2 ½ Years and Counting: Monitoring and Documenting the Ongoing Global Coral Bleaching Event 2014-2017 (and Beyond?)

Dr. C. Mark Eakin
NOAA Coral Reef Watch
http://coralreefwatch.noaa.gov
Global Bleaching: Last Half of 2014

NOAA Coral Reef Watch Annual Maximum Satellite Coral Bleaching Alert Area 2014
Global Bleaching: 2016

NOAA Coral Reef Watch Maximum Satellite Coral Bleaching Alert Area 2016

- Western India
- Taiwan
- Vietnam
- Marianas
- Kiribati

- Seychelles Maldives
- Philippines
- New Caledonia
- Palau
- French Polynesia

- Kenya/Tanzania
- Réunion
- Thailand
- Fiji
- Flower Gardens

- Mozambique
- Mauritius
- Indonesia
- Micronesia
- Yucatan

- Madagascar
- Maldives
- Japan
- Marshall Is.
- Saba

- E. Australia
- Belize
2016: Warmest Year Ever for 3\textsuperscript{rd} Year in a Row
Ocean Warms, Bleaching Increases

Percentage of Global Reef Pixels Experiencing Bleaching Alert Level 1 & 2, 1982–2016, OISSTv2-based

- Alert Level 1 and 2
- Alert Level 2

- 1982, 83
- 1998
- 2005
- 2010
- 2014, 15, 16
- 2014-16

http://coralreefwatch.noaa.gov
June 2014-Dec. 2016 Thermal Stress

- Longest global bleaching event ever
- Most widespread global bleaching event ever
- Over ½ exposed twice (Guam 4 years in a row)
- ~100% stressed
Global Bleaching: 2017 to date

Neutral ENSO conditions?
Some potential for bleaching in American Samoa, south Pacific

Bleaching Risk Through June 2017

2017 Feb. 21 NOAA Coral Reef Watch 60% Probability Coral Bleaching Thermal Stress for March-June
Key Messages

2014-16 Bleaching:
• Longest, most widespread, often repeated bleaching
• > 40% of global reefs affected
• 72% of US reefs affected

2017 Bleaching?
• Potential for more bleaching in American Samoa
• Potential in northern hemisphere unknown
The ocean is critical to all life on earth, but unfortunately, coral reefs around the globe are vanishing at an unprecedented rate. In search of answers, a special team of divers, photographers, and marine scientists set out on an adventure and reveal a beautiful underwater mystery to the world.

- Premiered at Sundance Film Festival, January 2017
- Won Audience Award for Best US Documentary
- Planning for public screening at Florida USCRTF meeting
Climate Change & Ocean Acidification Working Group

Moving forward with 4 foci:

- Mainstream climate change into local management
- Mainstream climate change into USCRTF activities and products
- Support & facilitate outcomes on the ground
- Communicate/translate to public & stakeholders

Webinar series (ongoing since Jan. 2015)

Corals & Climate Adaptation Planning (CCAP) Project (2013-present)

- Key partners: EPA, NOAA, DOI, TNC, CCWG, TetraTech
- Focus: Steps 4 & 5 of planning cycle
- Hawaii stakeholder workshop

Journal article:
CCAP Project
Adaptation Design Tool

- Tool for integrating climate change information into the design of management actions
- Tested with practitioners in the Pacific (West Maui) and Caribbean (Guánica Bay)
- In development for June 2017: online learning module for The Nature Conservancy’s Reef Resilience Toolkit, for use by managers worldwide
- To be featured in May 2017 as a training at the National Adaptation Forum
- Next steps: Caribbean workshop on evaluation & selection methods
Questions?

http://coralreefwatch.noaa.gov
Coral Reef Watch
@CoralReefWatch