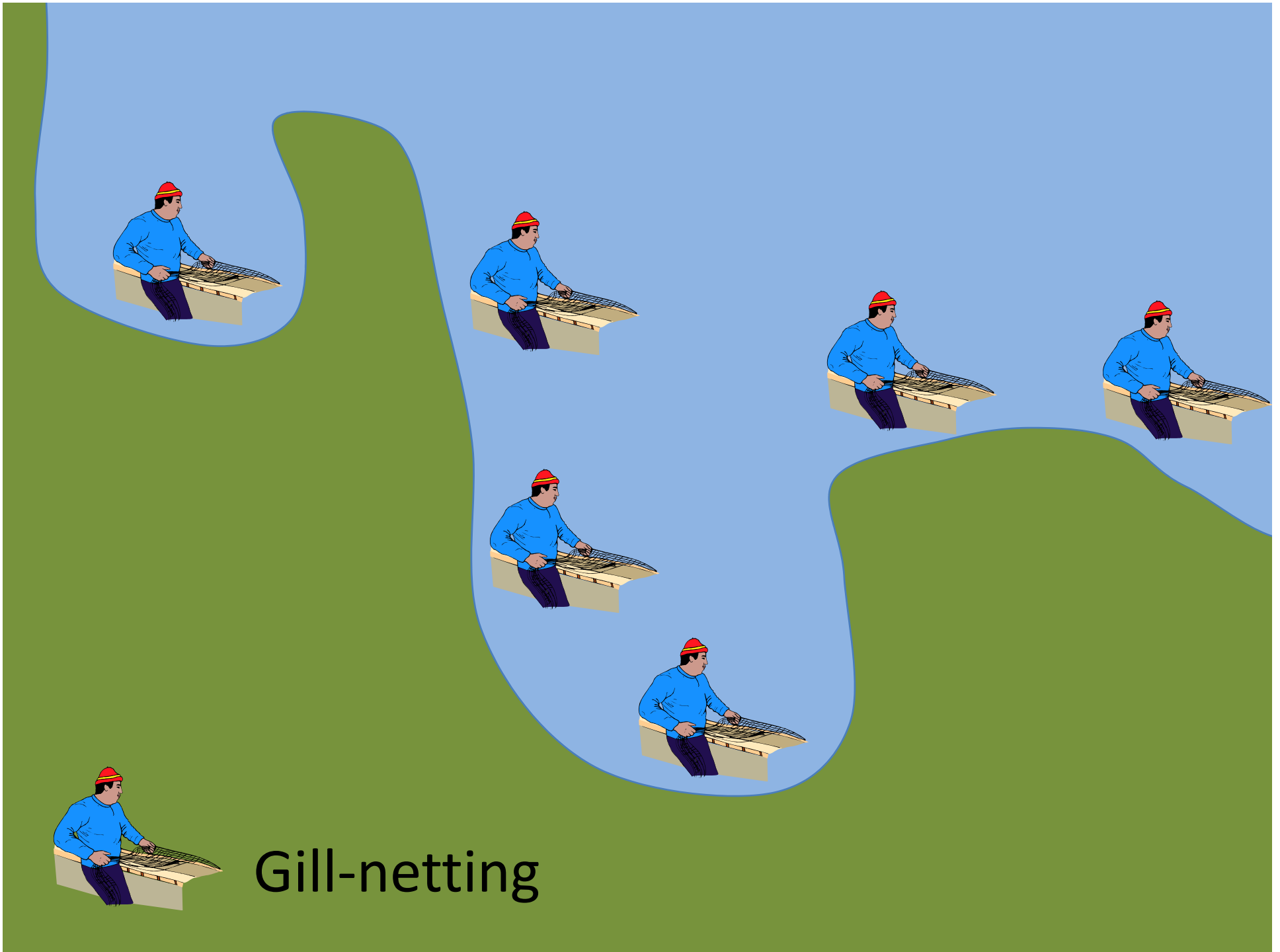
- **Restrict human activity in a defined area to protect marine resources**
- Human activities include: fishing, urban/industrial development, mining/oil drilling, tourism, etc.
- Area closures are also known as: Marine reserve, Marine Protected Area, Marine park, Spatial closure

Area Closures and Dugongs

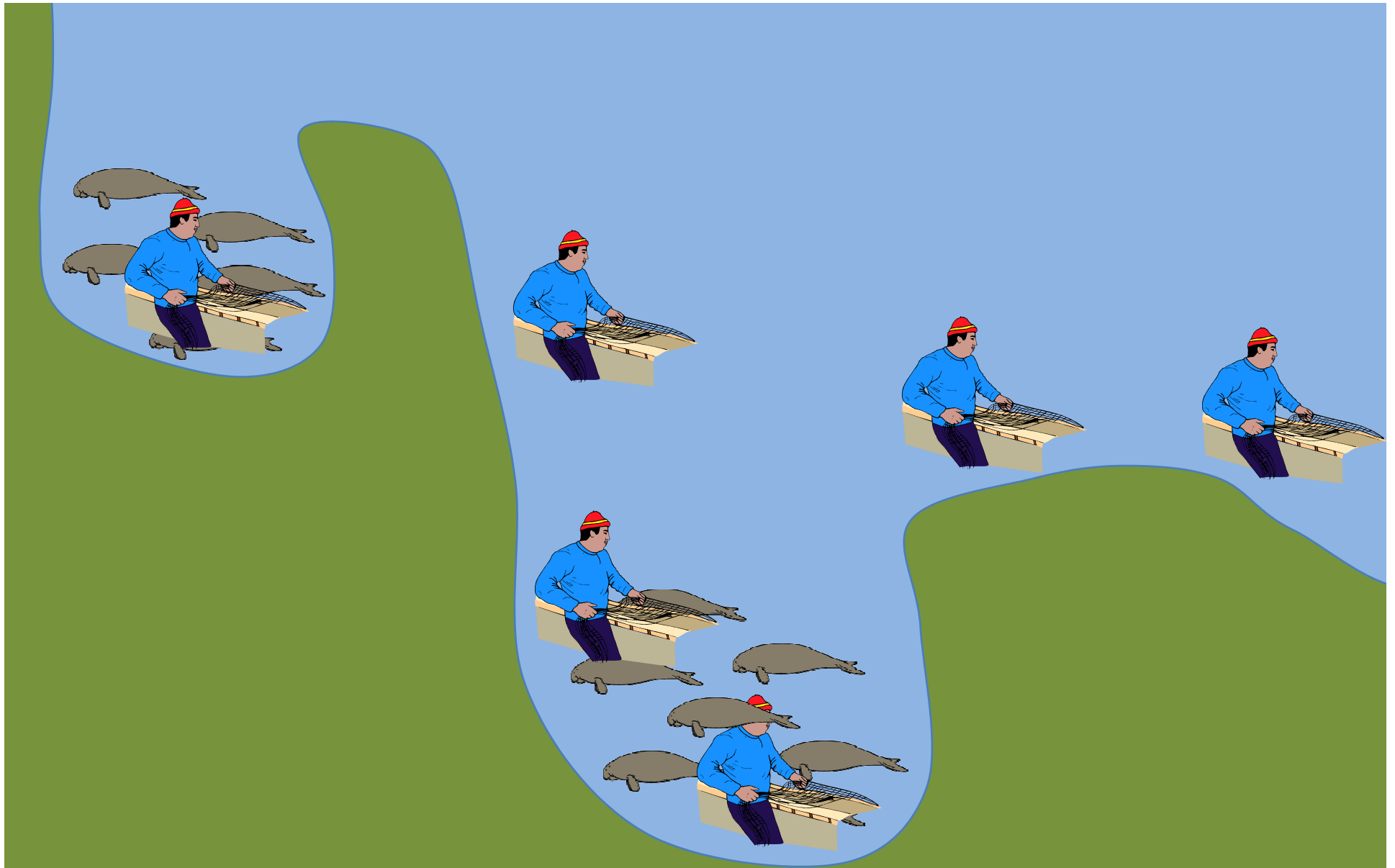
- Incidental catch of dugong in gill-nets is a major threat to the population throughout their entire range
- Area closures further dugong conservation by banning and/or restricting gill-nets in dugong habitats



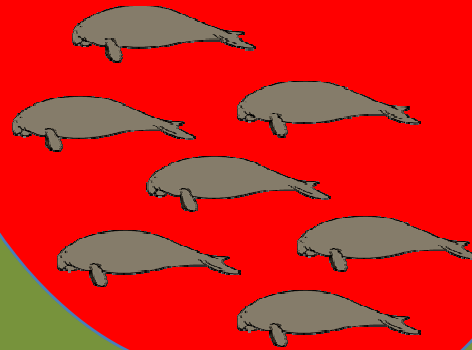
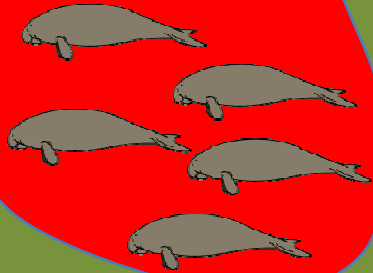
Dugong



Gill-netting



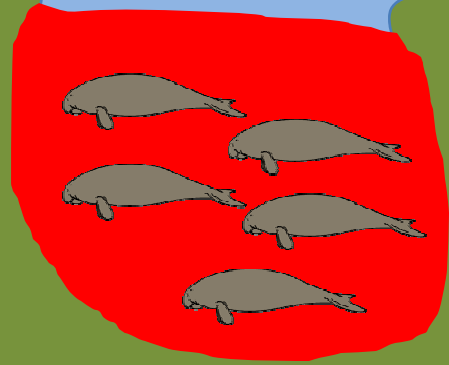
- Overlap between gill-nets and dugongs
- Risk of dugong incidental catch in nets



Area Closure

**Protects dugongs in
important habitats
and moving
dugongs**

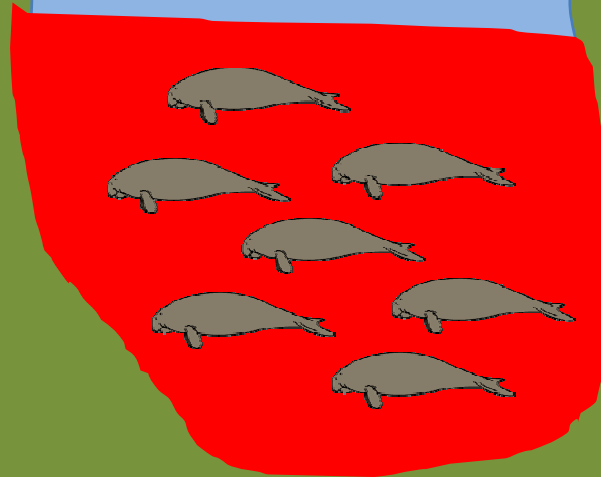
**Not a good outcome
for fishermen**



Area closures protect dugongs in important habitats

Fishermen allowed to operate in waters outside of important dugong habitats

At any given time, **most** of the dugongs are protected from incidental catch



Temporal Area Closures

- Area closures can be ***temporal***
 - Restrict human activity in a defined area *at a specific time*
 - Example: Banning/restricting gill-netting when dugongs are known to be feeding, breeding or moving through a defined area

Marawah Biosphere Reserve

Abu Dhabi, UAE

Established in 2007 to protect important UAE marine life and areas of archaeological significance.

Reserve protects 60 % of the second largest population of **dugongs** in the world.



Bazaruto Archipelago National Park

Bazaruto Bay, Mozambique

- Seagrass beds in the warm shallow waters of Bazaruto Bay support the most important population of dugongs in the Western Indian Ocean.
- Focus on improving livelihoods of local communities



Had Chao Mai Marine National Park

Trang Province, Thailand

- Considered to be the last remaining refuge of dugongs in Thailand
- Proclaimed in May 1992, ~ 137.21 sq.km
- Successful in prohibiting trawlers, push nets, purse seine and motorized vessels within 3km of the coastline



Dugong Protection Areas

Queensland, Australia

- Introduced in 1997 in south-east Queensland, Australia
- Protect important dugong habitats from incidental catch in nets
- Restrictions on gill-nets include: length of net, time in water, number of nets, mesh size



Sirenian Workshop

Washington DC, May 2009

- Workshop on improving the contribution of Marine Protected Areas to the conservation of Sirenians (dugongs and manatees)
- 36 participants from 16 countries
- Participants identified the strengths, and weaknesses of area closures and features of effective area closures

Strengths of Area Closures

- Reduce the risk of incidental catch to dugongs
- Identify areas for protection
- Legal framework
- Attract funding and civil support (e.g. NGO, community, government, university)
- Opportunities for community involvement in conservation, education, research, alternative livelihoods, and co-management.

Weaknesses of Area Closures

- Difficult to implement and enforce
- Lack of continuous funding
- Lack of alternative livelihoods
- Top-down approach
- Inability to reduce other threats to dugongs and their seagrass habitats
- Too small/low representation of the dugong range/mismatch in scales

Features of Effective Area Closures

Community level

- Community involvement that incorporates local knowledge
- Strong education and outreach programme
- Alternative livelihoods for those community members affected by the implementation of area closures
- Co-management involving community, government, NGOs and scientists

Features of Effective Area Closures

Government/Institution level

- Legal framework with political will to implement protected area
- Effective enforcement
- Management informed by active research program
- Long-term funding adequate to implement area closure