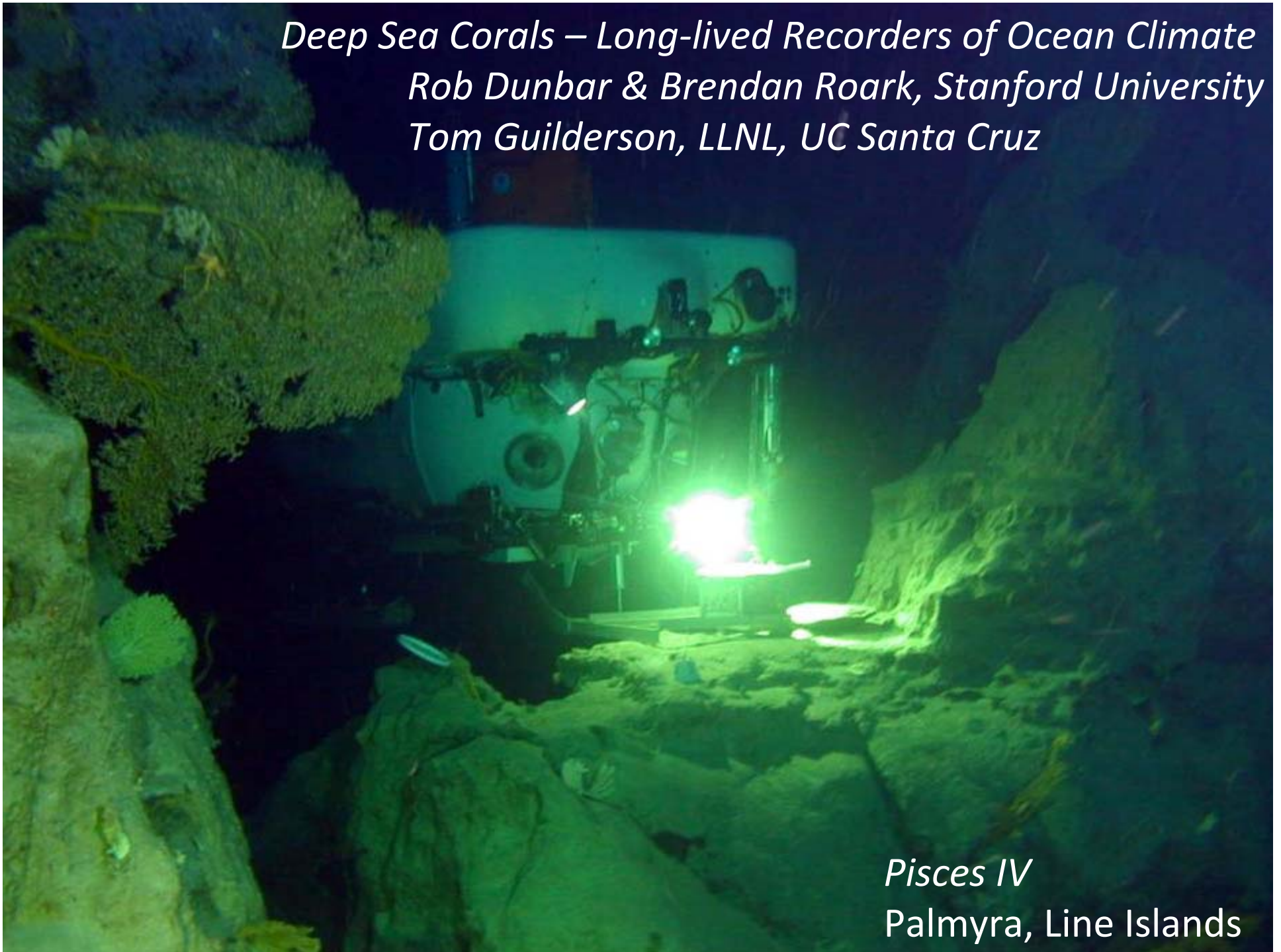
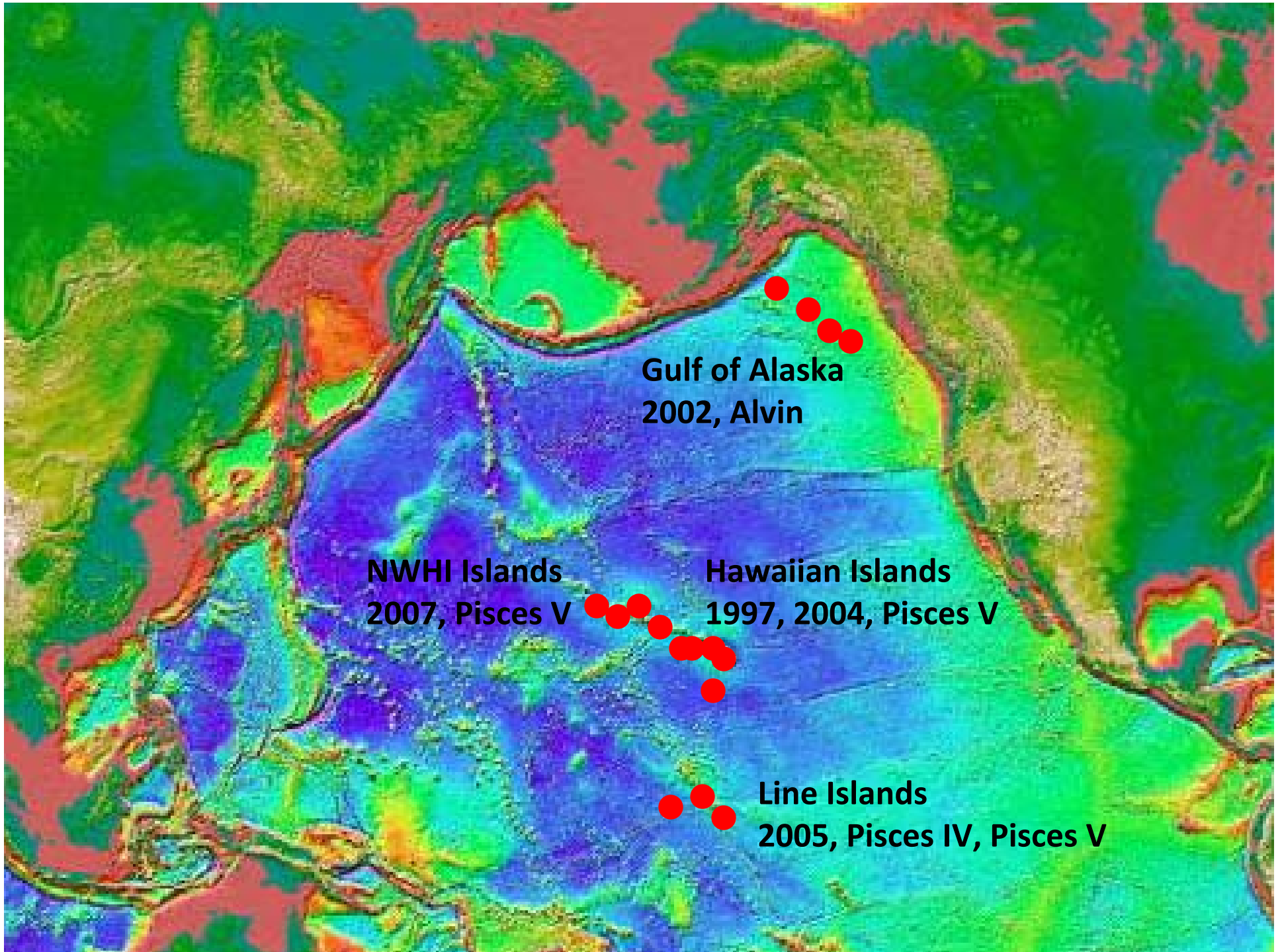


Deep Sea Corals – Long-lived Recorders of Ocean Climate
Rob Dunbar & Brendan Roark, Stanford University
Tom Guilderson, LLNL, UC Santa Cruz



Pisces IV
Palmyra, Line Islands



Deep Sea Corals

Abundant on hard substrates between 1300 and 300 m

Extreme Longevity – colonies can be 1000's of year old

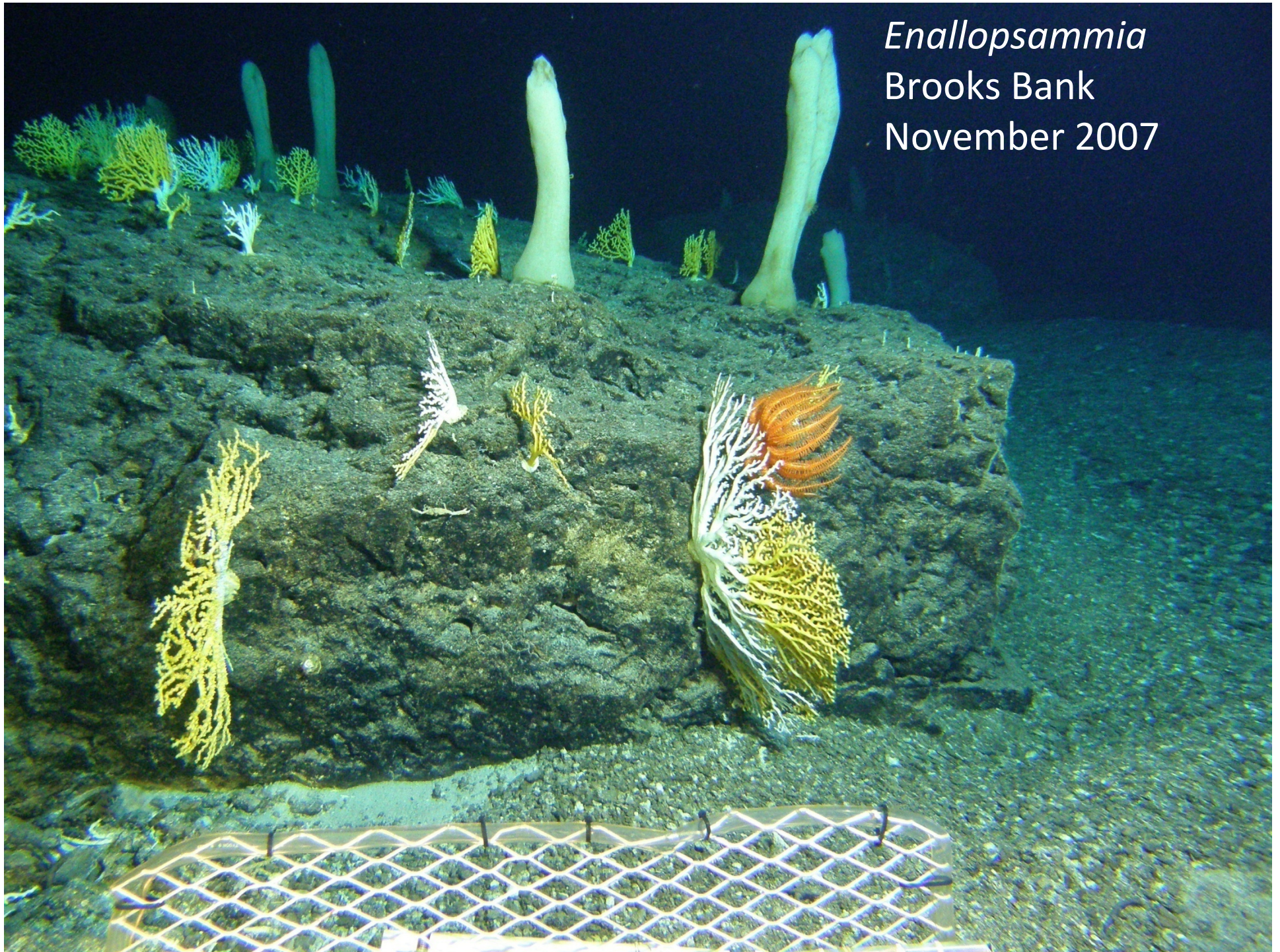
Archives of Ocean Circulation, Ventilation, Productivity

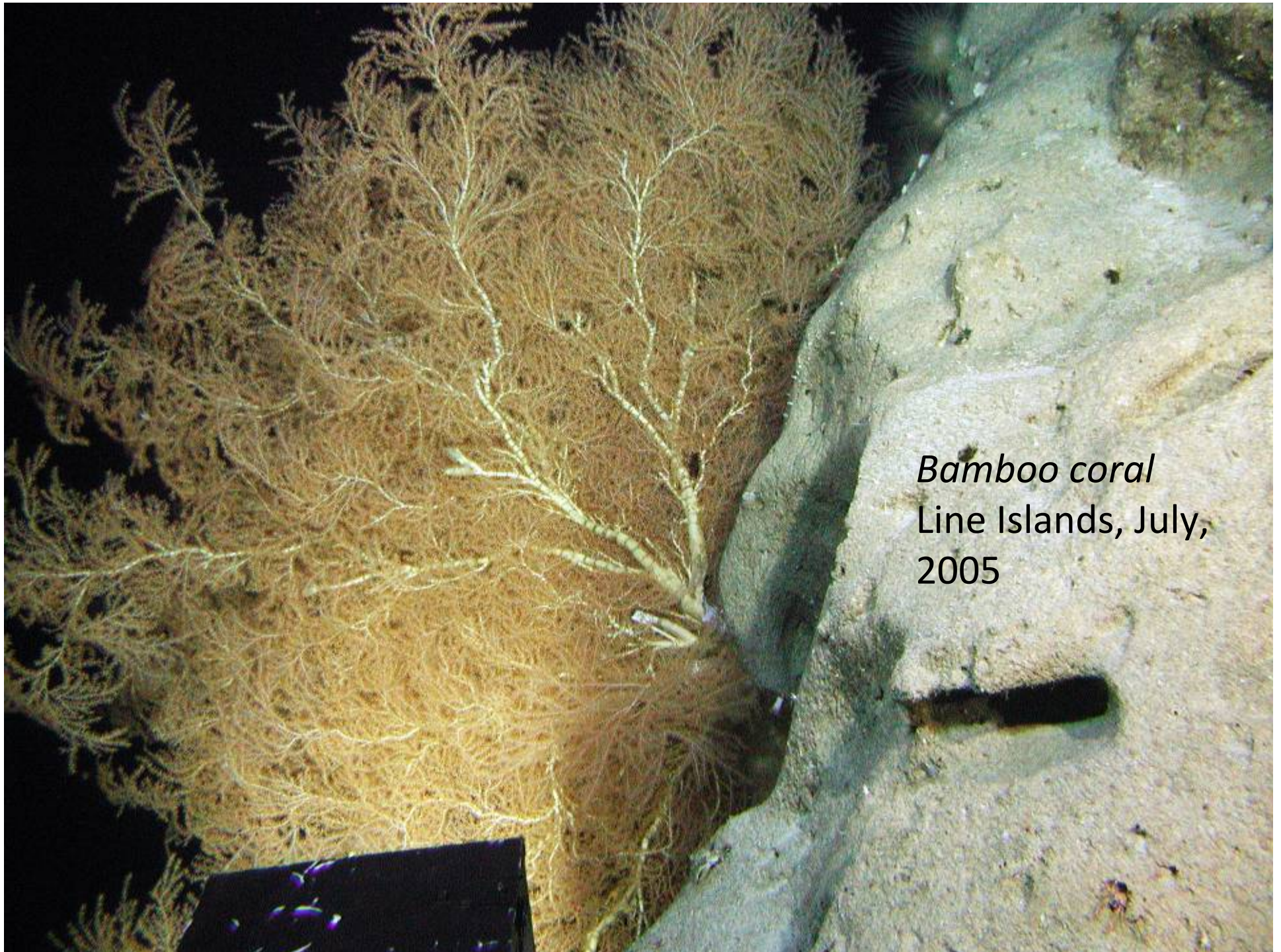
Life on vertical walls – recycling with upper ocean food webs



Pisces V
Painting by
Terry Kerby

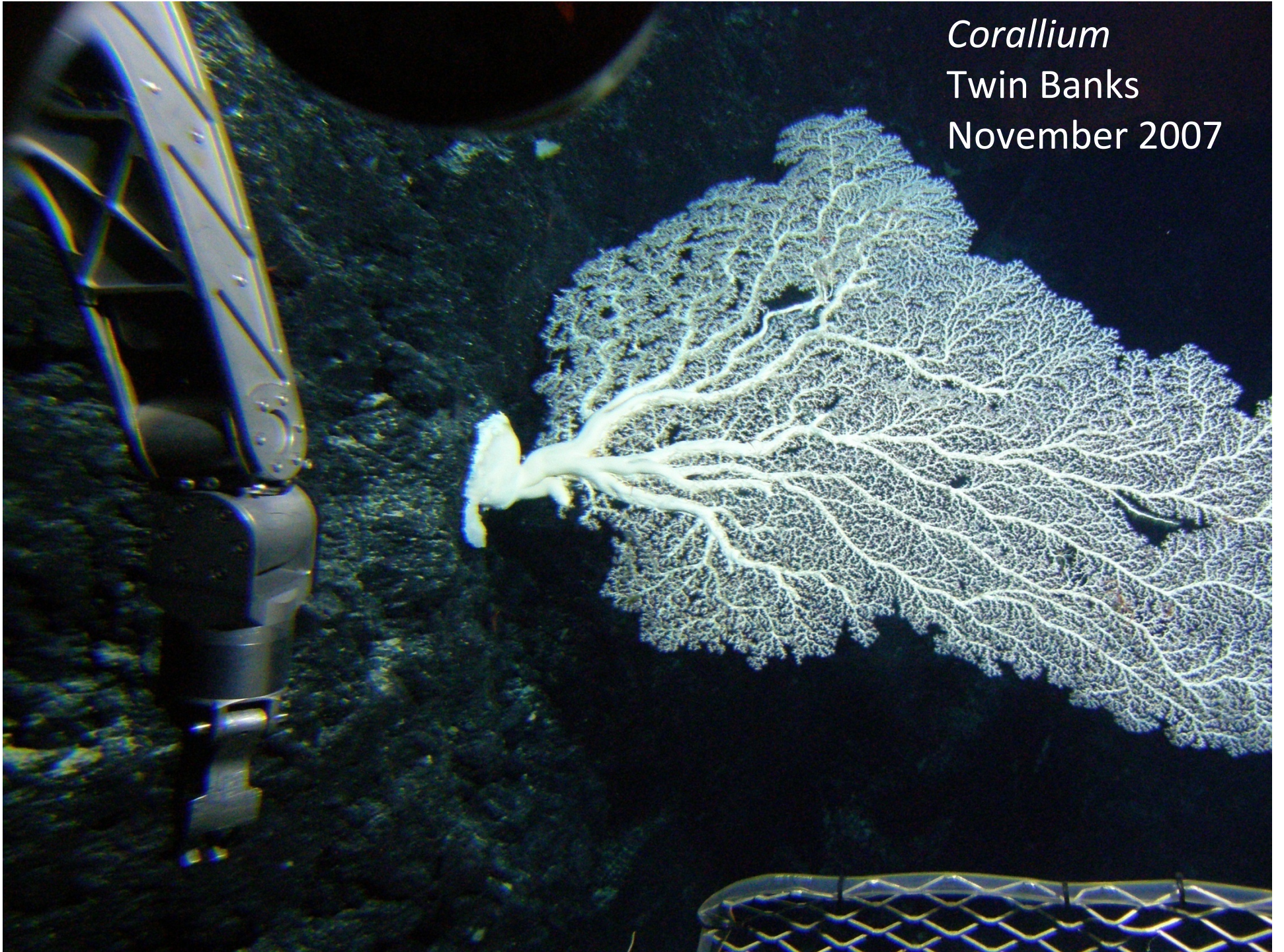
Enallopsammia
Brooks Bank
November 2007





Bamboo coral
Line Islands, July,
2005

Corallium
Twin Banks
November 2007



Gerardia

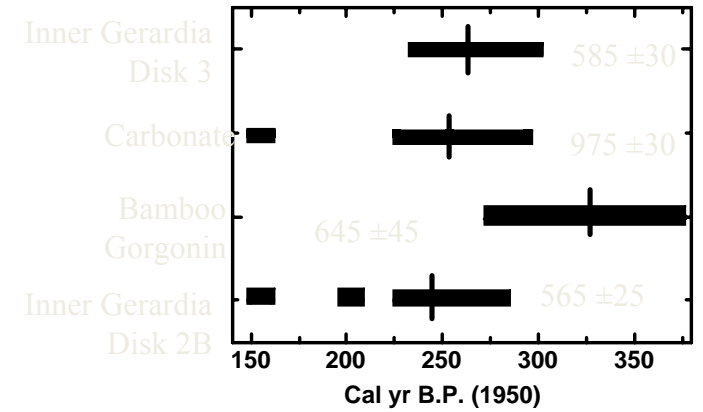
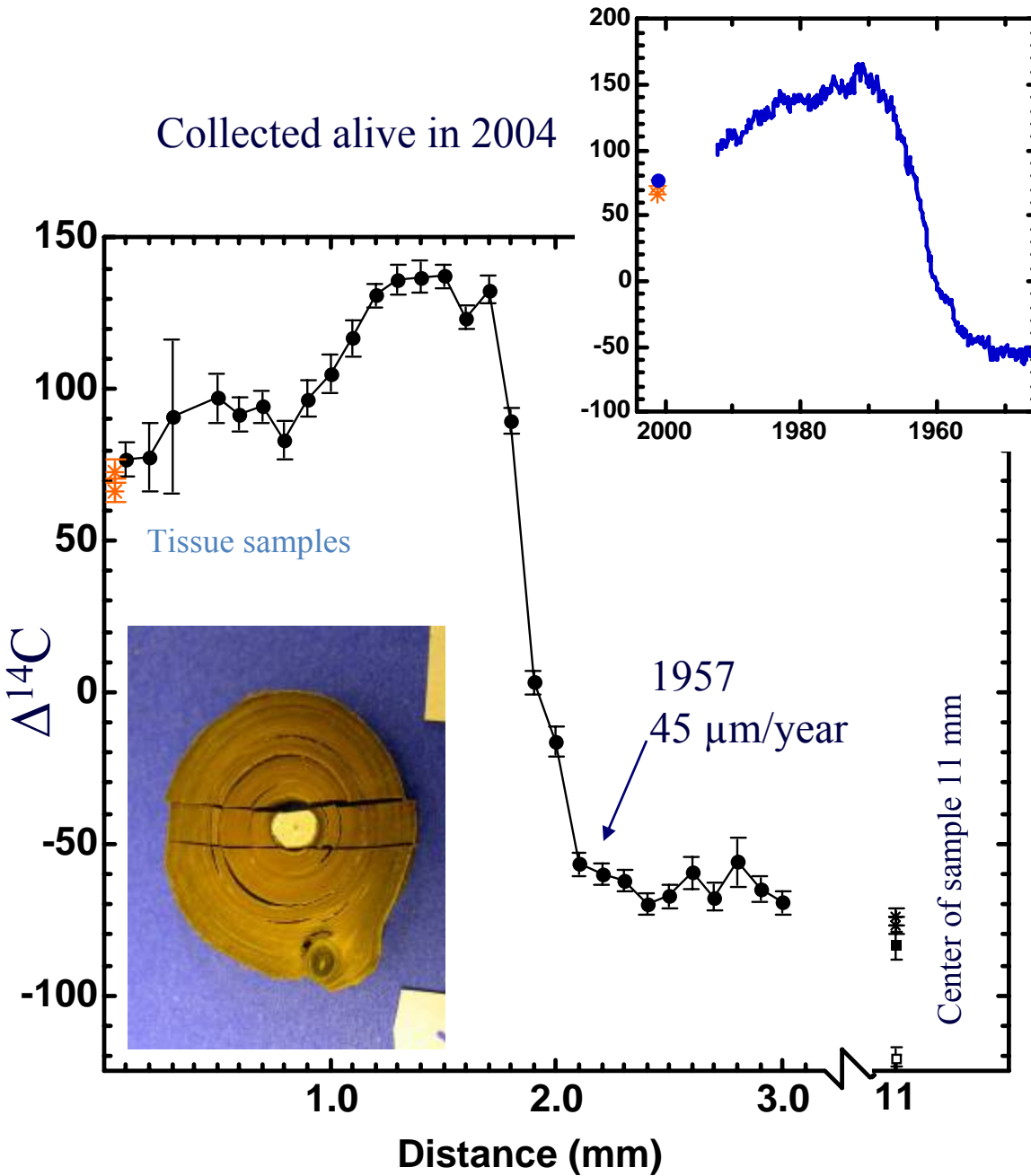
East French Frigate Shoal

November 2007



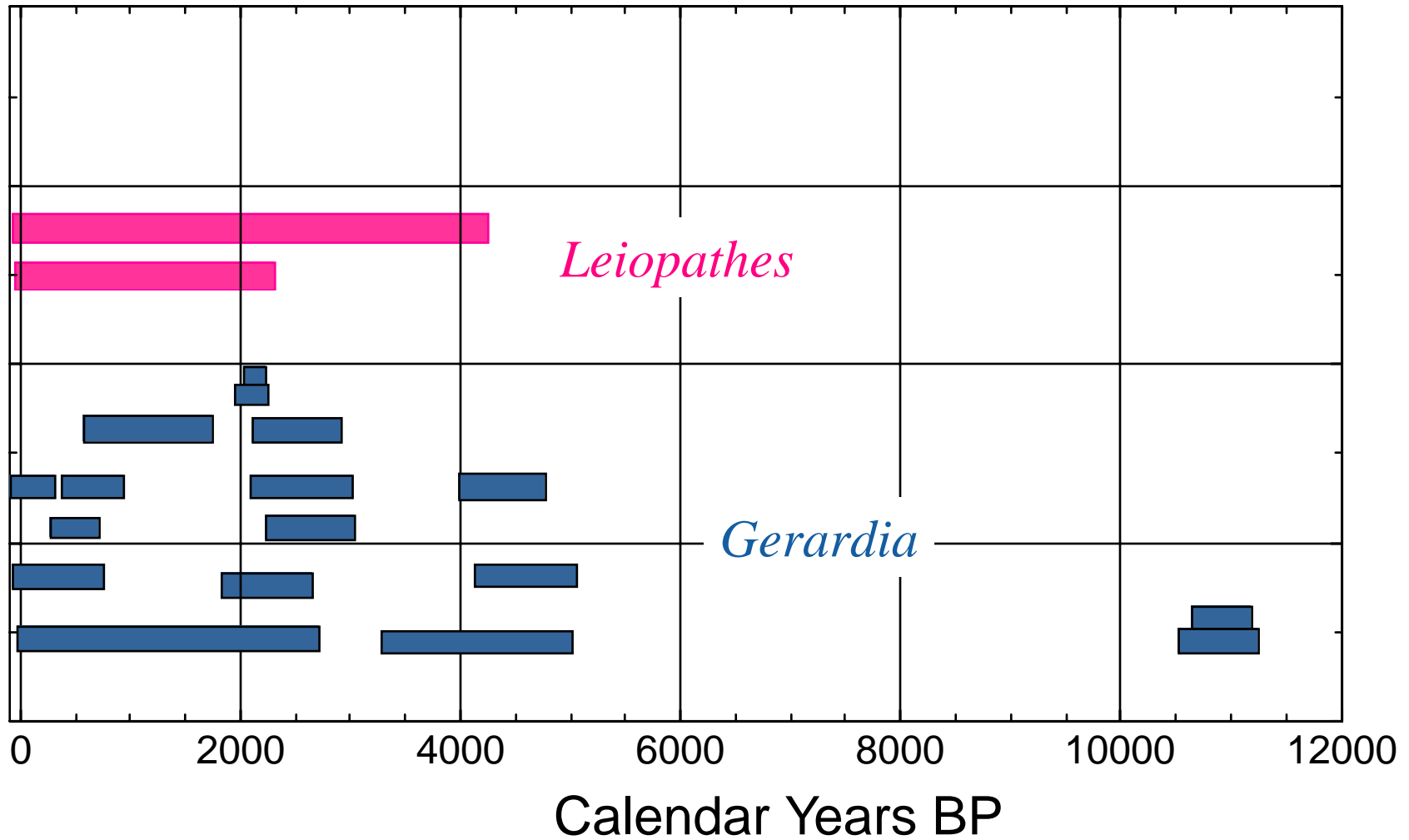
Fossil Gerardia
East French
Frigate Shoal
November 2007





Inner Gerardia
 585 ± 30 ^{14}C years
 240-300 cal yr B.P. (1950)
 med. prob. 260
314 calendar years
35 $\mu\text{m}/\text{year}$

***Twilight Zone Protinaceous Deep-Sea Corals
Live Centuries to Millennia, not decades.***



Deep Sea Corals

Collected live, subfossil and fossil corals

Some specimens may be in excess of 10,000 years old

Developing tracers of ocean ventilation (paired U/Th and ^{14}C)

Also tracers of ocean temperature and C flux

Opens ocean interior to high resolution paleo studies

Tremendous interest by many research groups

The big unknown? South Pacific and Southern Ocean.....