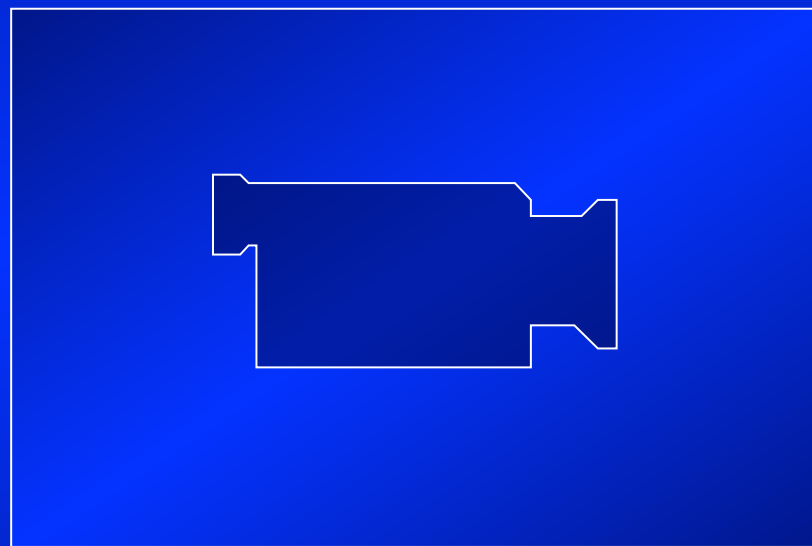






Coral Reefs

Most diverse

32 Phyla

Most complex

Symbiosis

Most productive

2,000 dg C m⁻² y⁻¹

Oldest

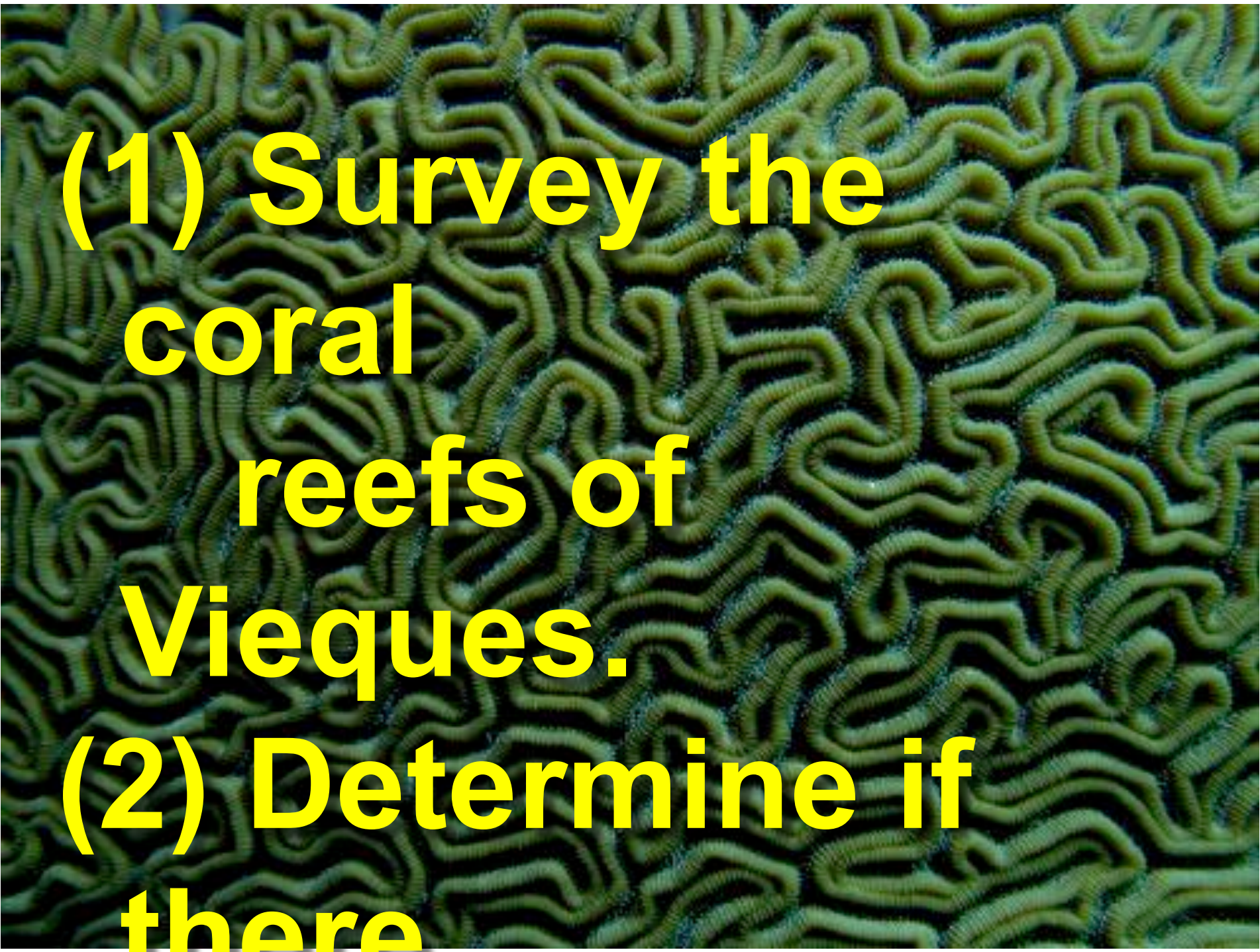
400 million



Species Richness

Isla Vieques vs. the Florida Keys

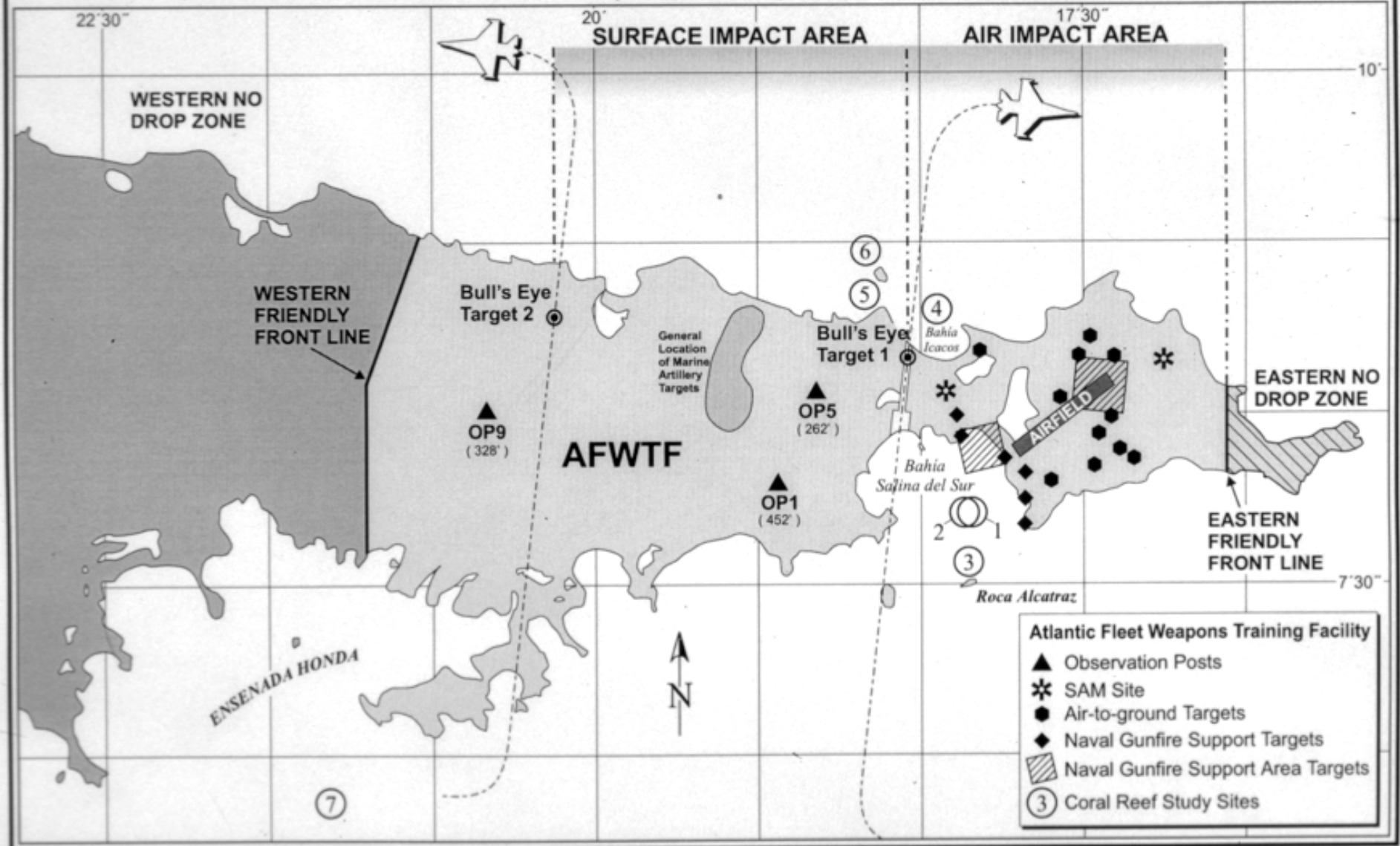
Location	Carysfort Reef FL	Rock Key Reef FL	Sand Key FL	Ensenada Honda, Vieques PR
Scleractinian Coral Species	11	15	19	24



**(1) Survey the
coral
reefs of
Vieques.**

**(2) Determine if
there**

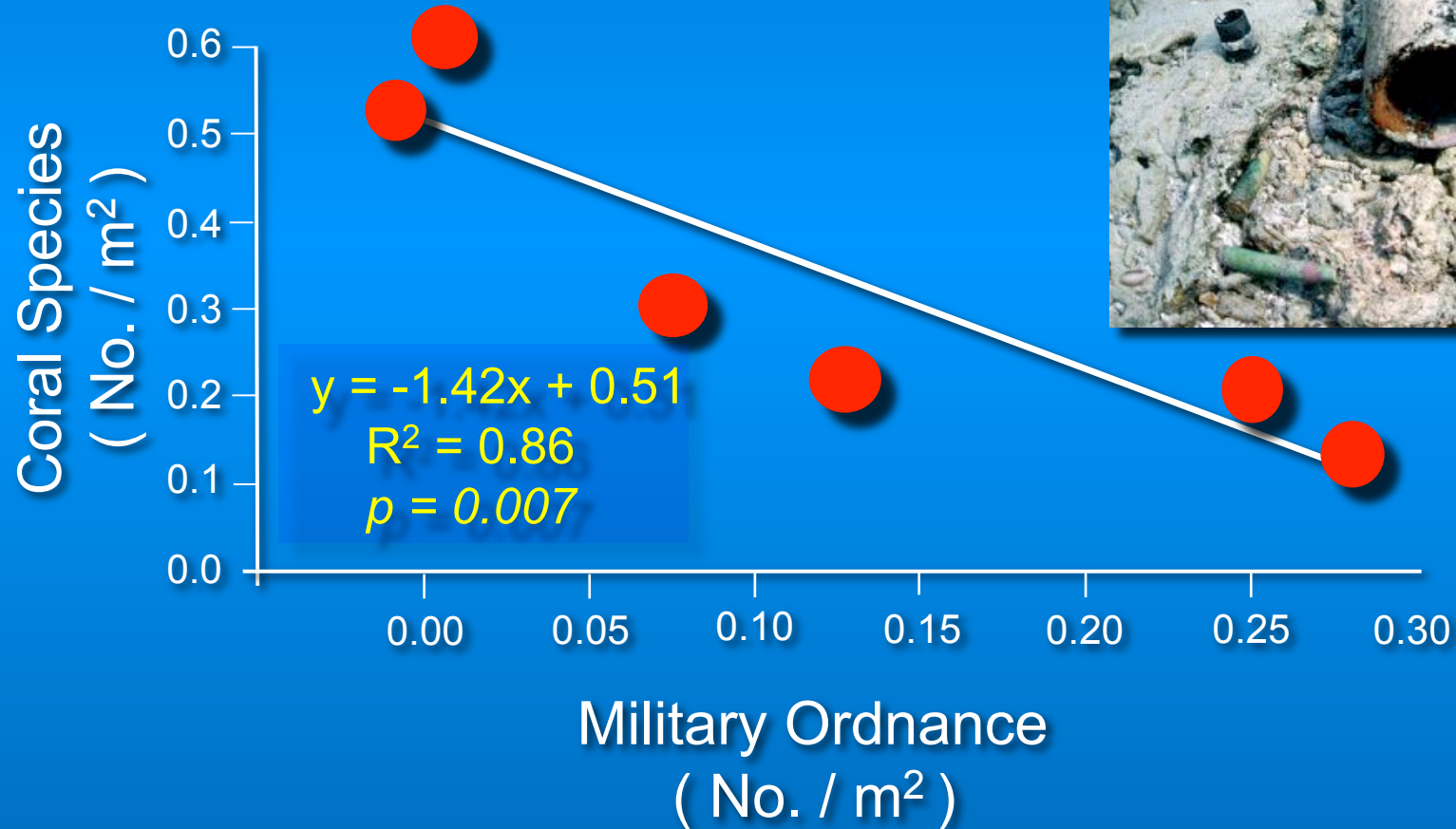
Isla de Vieques (EASTERN END)





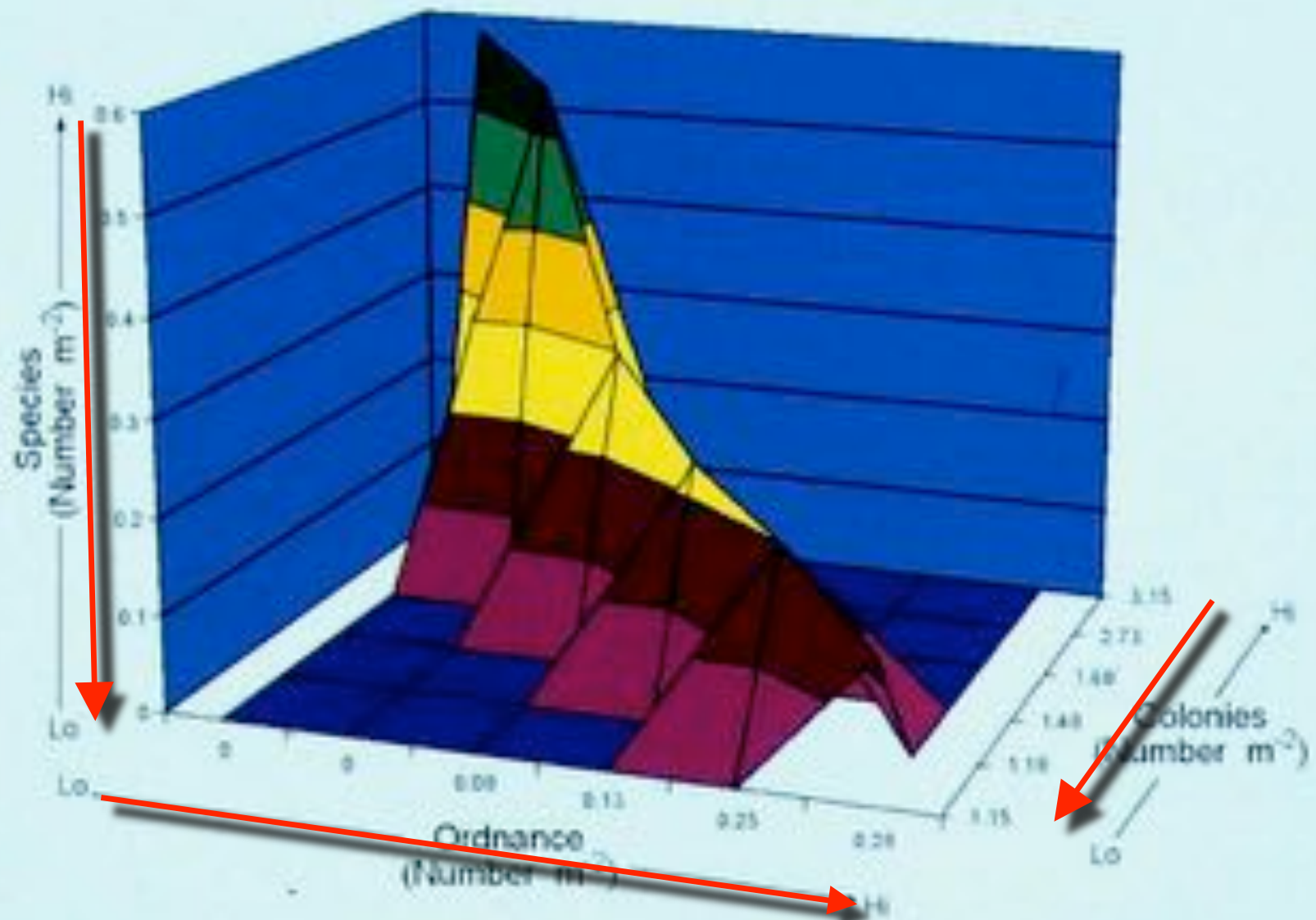


Coral Species Richness *Isla Vieques, P.R.*



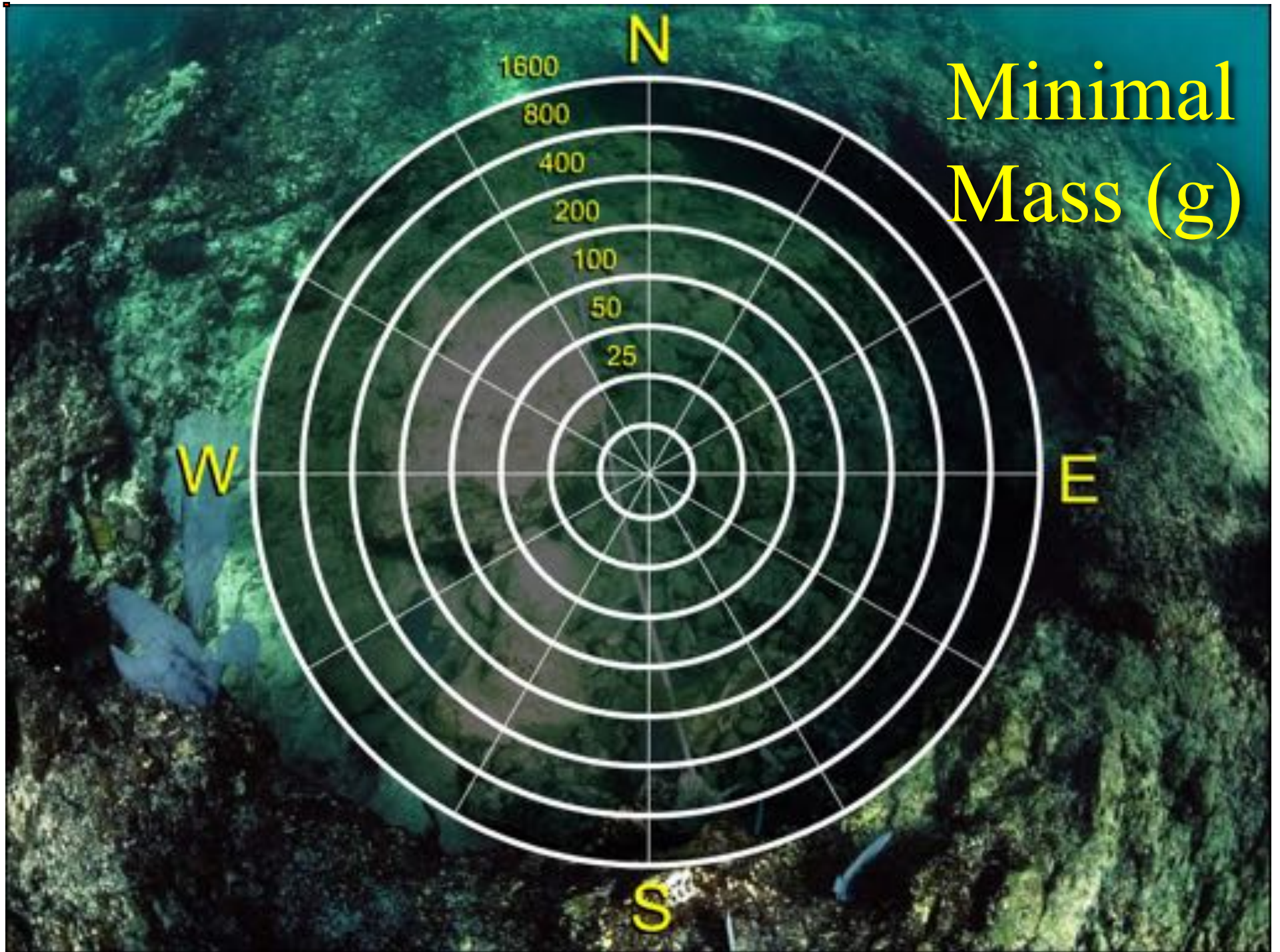
Isla Vieques, Puerto Rico

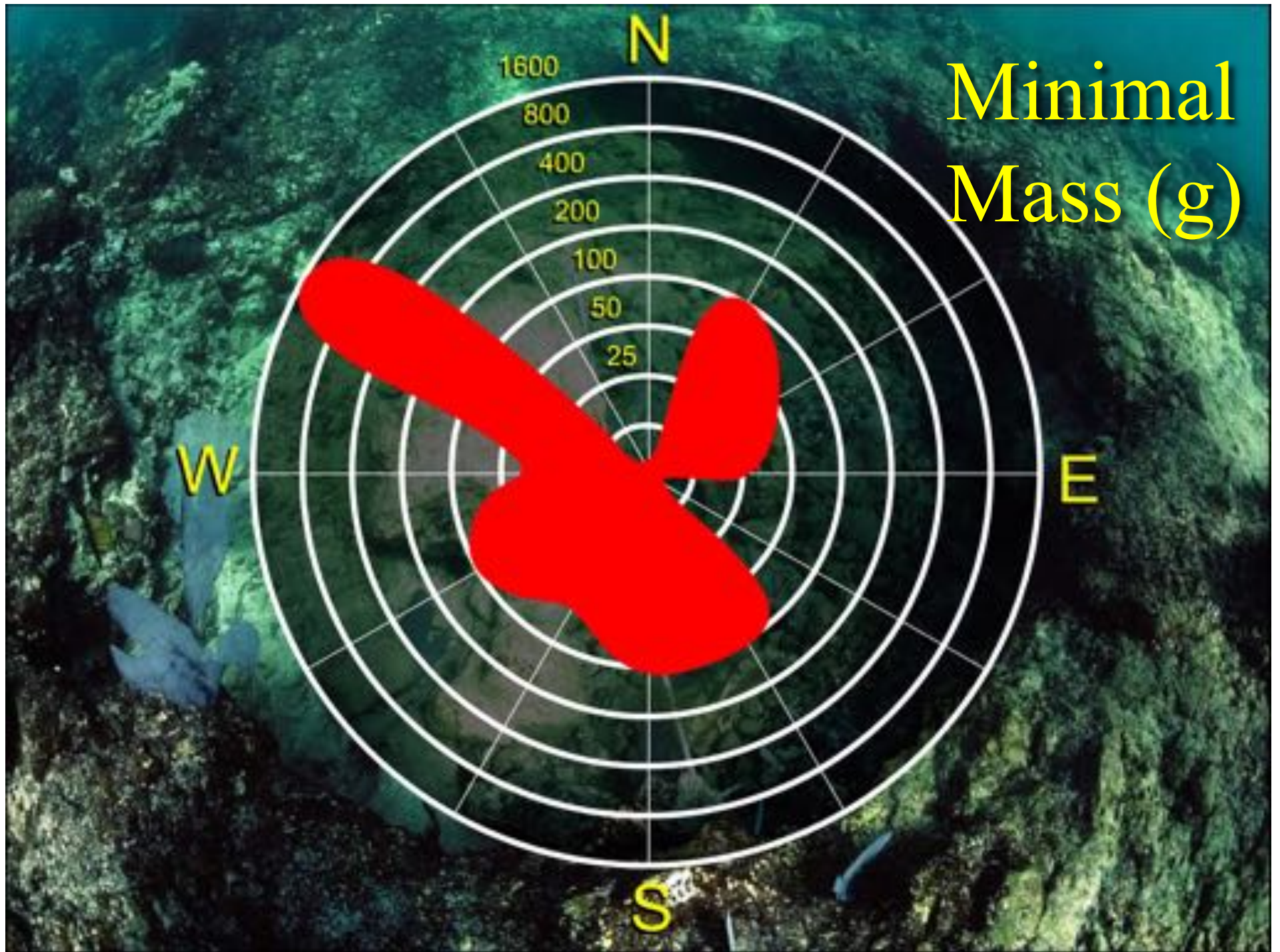
Inverse relationship between military activity
and measures of coral reef health

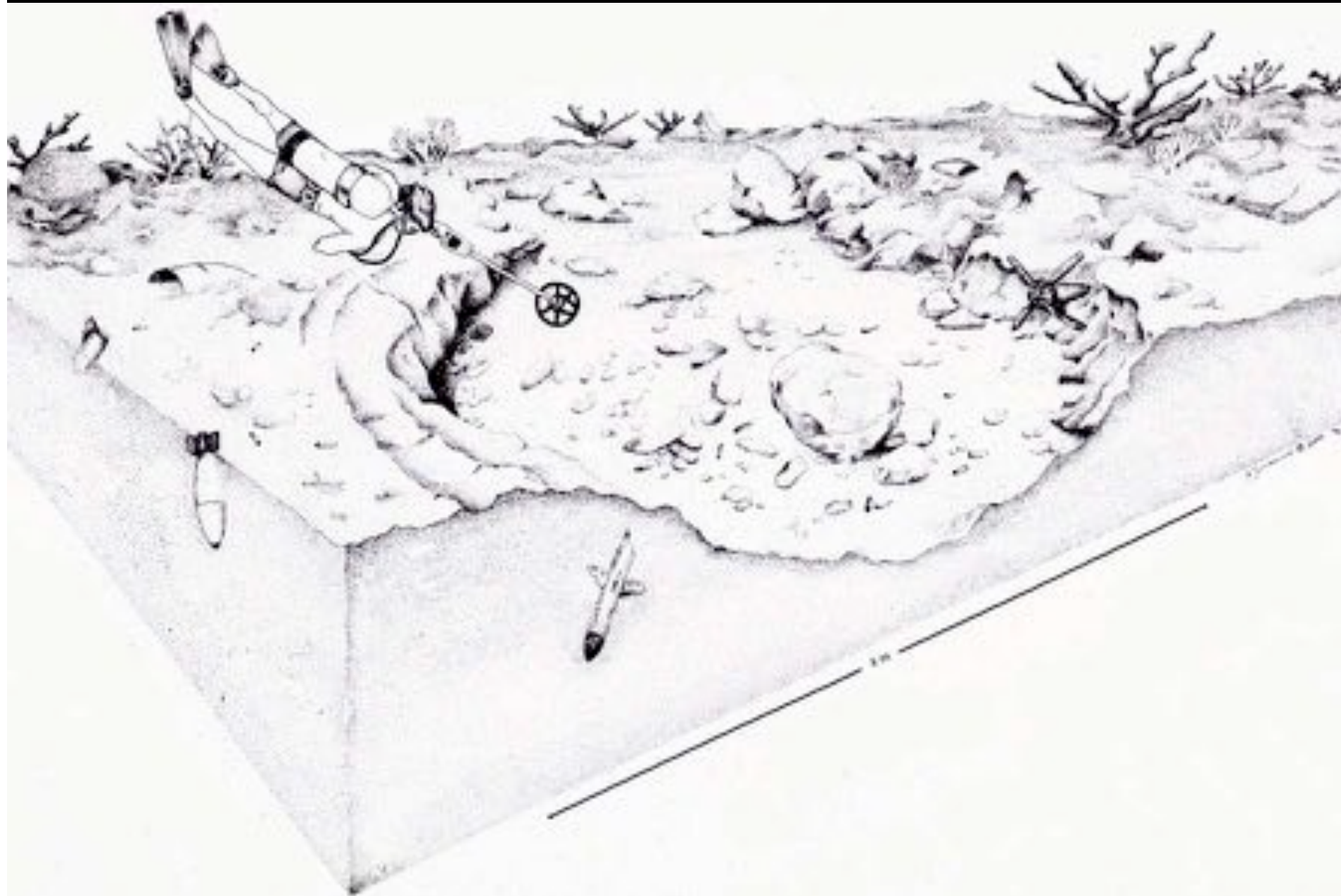






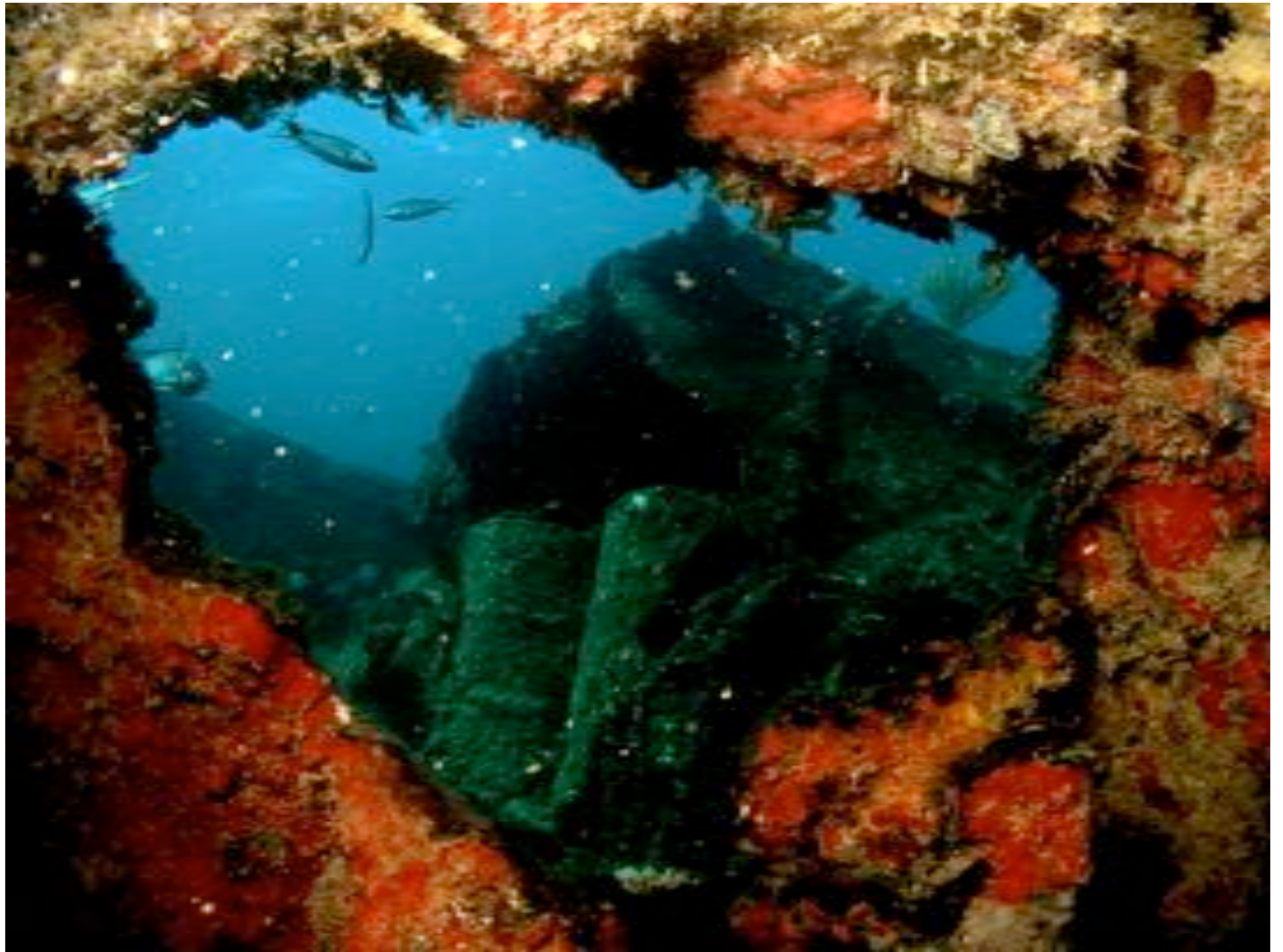


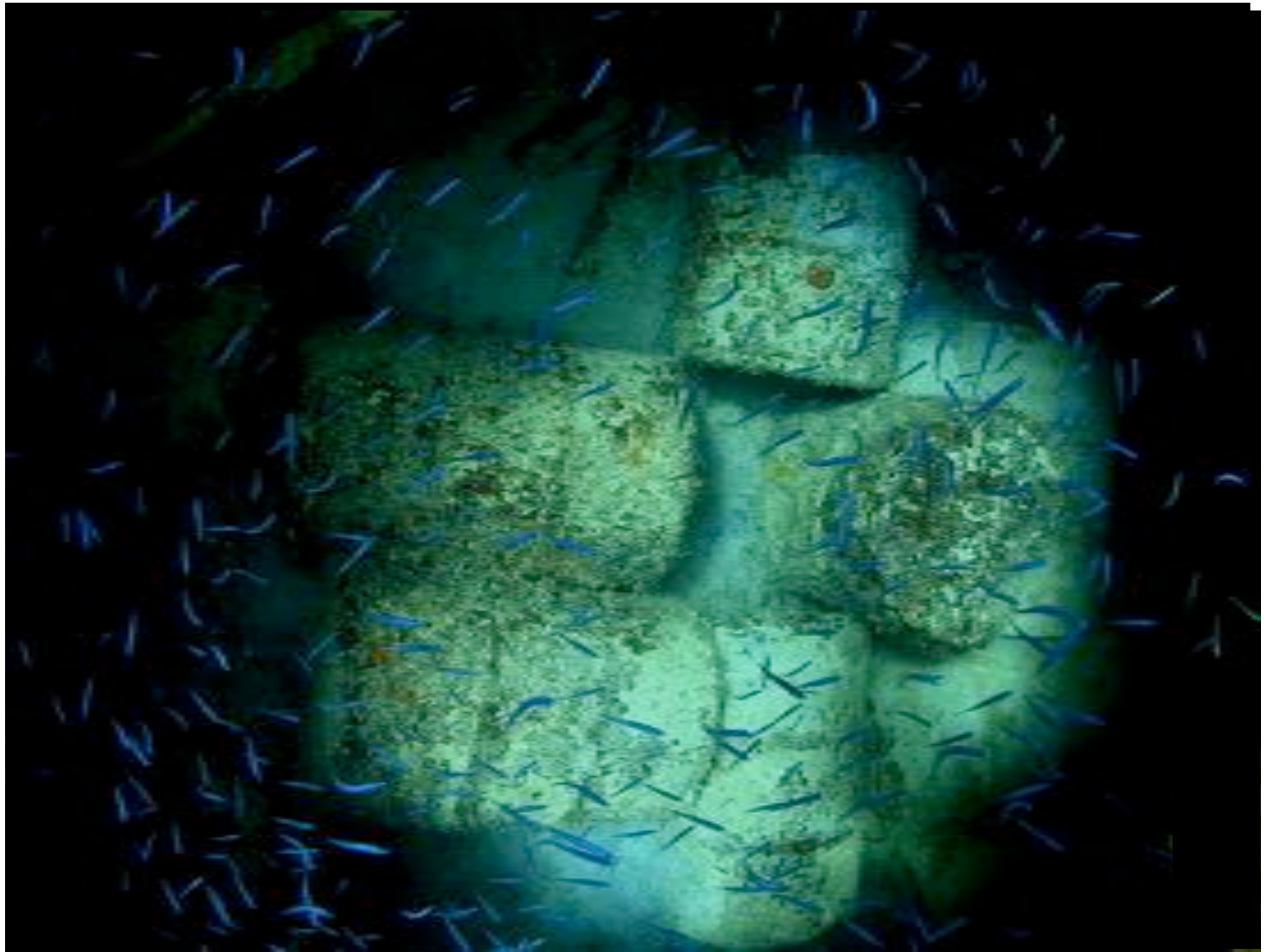














U.S.N. Killen

Vieques:

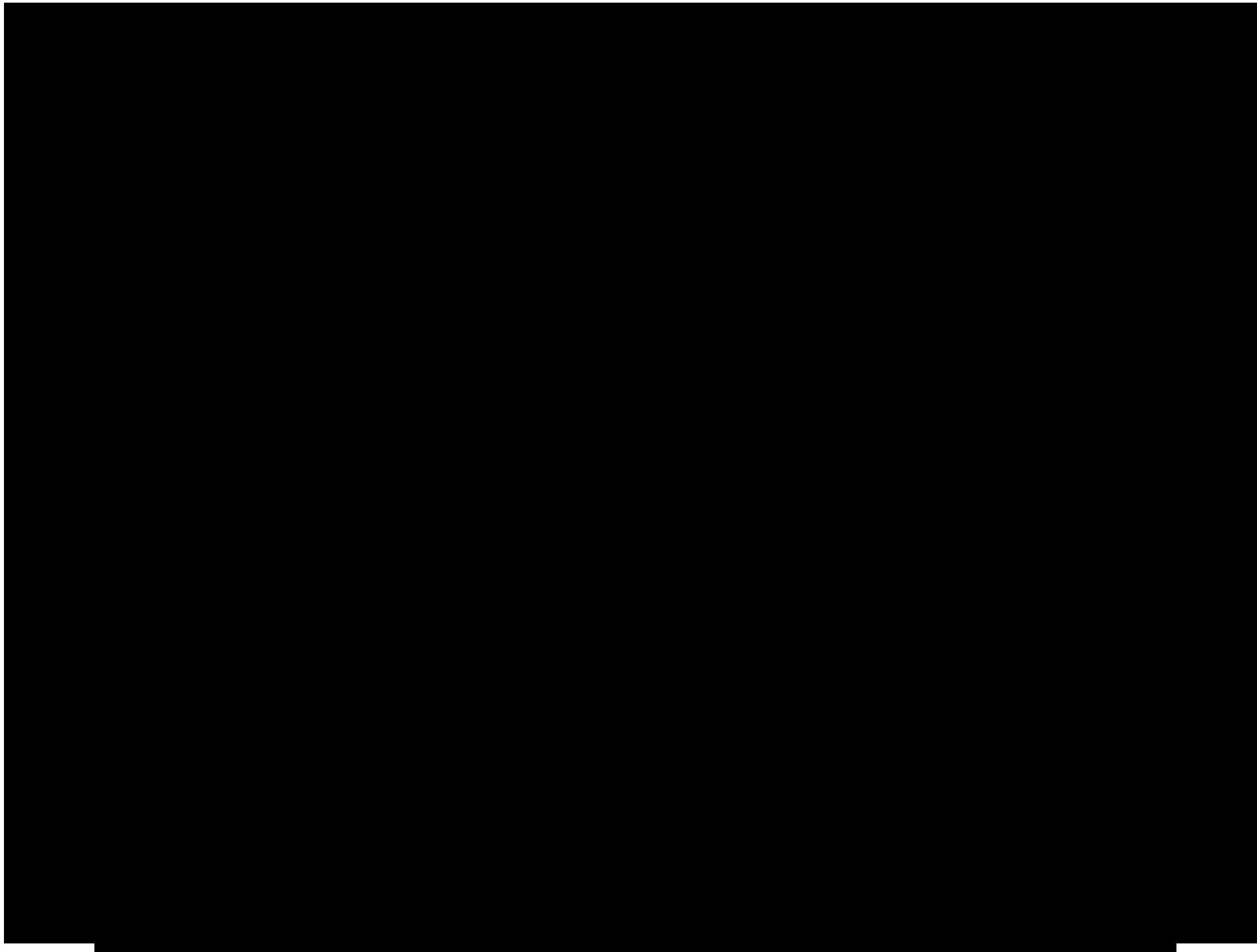
HIGHEST
CANCER
RATE

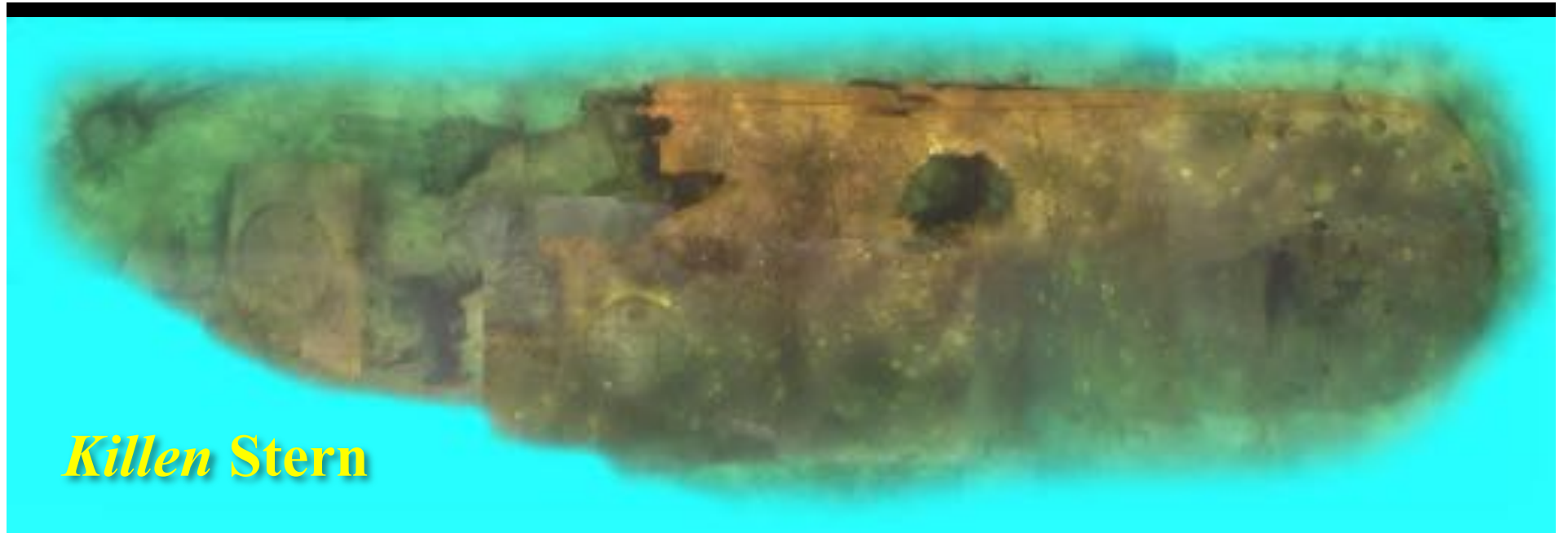




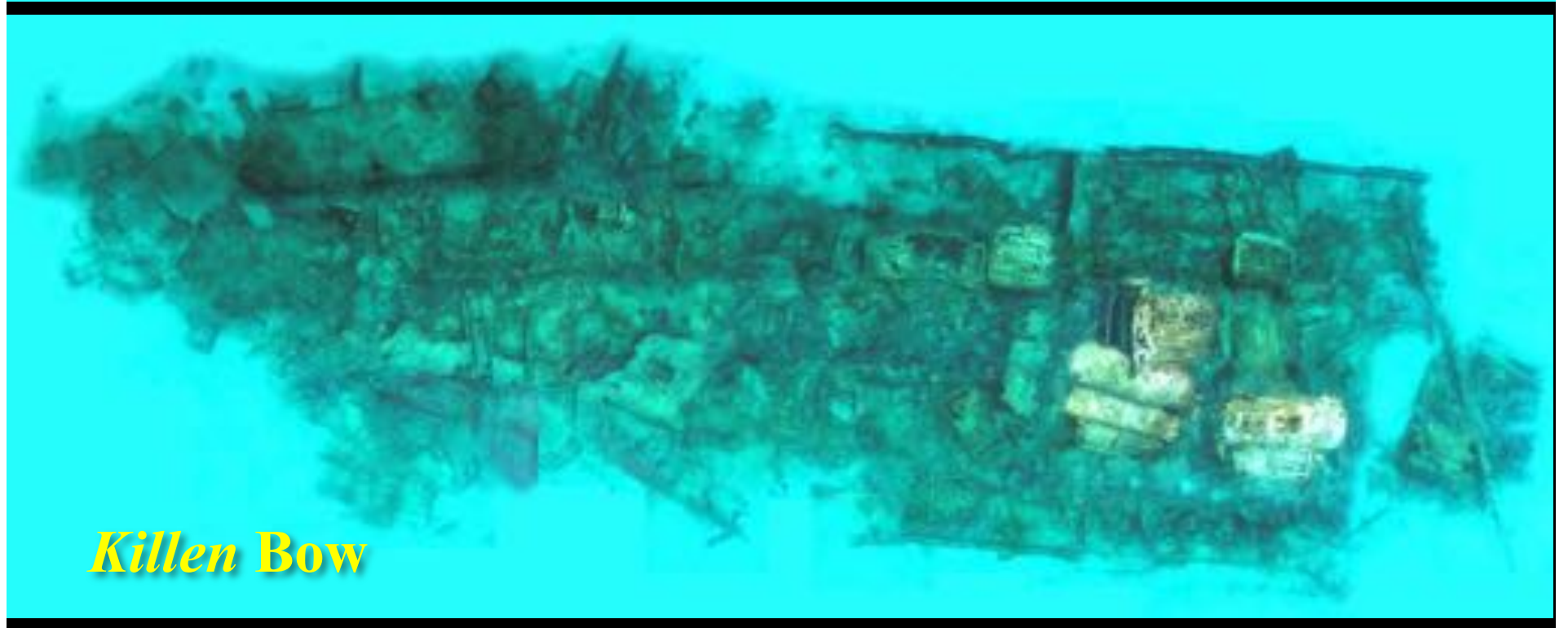


Video 1:
USN Killen Wreck Site
(James W. Porter, 2003)



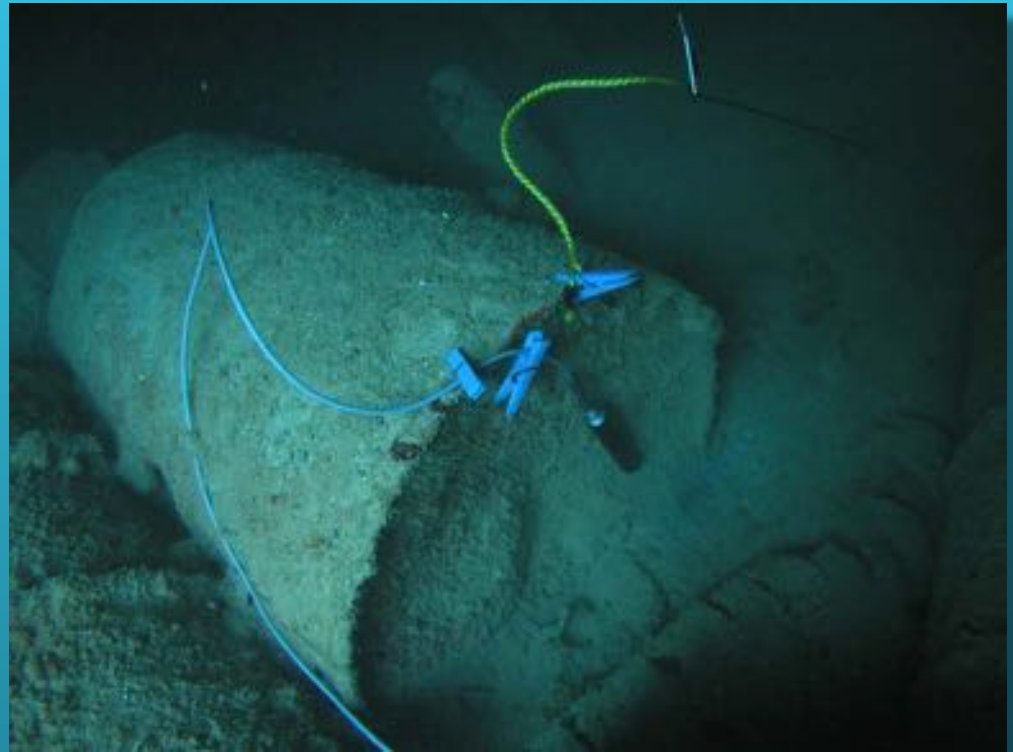
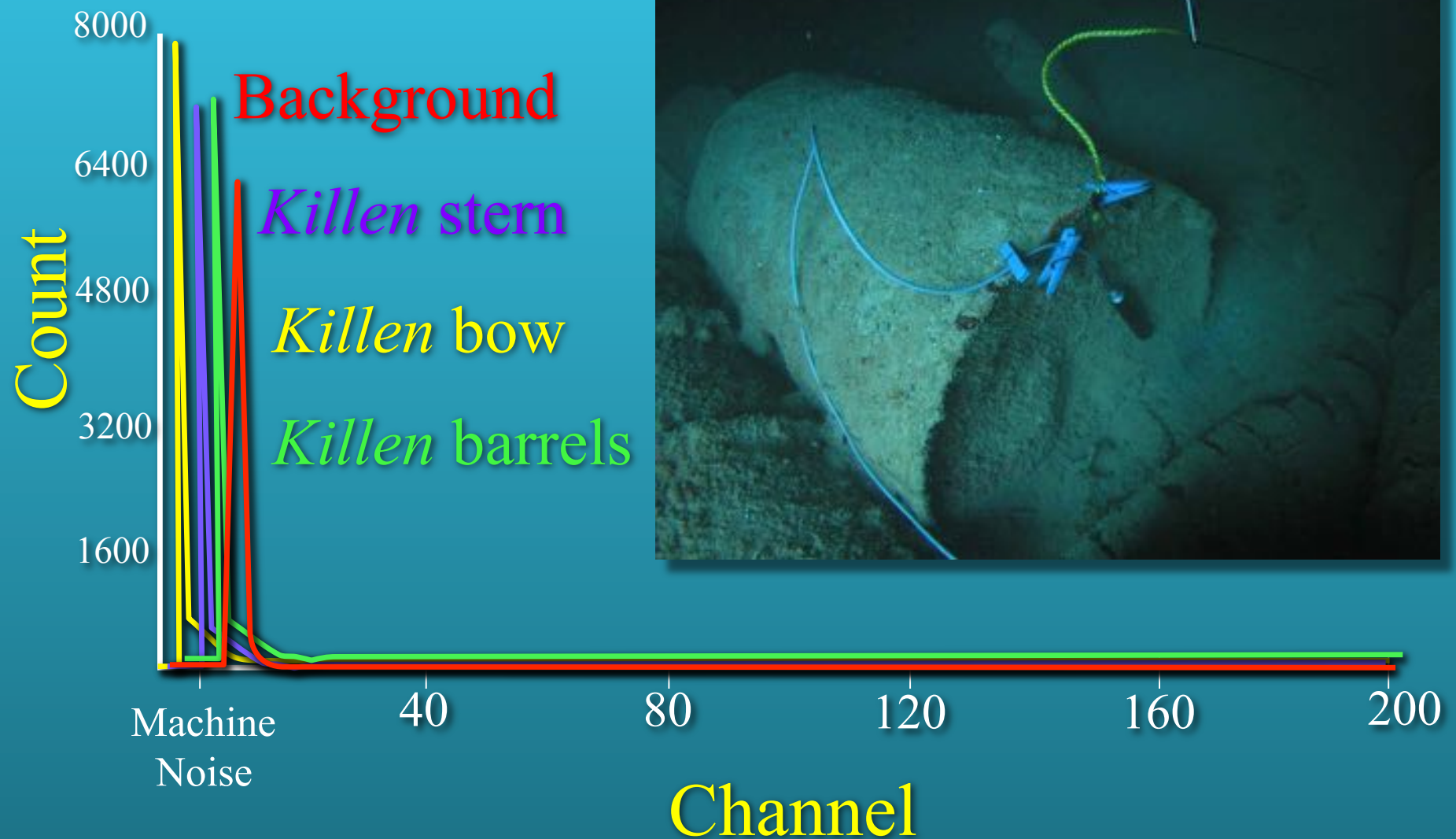


Killen Stern



Killen Bow

Ambient Marine Radiation

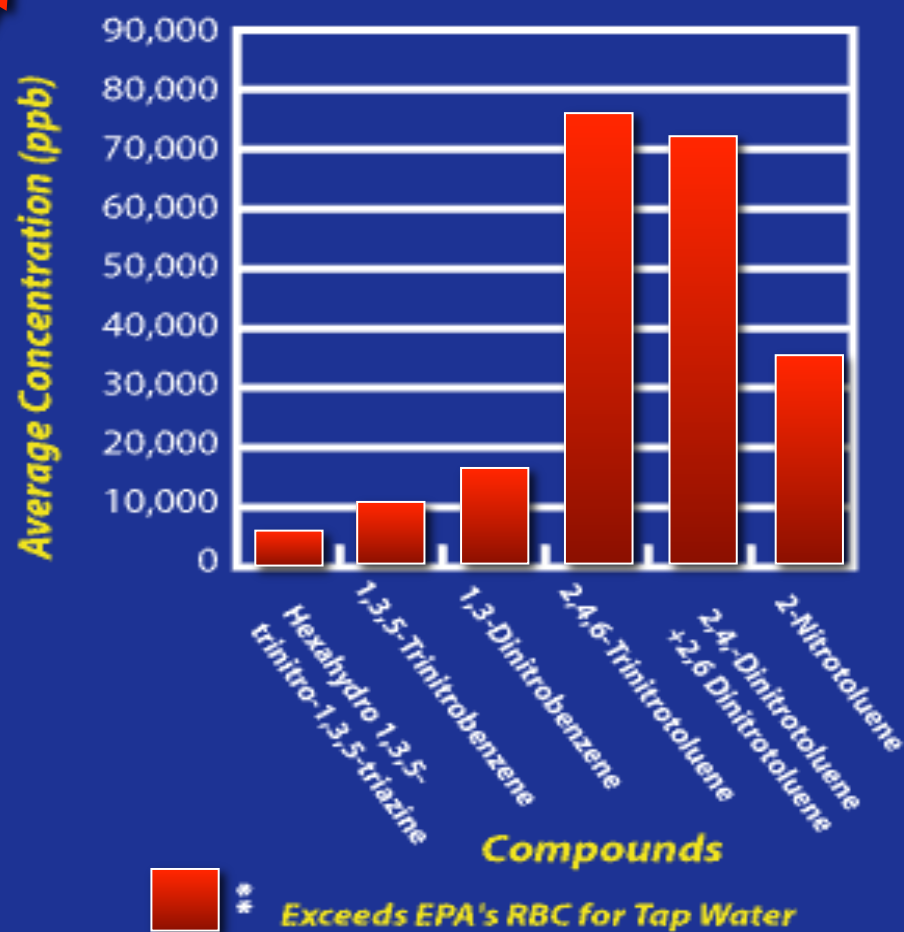




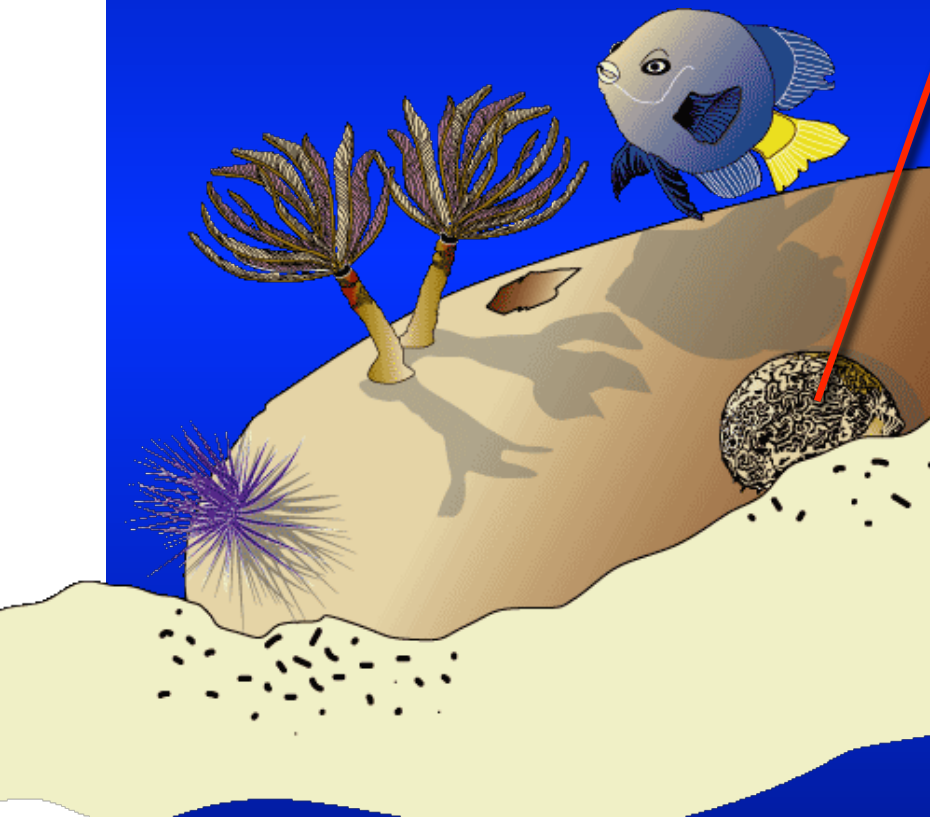
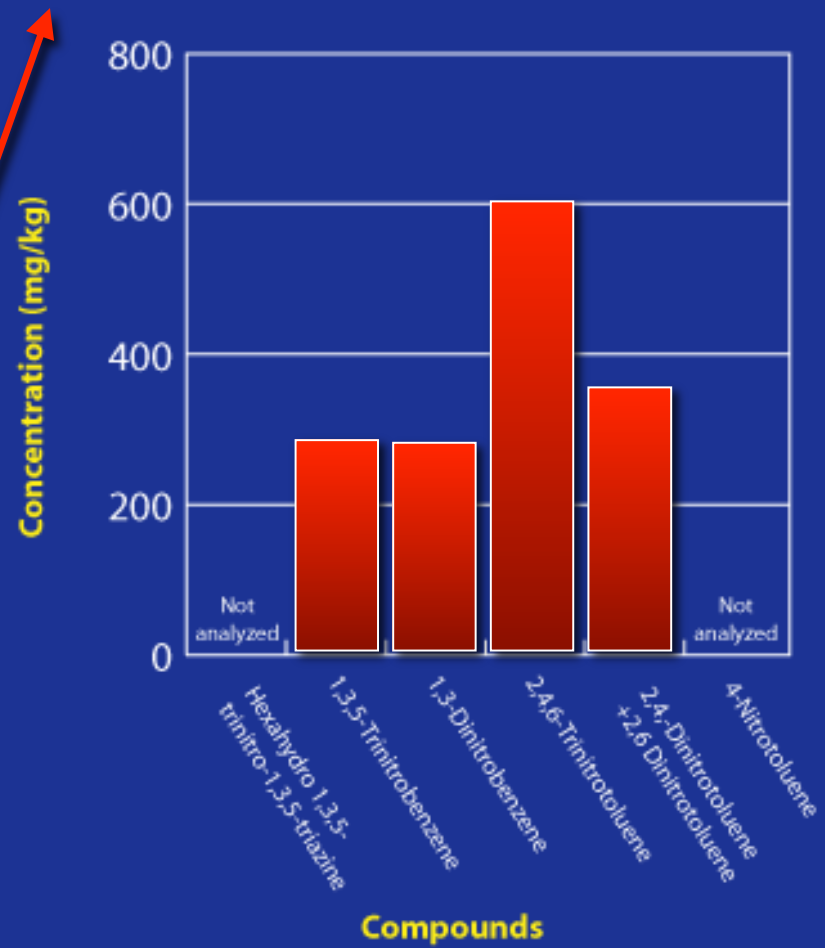




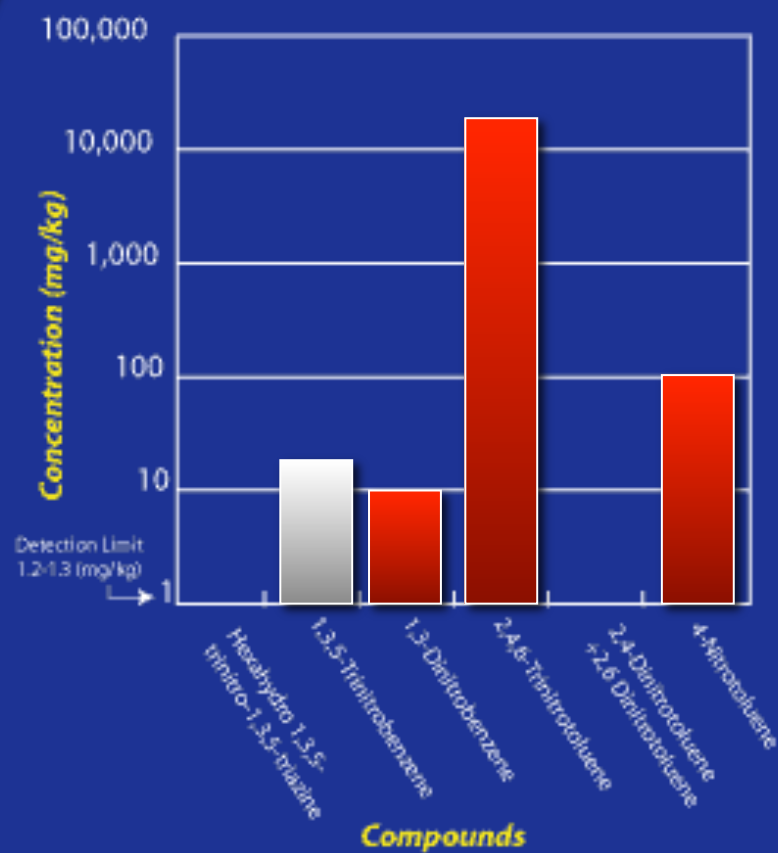
Explosive Compounds in Water Samples collected inside the Bomb (Site 3)



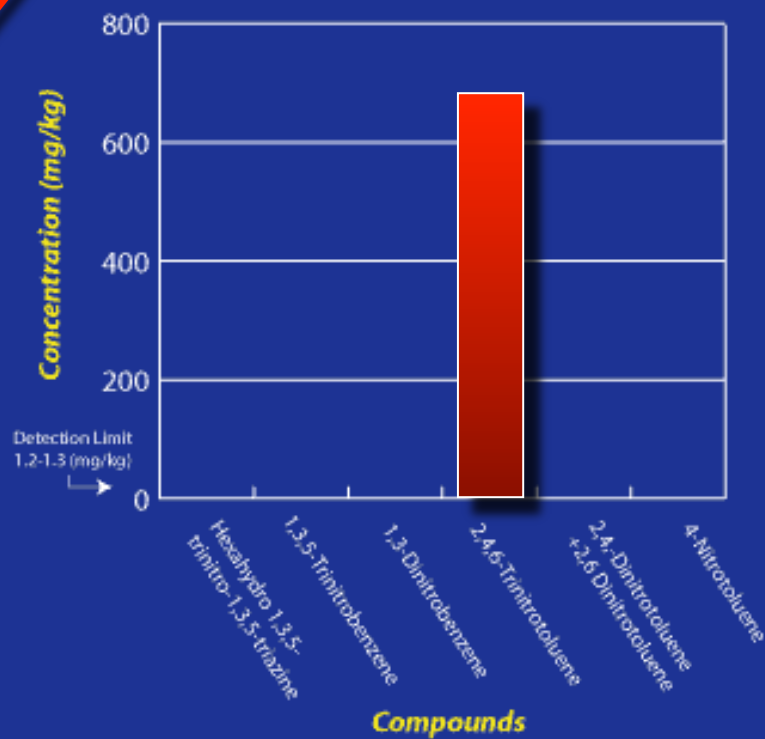
**Explosive Compounds in the
Brain Coral *Montastraea faveolata* collected near the Bomb (Site 3)**



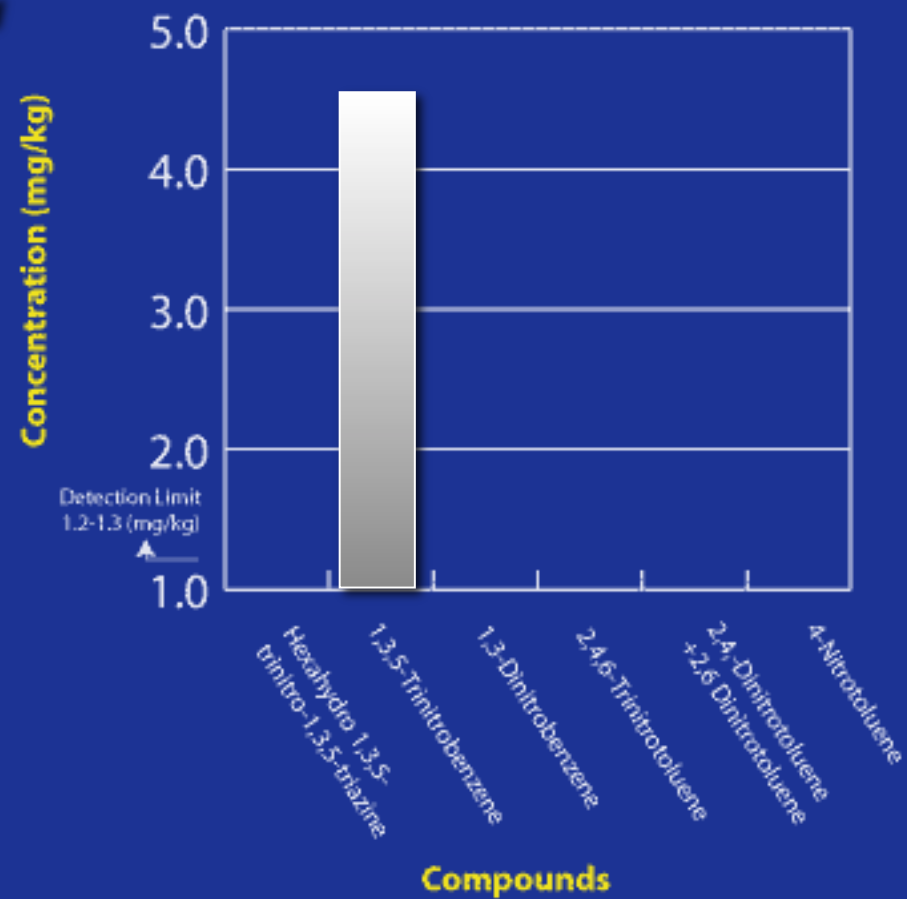
**Explosive Compounds in the
Feather Duster Worm *Sabellastarte magnifica* on the Bomb (Site 3)**

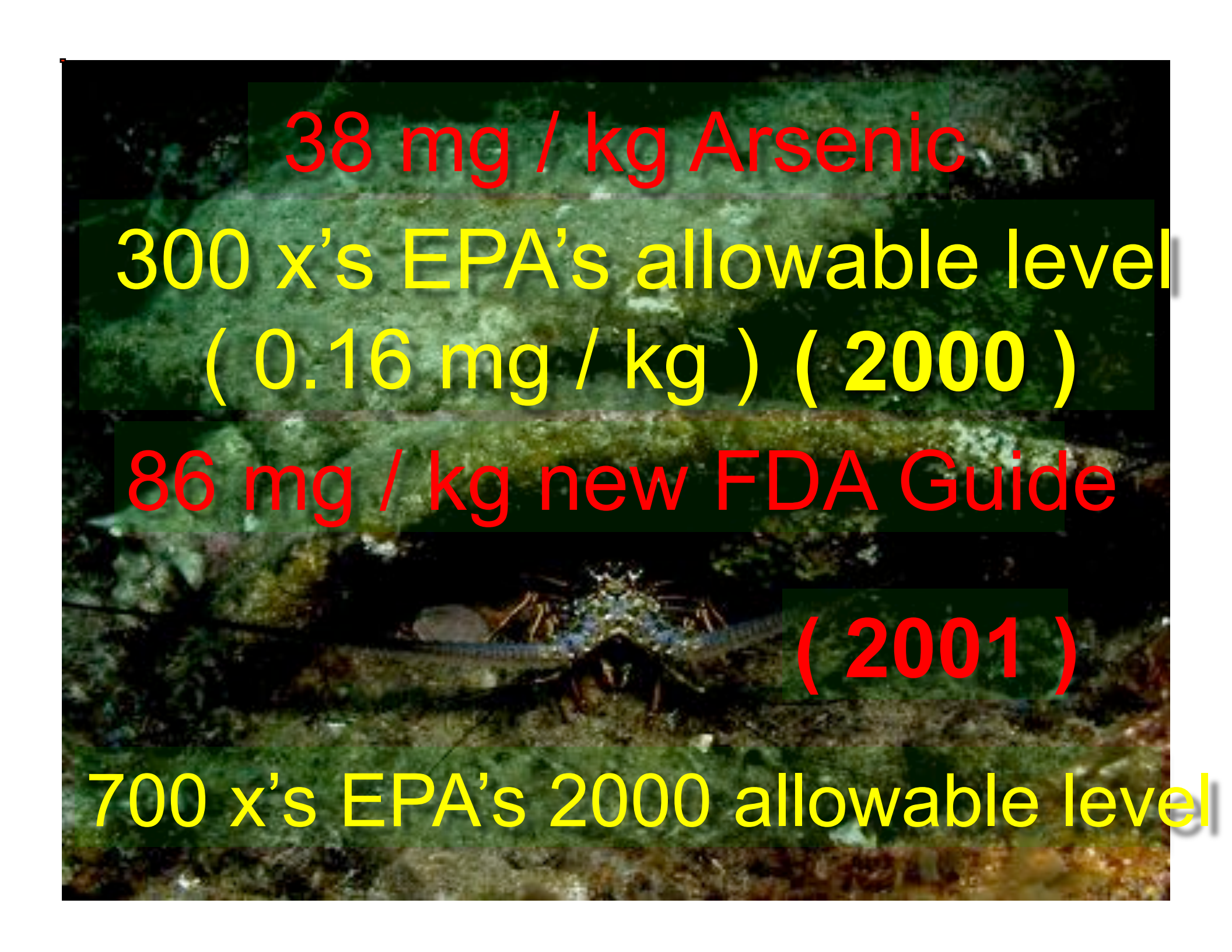


**Explosive Compounds in the
Long-spined Sea Urchin *Diadema antillarum* on the Bomb (Site 3)**



**Explosive Compounds in the
Dusky Damselfish *Stegastes adustus* collected on the Bomb (Site 3)**





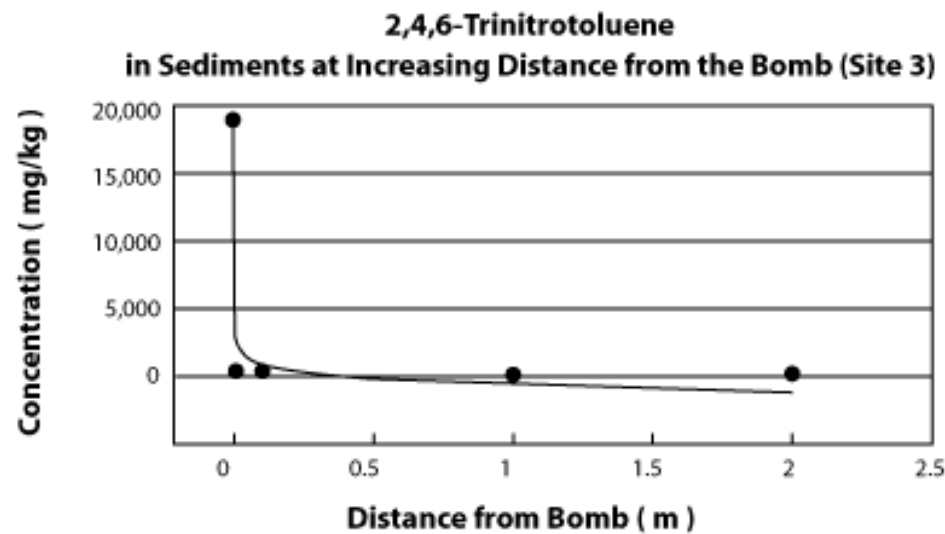
38 mg / kg Arsenic

300 x's EPA's allowable level
(0.16 mg / kg) (2000)

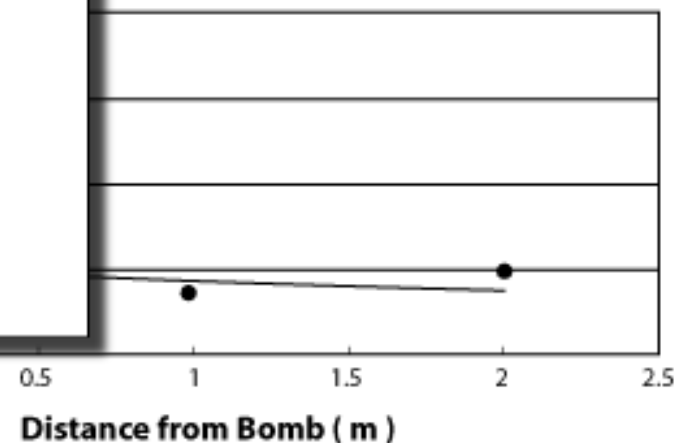
86 mg / kg new FDA Guide
(2001)

700 x's EPA's 2000 allowable level

Hazardous Materials Decay Exponentially



Chromium
ing distance from the Bomb (Site 3)



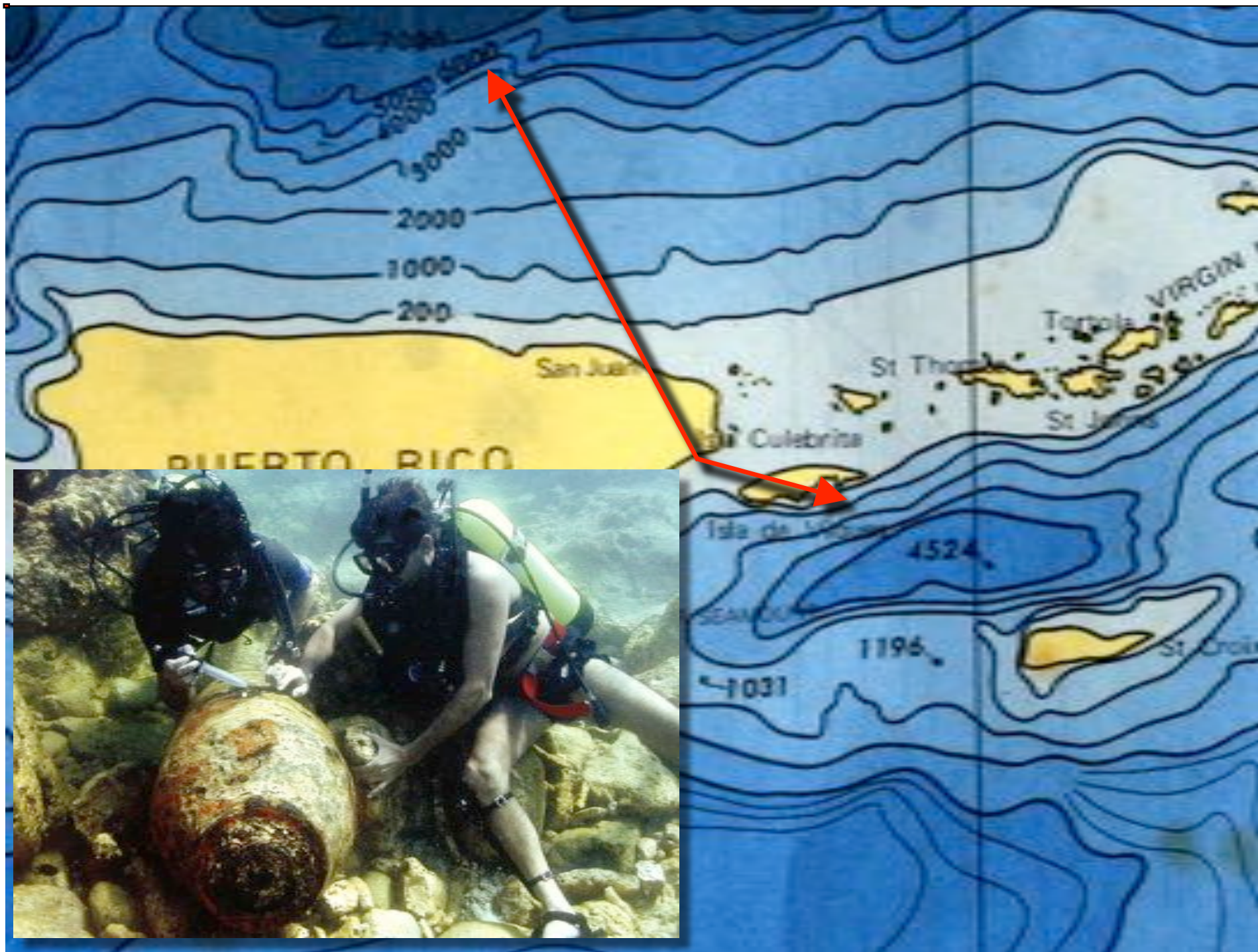
General Principles of Contamination

- [Near] > [Far]
- [Stationary] > [Mobile]
- [Coral] > [Worm] > [Urchin] > [Fish]

**On May 1, 2003, the Navy
left Vieques.**



**In January, 2005, EPA declared
Vieques a Superfund site.**

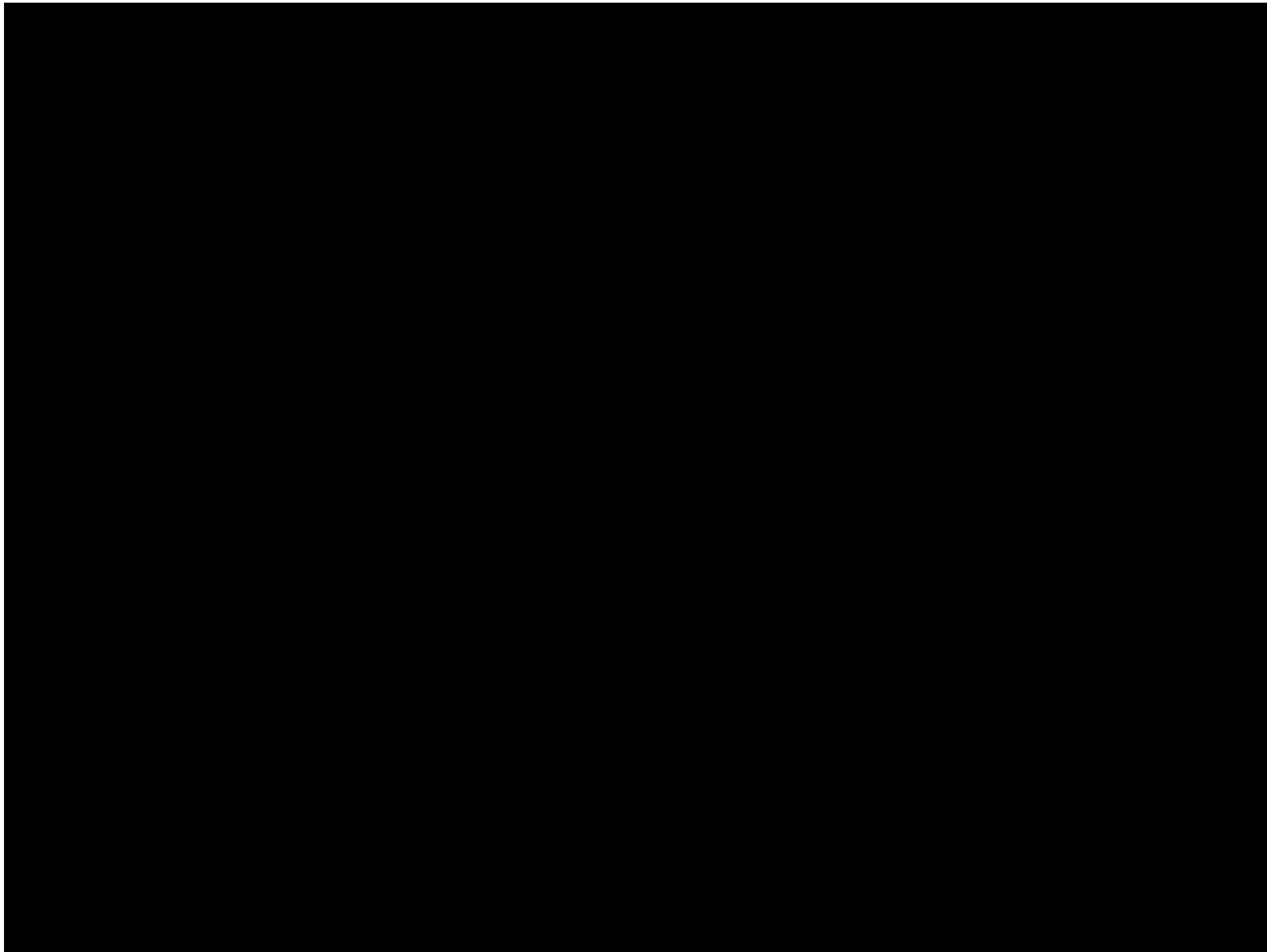






Video 2:

**Underwater Ordnance Removal
(James W. Porter, 2005)**



**We must
defend
our
freedom,
but without
achieving a
Pyrrhic
Victory.**



