



Marine Conservation Areas & No-Take Zones

Impacts of human activities

- No area in the global oceans is unaffected by man and 41% is strongly affected by multiple impacts
- North Sea & English Channel
- Two largest impacts are fishing and climate change (POST, 2008)

International Requirements

- “an ecologically coherent network of well-managed marine protected areas”

by 2010 under the
Convention on the
Protection of the Marine
Environment of the North-
East Atlantic (OSPAR)



Marine Protected Areas/Reserves

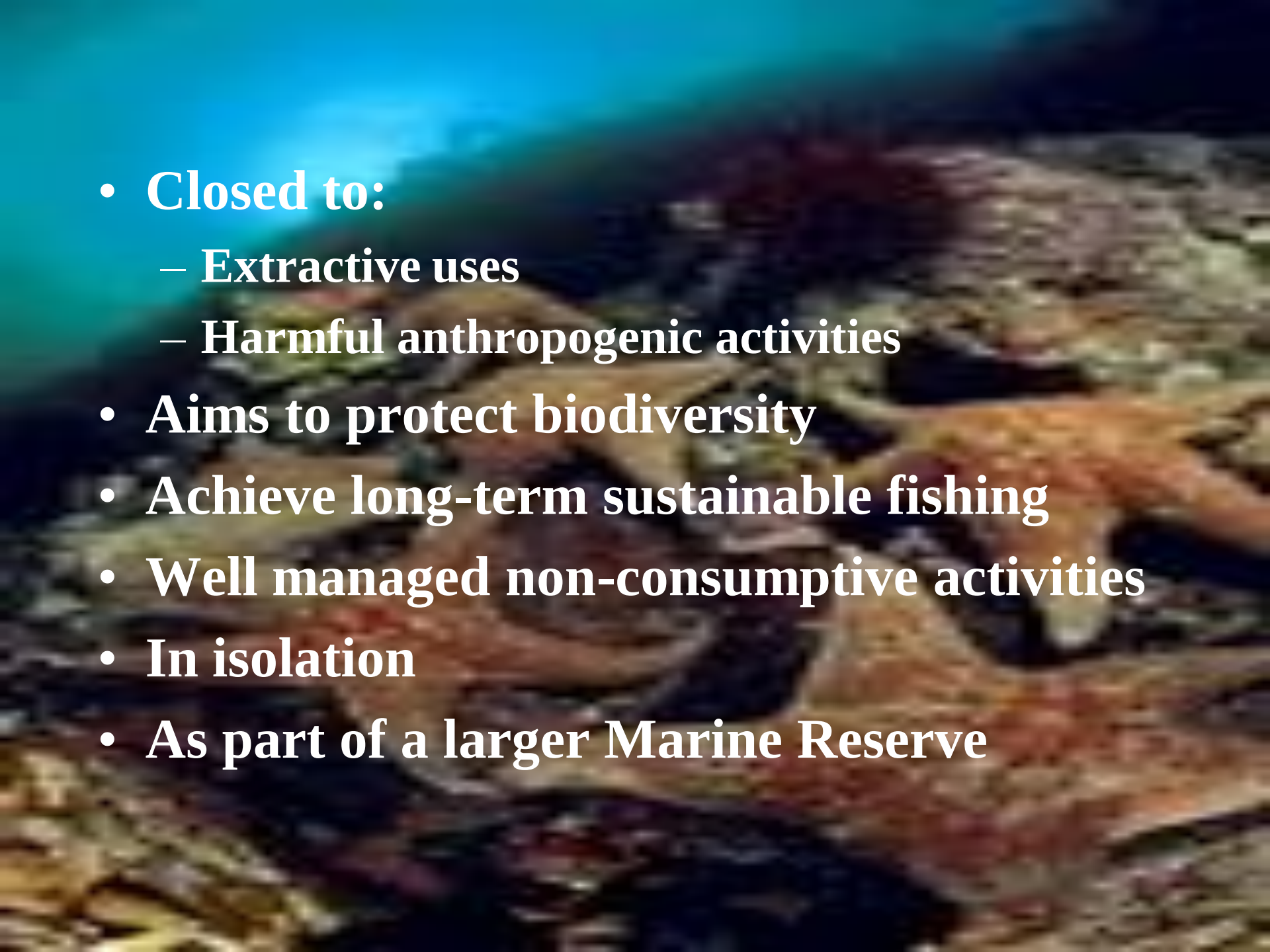


Why?

- Habitat protection
- Conserving cultural heritage
- Economics
- Biodiversity
- Enhancing fisheries
- Scientific study

What is a No Take Zone (NTZ)?

- “An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means”
(IUCN, 1994:4)

- 
- The background of the slide is an underwater photograph of a coral reef. The water is a deep blue-green, and the coral structures are visible in various shades of brown, orange, and purple. The lighting is somewhat dim, creating a serene and naturalistic atmosphere.
- **Closed to:**
 - **Extractive uses**
 - **Harmful anthropogenic activities**
 - **Aims to protect biodiversity**
 - **Achieve long-term sustainable fishing**
 - **Well managed non-consumptive activities**
 - **In isolation**
 - **As part of a larger Marine Reserve**

Benefits of No-Take Zones

- **Ecosystem resilience**
- **Species Diversity**
- **Abundance**
- **Body size**
- **Larger fish & invertebrates = more young**



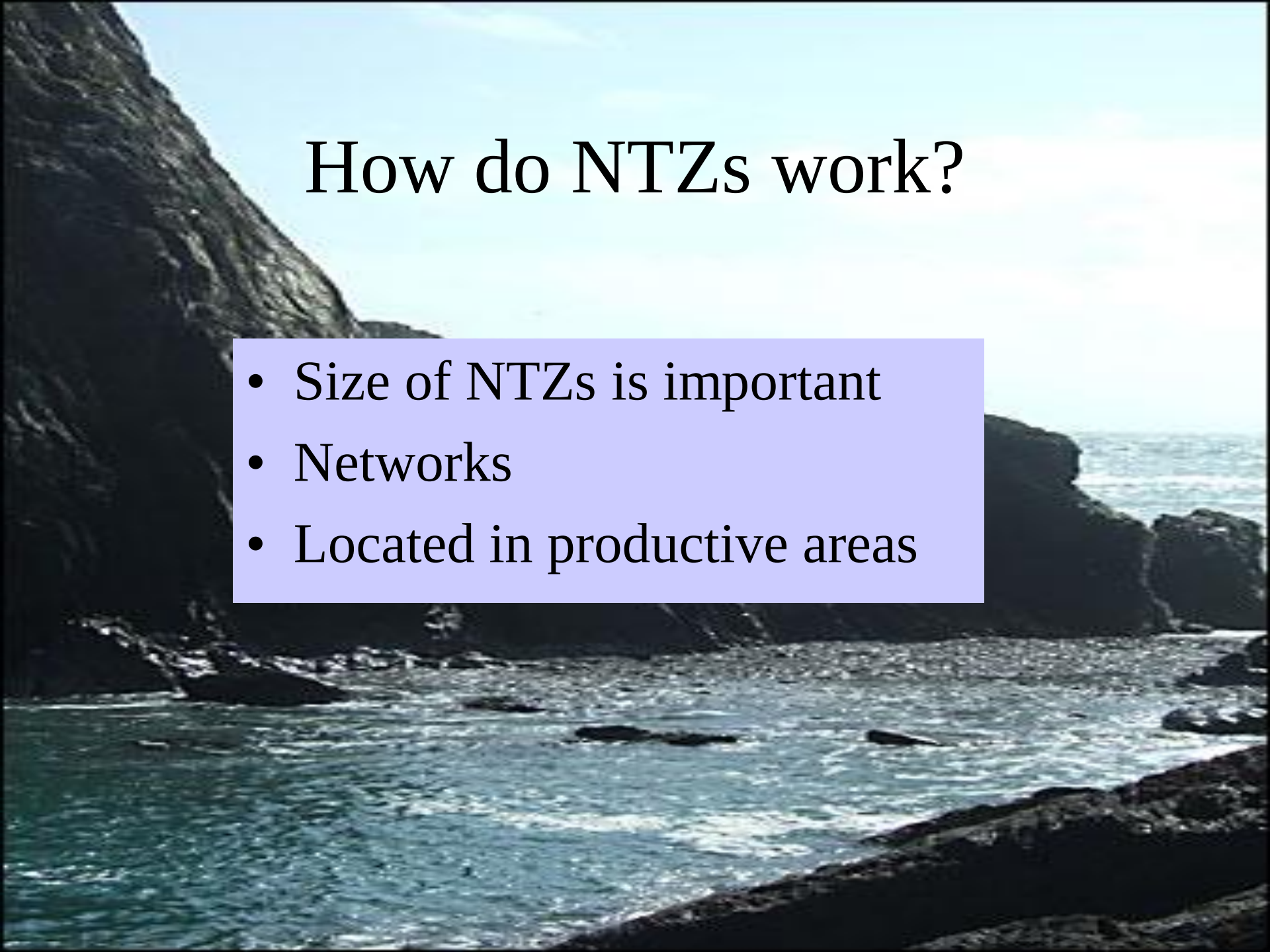
Benefits

- Conservation of habitats
- Prevention of over-fishing
- Protection of many other species
- Larval dispersal
- Supplementary migration
- Insurance against uncertainty
- Tourism!



How do NTZs work?

- Size of NTZs is important
- Networks
- Located in productive areas



How Marine Reserves are chosen

- **Identifying bioregions** – patterns in biology, oceanography & physical coast/seabed characteristics
- **Identifying candidate marine protected areas** – based initially on capacity to represent biodiversity
- **Community Consultation** – environmental & socio-economic
- **Zoning** – variable protection depending on resilience of that site

Great Barrier Reef

- **Managed by the Great Barrier Reef Marine Park Authority**
- **4 themes:**
 - **Ecosystem level**
 - **Conservation & reasonable use**
 - **Public participation**
 - **Monitoring and performance evaluation**



GBR - Zoning

- **Zones are according to vulnerability & conservation importance:**
 - **PINK Zones of SANCTUARY Zones** – highest protection
 - **GREEN Zones or NO TAKE Zones** – 4.5%
 - **GENERAL USE Zones** - buffers

What is the NTZ for? Biodiversity conservation/fisheries management or both?

- NZ – purely biodiversity conservation
- Fisheries benefit – an added value
- Most fisheries – against NTZ use for mmgt
- Less pressure on resources and fewer competing countries
- TACs
- Marine zoning and catch controls preferred
- Compensation



Options?

1. Reserves that are entirely NTZs
 2. Zones – with NTZs & general use zones
- Temporary or Permanent?
 - Compliance?



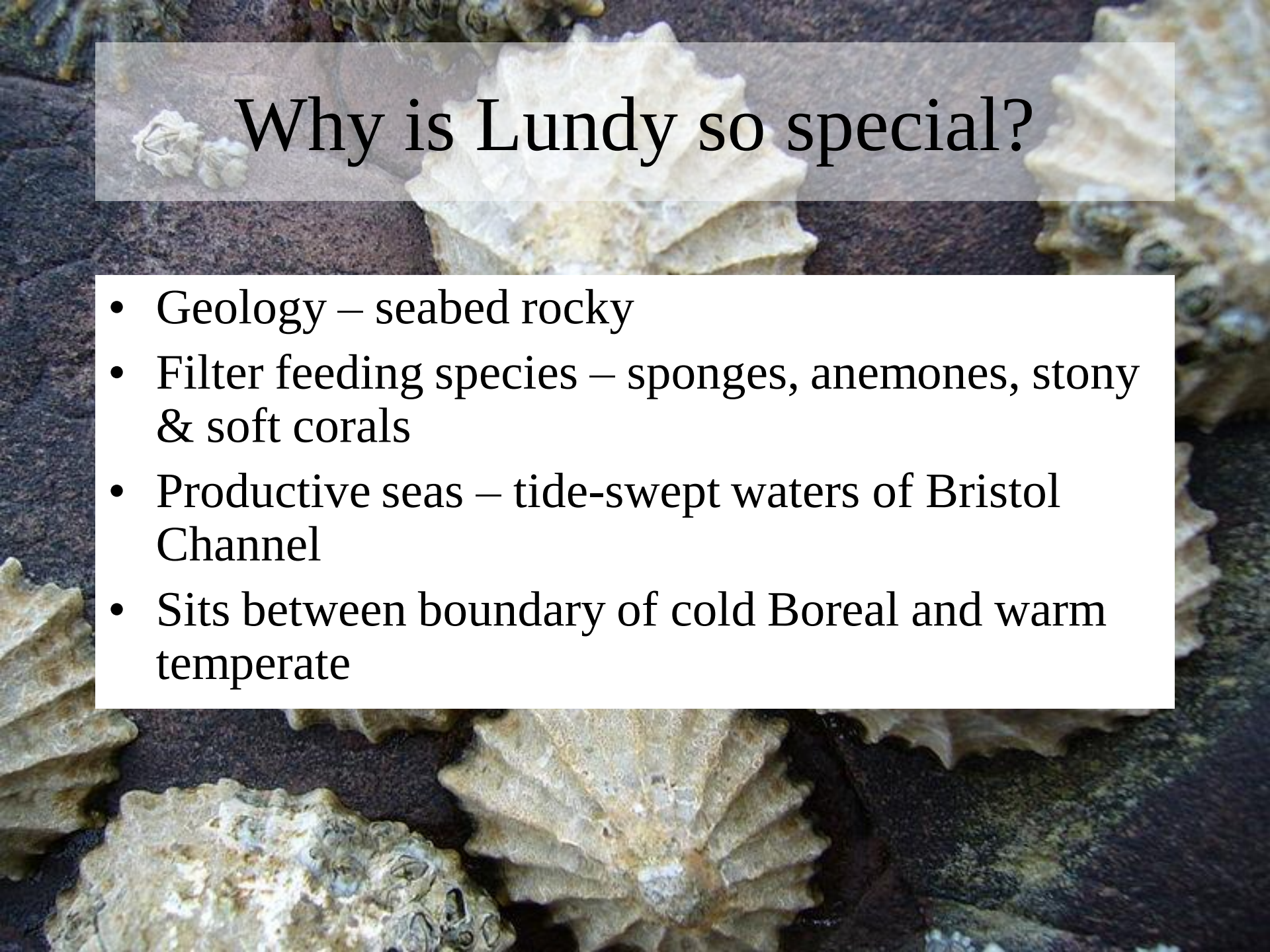
Effects on commercial species

- Densities of snapper 15% higher in NTZs
- 4 times more spiny lobster (Tonga Island Reserve)
- Rock lobster increasing in size and number by 7% per year (DoC, 2005)



Lundy Island

- England's first marine conservation zone
- No Take Zone – east coast
- First legally enforced no fishing area (2003)
- 4km² – variety of habitats and species
- Some nationally important
- Lobsters and scallops



Why is Lundy so special?

- Geology – seabed rocky
- Filter feeding species – sponges, anemones, stony & soft corals
- Productive seas – tide-swept waters of Bristol Channel
- Sits between boundary of cold Boreal and warm temperate

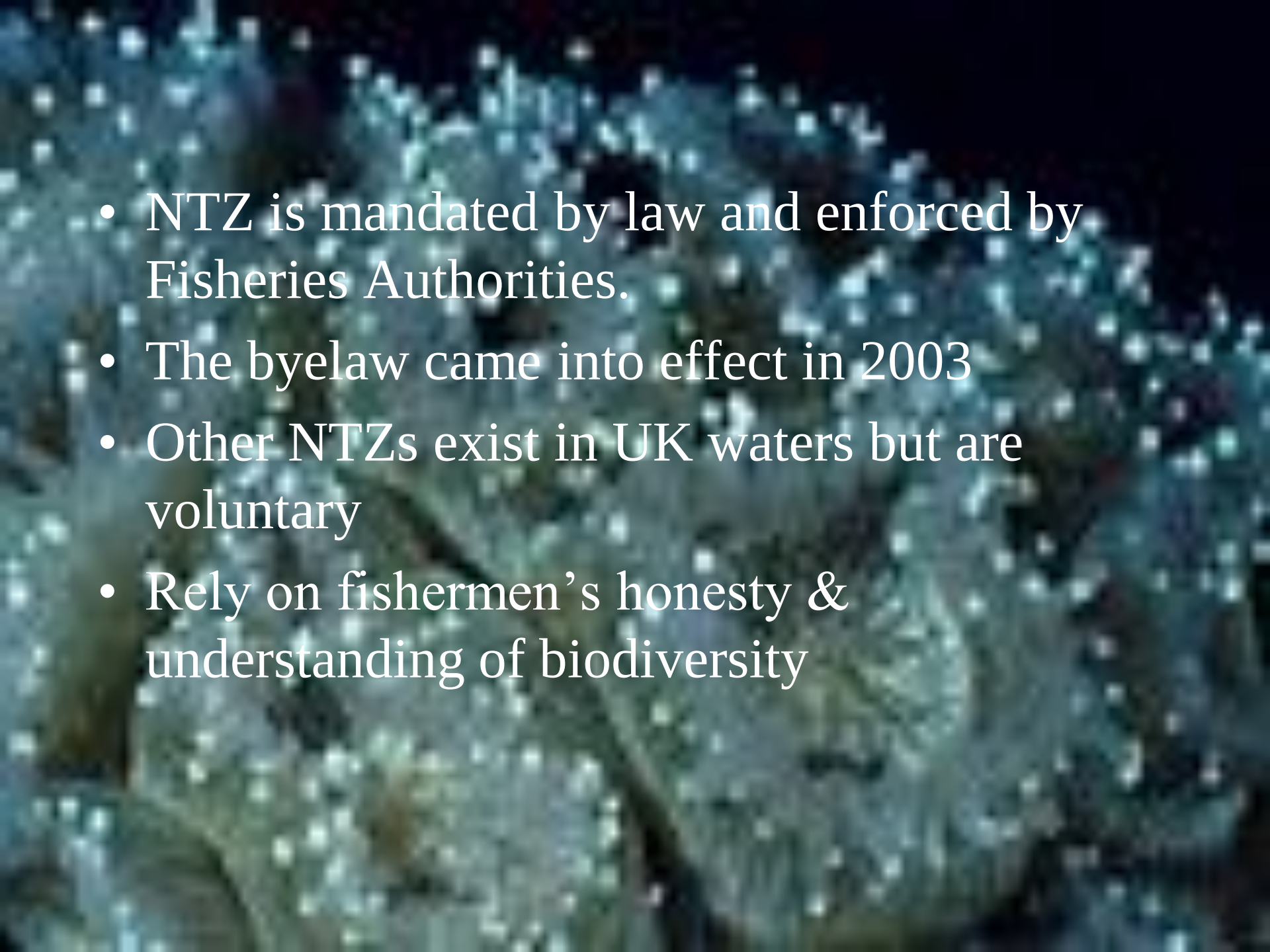
Why is Lundy so special?

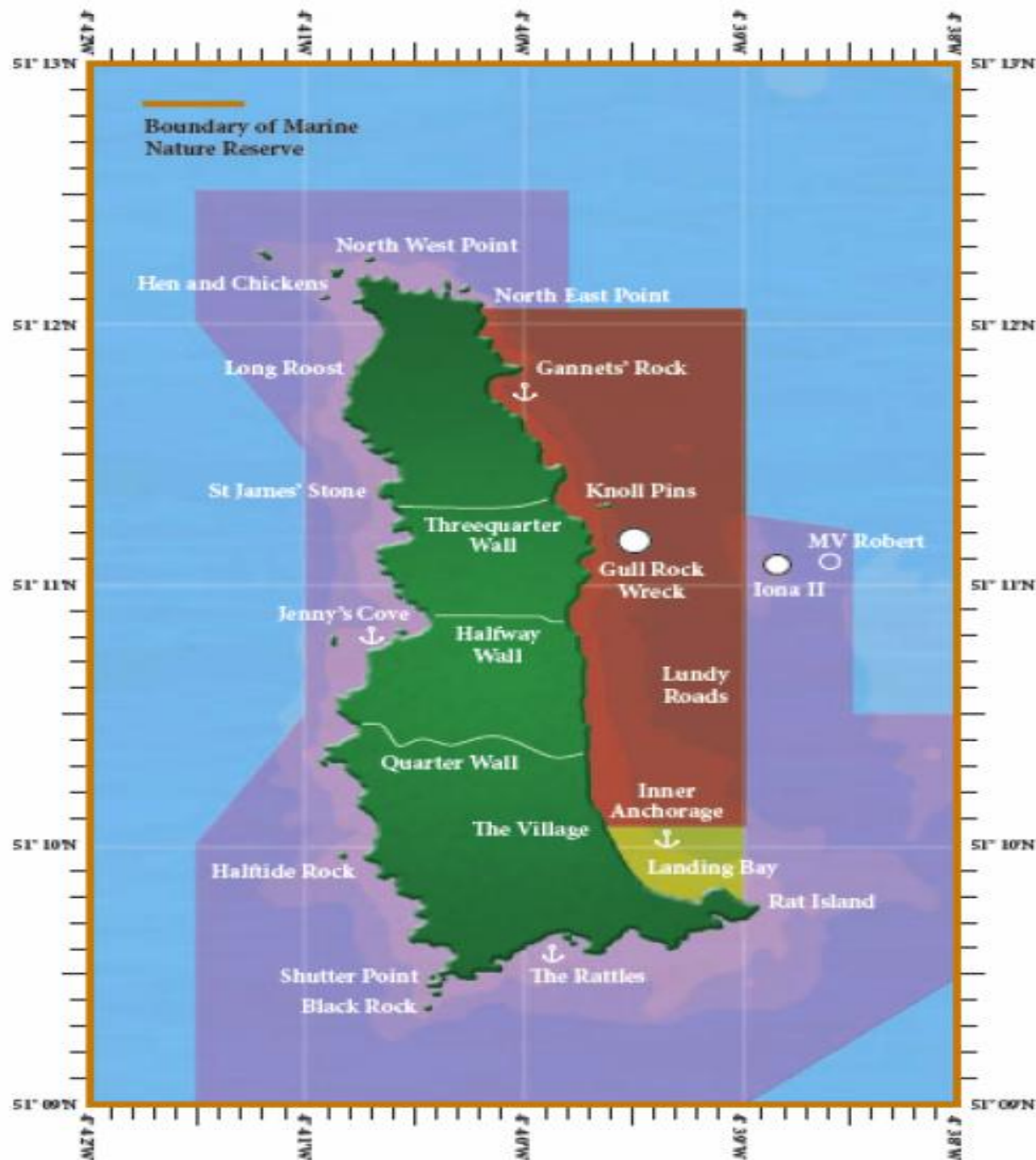
- Effective breakwater
- Different plants & animals
- Sunfish and Basking sharks
- Breeding site for grey seals
- Seabirds – razorbills kittiwakes, Manx shearwaters and guillemots

Conservation Designations

- SSSI
- Britain's first Marine Nature Reserve
- SAC
- NTZ – a form of Marine Protection Area



- 
- The background of the slide is a blurred underwater photograph. A fish is visible in the background, swimming towards the right. The water has a blue-green tint, and there are some indistinct shapes that could be rocks or coral in the foreground.
- NTZ is mandated by law and enforced by Fisheries Authorities.
 - The byelaw came into effect in 2003
 - Other NTZs exist in UK waters but are voluntary
 - Rely on fishermen's honesty & understanding of biodiversity



KEY

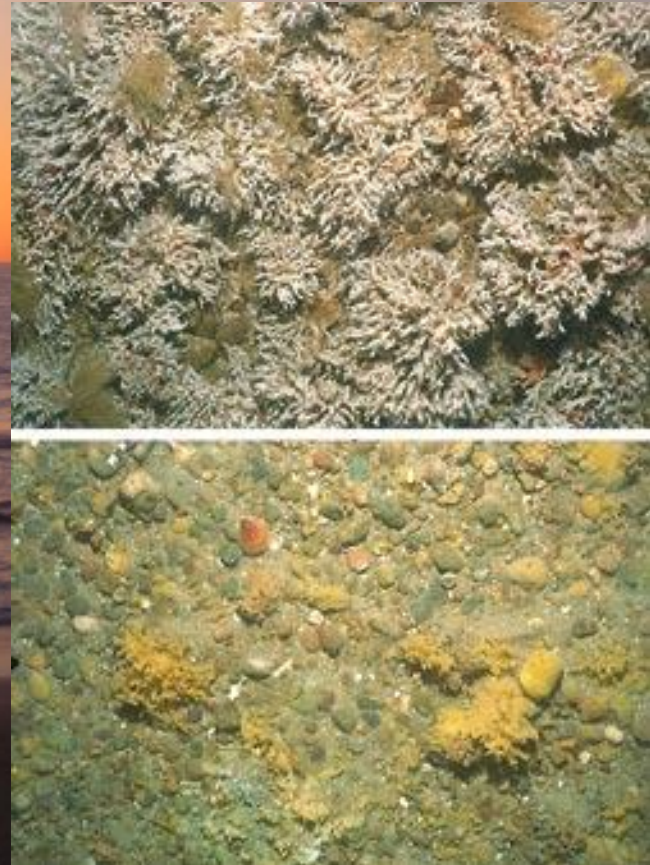
- **No Take Zone**
No fishing or collection of sea life of any kind.*
No anchors or diver shotlines within 100m of the Knoll Pins.
- **Refuge Zone**
No fishing except potting or angling.
- **Recreational Zone**
Restrictions as for Refuge Zone but be aware of other water users.
- **General Use Zone**
No spear fishing.
- **Archaeological Protection Zones**
No diving or fishing allowed (without a licence^).
- ⚓ **Recommended Anchorages**
In the Landing Bay please allow clear access for the ferry.

* Devon Sea Fisheries Committee byelaw.

The No Take Zone stretches

Benefits of NTZ to Lundy

- Preserving marine environment for future
- Reduce fishing impacts – dredging
- Spill-over
- Nursery ground
- Tourism and educational opportunities



What is currently being monitored at Lundy?

- Lobster *Homarus gammarus*, brown crab *Cancer pagurus*, spider crab *Maja squinado*, velvet crab *Necora puber*
- Scallops *Pecten maximus*
- Rock epifauna – Sponges *Porifera spp.*, Corals & anemones *Cnidarians spp.*, sea squirts *Ascidians spp.*, starfish & sea urchins *echinoderms spp.*

Pink Sea Fan *Eunicella verrucosa*

Also dead men's fingers *Alcyonium digitatum* and trumpet anemone *Aiptasia mutabilis*

How is it being monitored?

- Baited traps for sampled lobster etc
- Within NTZ and at other control sites
- Potted daily for 5 consecutive days
- Specimens counted and measured for size
- Scallops and epifauna - divers

A close-up photograph of a fluffy white chick, likely a penguin, peeking out from behind a dark, textured rock. The chick's head and one dark eye are visible, looking towards the camera. The background is a blurred mix of green and brown, suggesting a natural outdoor environment.

Not a cure for all
fisheries management

Valuable tool – attached
shellfish and finfish
populations

Cost benefit analysis not
yet confirmed



Scotland – time closures

- Voluntary time closure from Sept 2007
- Protecting concentrations of cod
- Common Fisheries Policy – days at sea quotas

Self Study

- Do NTZs work?
- Where in the UK are there Marine Protected Areas?
- Look for case study material that would suggest they do and those that might offer a more cautionary approach
- Next week – Revision