Republic of Palau Vessel Grounding

U.S. Coral Reef Task Force Meeting

Nov. 7, 2005

Presented by: Portia K. Franz

Palau Environmental Quality Protection Board

M.V. Big Blue Explorer

Photo by PICRC

Case Study No. 1

- Live aboard: M.V. Big Blue Explorer
- February 05, 2002
- Fringing of Bailechesengel Island (Ngemelis Complex)
- Assessment by the Environment, Inc.
- Assessed February 25-26, 2002
- Pulled off the reef on February 05, 2005

Photo by The Environment Inc.

Description/ Impact

- Total area of the impacted reef: 145-m^2
- Estimated total volume of lost reef (living and nonliving): 72.5-m^3
- Estimated total volume of lost living coral: 42-m^3
- Volume of living coral lost by impact: 39.5-m^3
- Area is known for high species diversity of marine organisms (sponges, mollusks, echinoderms, fishes, hawksbill turtle and much more…)

Photo by The Environment Inc.

Con't

- This fringing reef is used by Palauans for harvesting food and by the diving industry
- High Impact on aesthetics of area

Photo by The Environment Inc.

Mitigation:

- Rehabilitation efforts should be designed to withstand predicted climate change
- Limit the number of divers to avoid disturbance of reef
- Put reef markers to aid boat navigation
- Rearrange broken coral so living tissue faces up

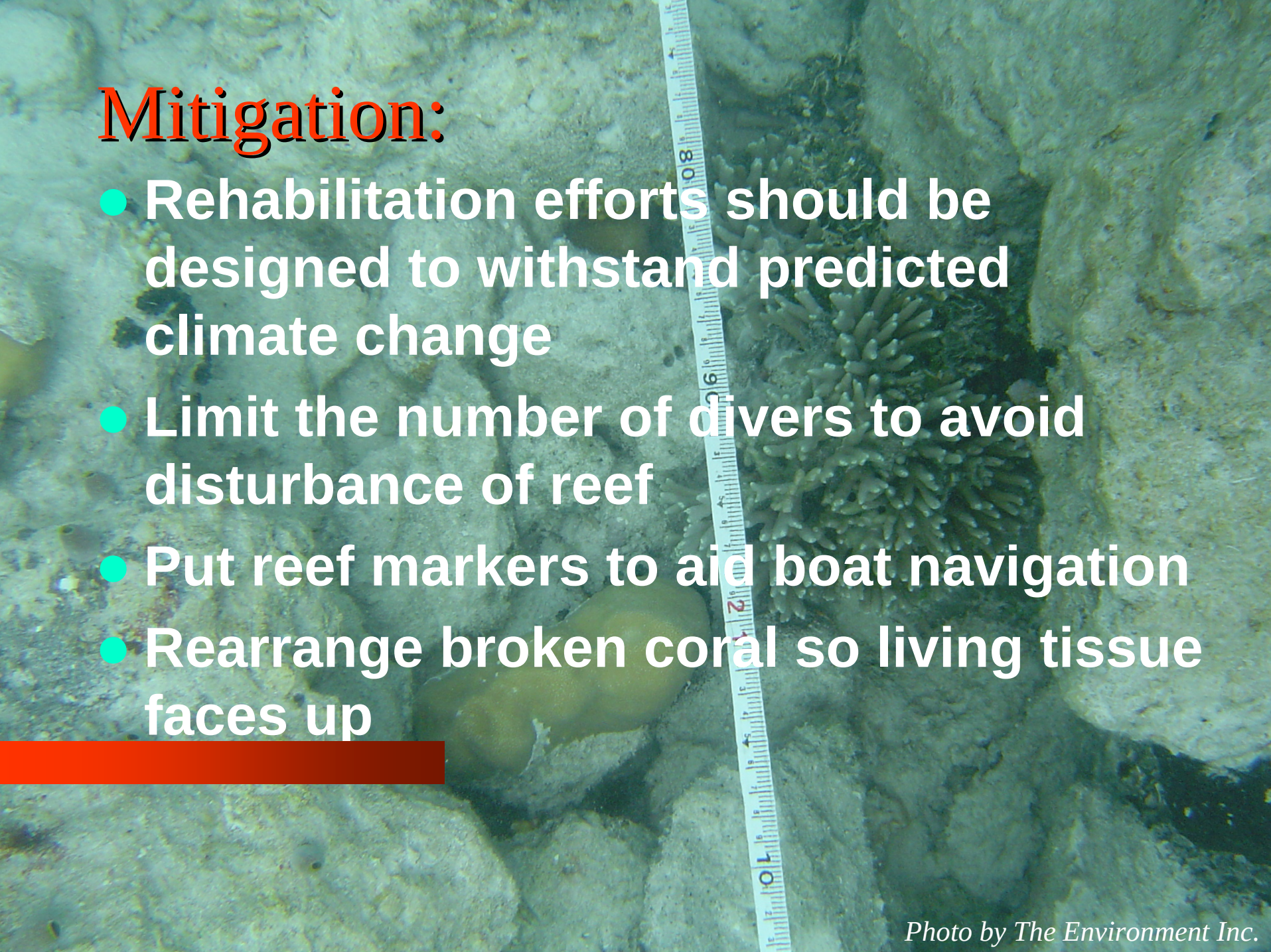


Photo by The Environment Inc.

Mitigation Con't…

- Brush off sand/sediment from living coral
- Remove paint from non-recovering corals
- Establish and implement a monitoring plan

Photo by The Environment Inc.

Case Study No. 2

- Live aboard: Big Blue Explorer
- February 05, 2002
- Ran aground: on fringing reef NE of Bailechesengel Island…near German Wall which features popular dive spots such as Blue Corner
- pulled off grounding site: Feb 6, 2002
- assessed: Feb. 20-21, 2002
- damage assessment by PICRC research team

Map of the Southern Lagoon showing location of the Big Blue Explorer grounding site.

Description/ Impact

- The area is known for good coral cover
- Estimated total area damage due to ship grounding: 97.4m²
- Estimated total volume damaged: 80m³
- (19+) coral species in the area were crushed, detached, or broken due to grounding. Also coral colonies were affected by chemicals from paints from boat.

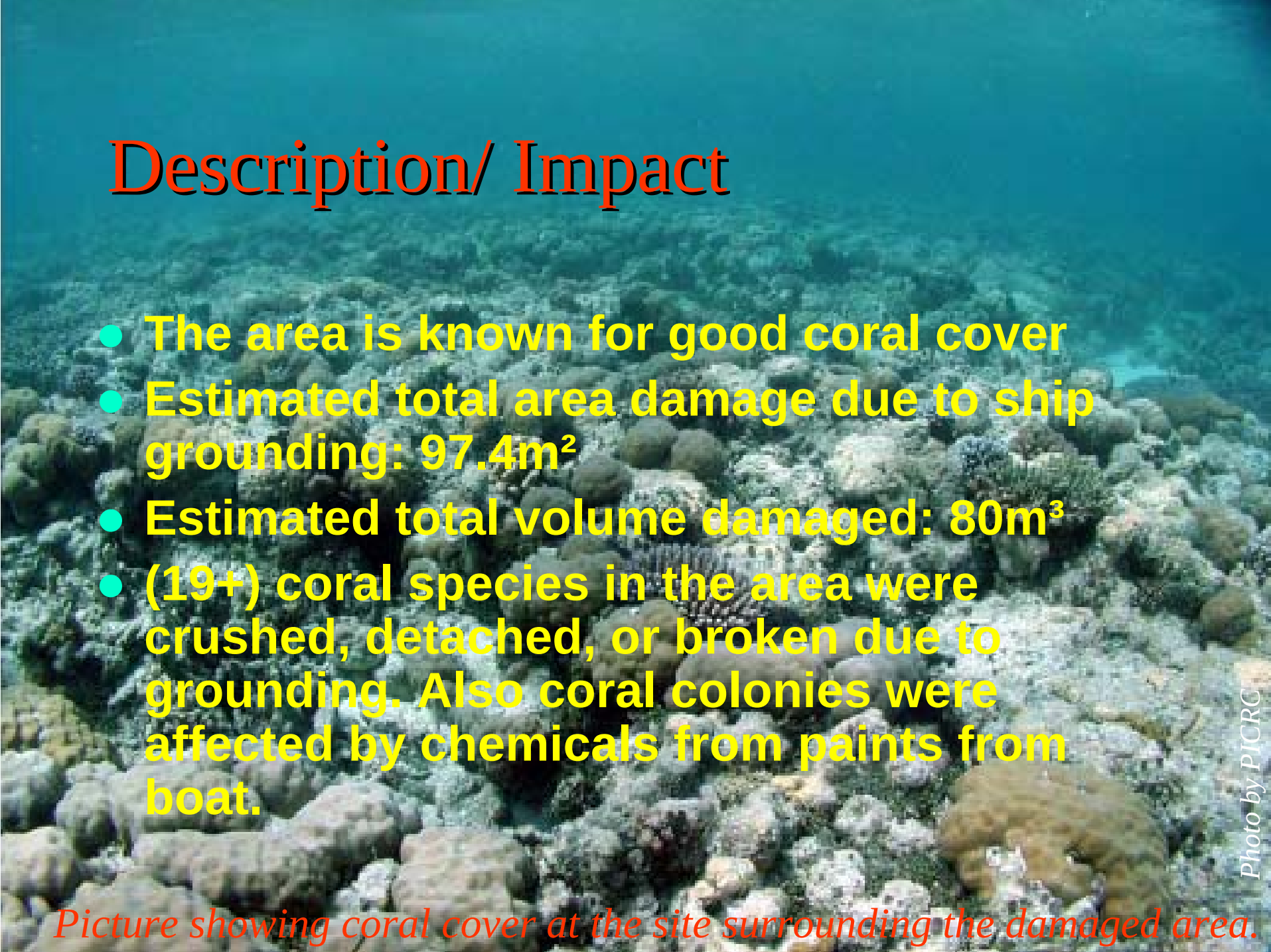
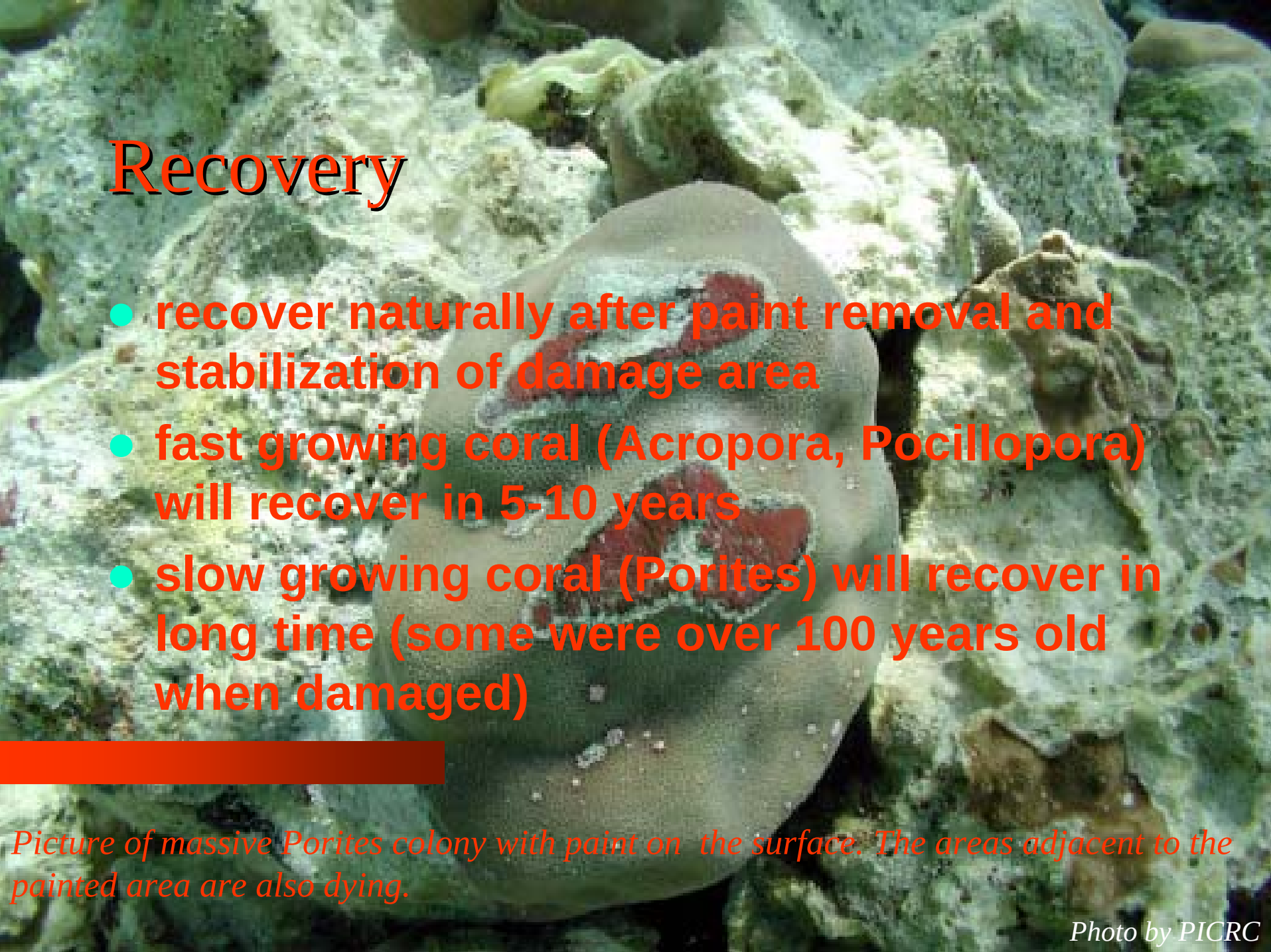


Photo by PICRC

Picture showing coral cover at the site surrounding the damaged area.

Recovery

- recover naturally after paint removal and stabilization of damage area
- fast growing coral (Acropora, Pocillopora) will recover in 5-10 years
- slow growing coral (Porites) will recover in long time (some were over 100 years old when damaged)



Picture of massive Porites colony with paint on the surface. The areas adjacent to the painted area are also dying.

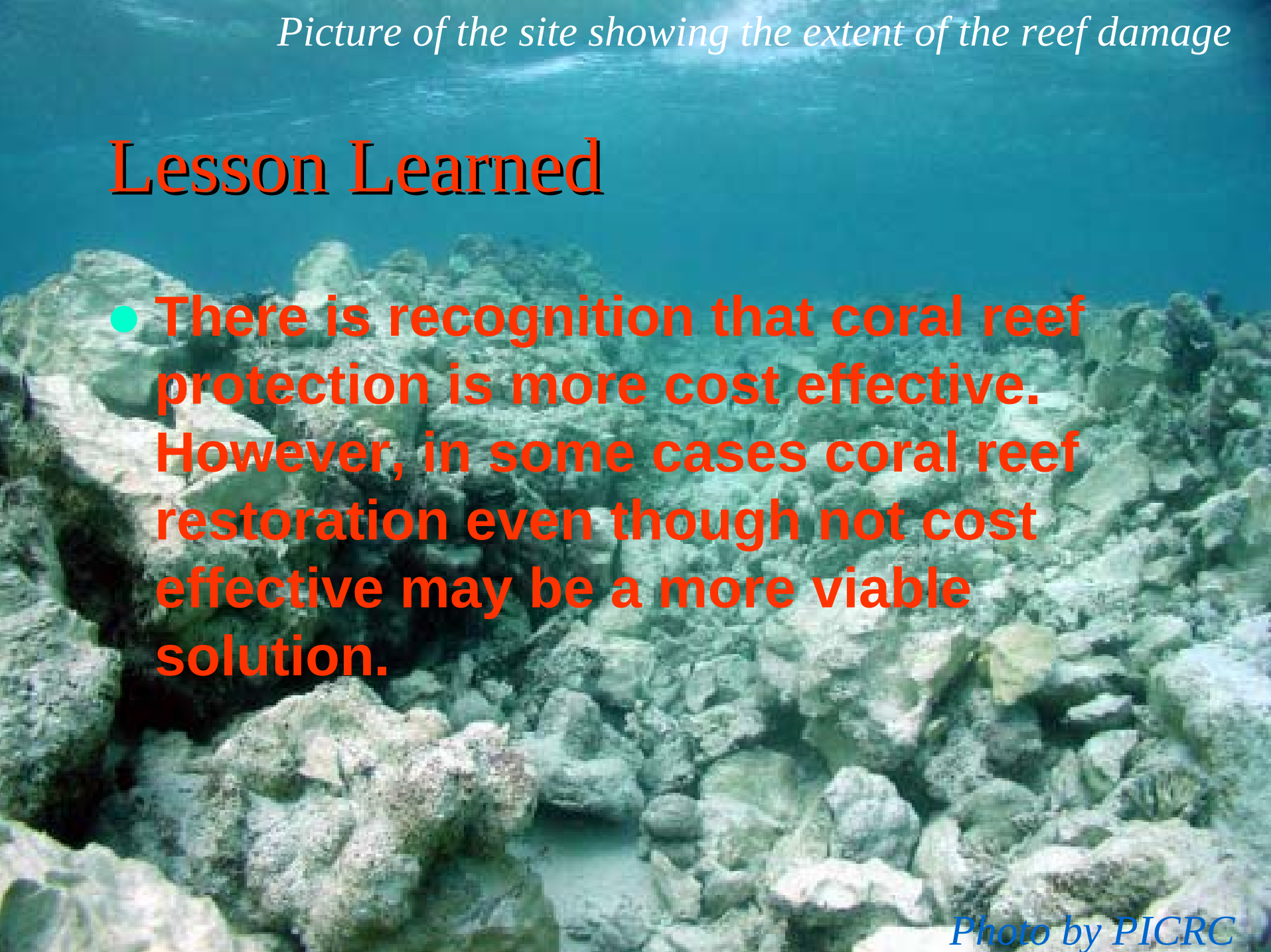
Photo by PICRC

Picture of the damaged area showing the paint that transferred from the Big Blue Explorer.

Recommendations

- remove paint
- stabilize damage area
- monitor the recovery
- monitor for ciguatera poisoning (potential for future outbreaks of the poisoning because the dinoflagellate responsible for ciguatera grows on newly cleared substrate)

Photo by PICRC


Picture of the site showing the extent of the reef damage
Lesson Learned
There is recognition that coral reef protection is more cost effective. However, in some cases coral reef restoration even though not cost effective may be a more viable solution.
Photo by PICRC

Recommendations:

- **The Environmental Quality Protection Board and the Koror State Rangers (16 states) must regulate the damages to the environment.**

Photo by The Environment Inc.

Legal Perspectives

- Grounding of a ship “earthmoving and deposit of sediment” (EQPB Regulations 2401-1-03
- In cases of damages to the environment states are often ill equipped to take legal action to obtain compensation for damages to their coral reefs and face significant burdens in proving the value of such resources due to the complexity of obtaining an economic analysis.

Photo by The Environment Inc.

Recommended Future Actions

- Laws and Regulations
- Penalties and Fines
- Zoning laws
- Assist state develop protocols for confiscation and removal of ship when sunk and becomes environmental threat
- Surety or buyer reliability check for sale of used ship
- Environmental damage mitigation bond
- National Grounding laws designed to protect state's right as resource owner

Photo by The Environment Inc.

Building Capacity for vessel grounding:

- Technical Assistance
  - **> survey assessment (damage and recovery)**
  - **> oil spill response and cleanup**
  - **> restoration measures**
  - **> reef valuation (impacted)**
  - **> regulatory framework**
- Financial and Equipment Support
- Information Sharing

Sources

- ***Environmental Assessment,*** **The Environment, Inc.**
- ***Environmental Assessment,*** **Palau International Coral Reef Center**
- ***Environmental Quality Protection Board (EQPB)***
- ***Koror State Rangers***

Hard and soft corals come in a variety of colors.

Photo by E.D.

Thank You:

USEPA R9

DOI

USDA (NRCS, RD,WQ)

2006: NOAA (CRCP)

USGS (soil survey)

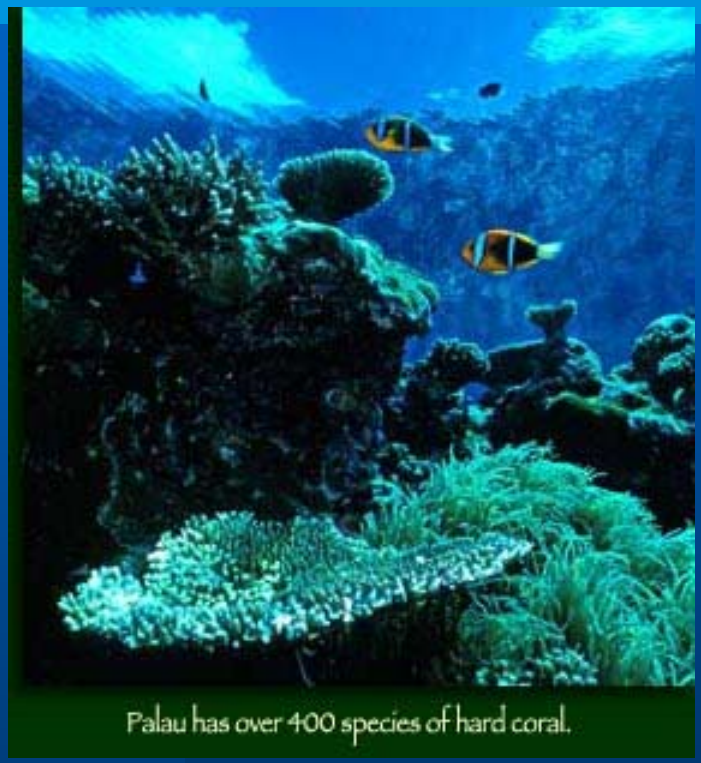


Photo by Ethan Daniels

Kom Kmal Mesulang!

Eqpb@palaunet.com