ROV transect reveals the mesopelagic Osprey Reef, Coral Sea, Australia

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Seminar outline

• Coral Sea Marine Reserve
• Osprey Reef introduction
• Crowd sourced bathy data
• Deep Down Under expedition
• ROV video transect analysis
• Geomorphic trends
• Biological trends
• Implications for managers
Commonwealth marine reserves declared on 16 Nov 2012

“The Coral Sea Region is the jewel in the crown of the marine parks network and covers an area of more than half the size of Queensland....is renowned for its diversity of big predatory fish and sharks.”

“The network includes protection for all reefs in the Coral Sea....adding iconic reefs such as top dive site Osprey Reef, Marion Reef, Bougainville Reef, Vema Reef, and Shark Reef as marine national parks.”

Coral Sea Marine Reserve

NW Osprey Reef - 3D

North Horn

The Entrance

reef wall
caves
shoulder
rough zone
apron/canyons

vertical exagg. x4

0 2 km
Deep Down Under expedition

- Cherokee ROV – 1000 m rated
- Manipulator arm
- Tritech 720 x 576 pixel video
- Kongsberg OE14 digital stills
- Ixsea GAP S USBL, INS, GPS
- 5hr 42min dive
- Video classification @ 1 min-res
- = 343 records
Video classification

Substrate

Relief

Features

Bedforms

Biota

Cover
Physical and biological parameters

- **Primary substrate** >50%, e.g. rock, boulder, gravel, sand
- **Secondary substrate** >25%, e.g. rock, boulder, gravel, sand
- **Features**, e.g. shell hash, nodules, scour
- **Relief**, e.g. rock wall, high relief, mod relief, flat
- **Bedforms**, e.g. hummocky, sand waves, ripples
- **Biological cover**, e.g. barren, low, moderate, high
- **Lebensspuren**, e.g. pits, tracks, mounds
- **Biota**, e.g. black coral, glass sponge, gastropod, shark, nautilus
Keyboard output

Python script with look-up table

Matrix output
Physical parameters
Biological parameters
Biological parameters
Parameters across canyon

1° substrate
- rock
- sand

relief
- rock wall
- high relief
- mod relief
- low relief

taxa
- bamboo
- track
- worm
Multi-dimensional scale plots
Patterns deeper than 500 m
Patterns shallower than 500 m
Implications for managers

Source: Davies, P.J. et al., 1989. The evolution of the carbonate platforms of northeast Australia
Implications for managers