

## Continuing Education for Water Operators



Mariana Islands  
Water Operator Association

May 7, 2015  
Pacific Islands Club, Saipan

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## Today's Agenda

- About Continuing Education
- Current Events:
- Main Events:
  - Maui I & IV Well Shafts
  - Mapping Nitrates in Groundwater
  - Chuuk Typhoon Damage Assessment
  - Wastewater Overflows in Guam and Pacific Territories
- Association Business

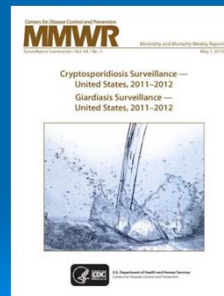
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## Current Events

CDC Reports  
MMWR Surveillance Summaries  
May 1, 2014  
Cryptosporidiosis Surveillance  
Giardiasis Surveillance  
U.S. 2011-2012

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## Cryptosporidiosis



- Gastrointestinal illness
- Extremely chlorine resistant
- Protozoa  
*Cryptosporidium*
- Infectious dose <10

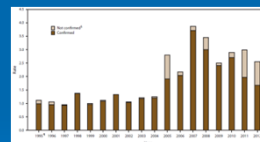
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## Cryptosporidiosis

- |                       |                       |
|-----------------------|-----------------------|
| ➤ 2011                | ➤ 2012                |
| ➤ 9,312 cases         | ➤ 8,008 cases         |
| ➤ 5.8% from outbreaks | ➤ 5.3% from outbreaks |
| ➤ 3.0 / 100,000       | ➤ 2.6 / 100,000       |

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## Cryptosporidiosis

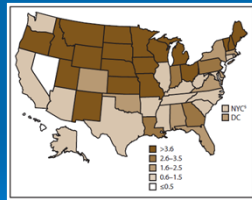


- Incidence rate peaked in 2007 – but still high
- Definition of confirmed cases has changed over time
- Incidence rate (cases per 100,000 population) by year

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## Cryptosporidiosis

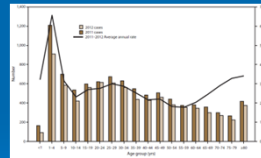
- Highest reporting rates in Midwest
- Incidence rate of cryptosporidiosis per 100,000 population



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## Cryptosporidiosis

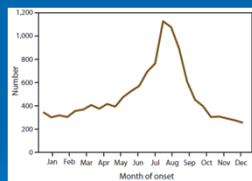
- Highest rate for children age 1-4
- Next for elderly >80
- Number of cases per year & average annual incidence rate (cases per 100,000 population)



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## Cryptosporidiosis

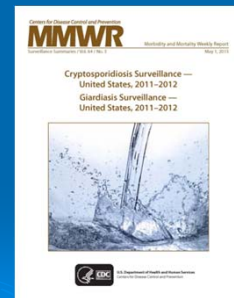
- Most cases occur in summer months.
- Increased use of recreational water (pools) in summer
- Number of cryptosporidiosis case reports by date of symptom onset



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## Giardiasis Surveillance

- Gastrointestinal illness
- Moderately chlorine resistant
- Protozoa *Giardia intestinalis*
- Infectious dose <10
- The most commonly reported intestinal parasitic infection in US.



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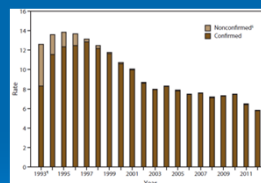
## Giardiasis Surveillance

- 2011
- 16,868 cases
- 1.5% from outbreaks
- 6.4 / 100,000
- 2012
- 15,223 cases
- 1.3% from outbreaks
- 5.8 / 100,000

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## Giardiasis Surveillance

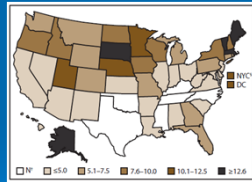
- First time since 2002 rates are decreasing.
- Incidence rate (cases per 100,000 population) by year.



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## Giardiasis Surveillance

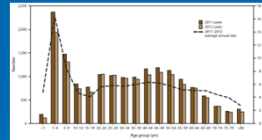
- Highest in northern states (better reporting?)
- Six states did not report.
- Incidence rate (cases per 100,000 population) by reporting jurisdiction.



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## Giardiasis Surveillance

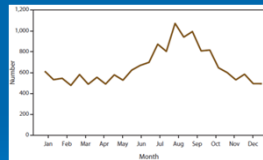
- Highest incidence in children aged 1-4 (increased contact or lack of immunity?)
- Number of cases per year and average annual incidence rate (cases per 100,000) by age group.



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## Giardiasis Surveillance

- Most cases occur in summer months.
- Number of case reports by date of symptom onset.



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## Model Aquatic Health Code

- <http://www.cdc.gov/healthywater/swimming/pools/mahc/index.html>



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## Model Aquatic Health Code

- [Link to Video about MAHC](#)

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## Current Events

RTCR Update

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## Revised Total Coliform Rule

- Effective April 2016
- Schedule:
  - Draft regulations to be published June or July 2015
  - Finalized Aug or Sep 2015
  - Guidance in November 2015 CEU class



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## Revised Total Coliform Rule

- TC samples collected monthly according to your sampling plan (no change)
- TC + samples must be tested for *E. Coli*
- If routine TC + → 3 repeat samples req'd
- If *E. Coli* MCL or TC contamination → Assessment (Level 1 or Level 2)
- Find and fix problems.

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## Revised Total Coliform Rule



<https://www.youtube.com/watch?v=OM79cmCmko>

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## End Current Events

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## Main Event

Assessment of Maui I & IV Shaft  
Wells on Saipan

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## Break - 10 minutes



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## Main Event

Mapping Nitrates Concentrations  
in Groundwater in the CNMI

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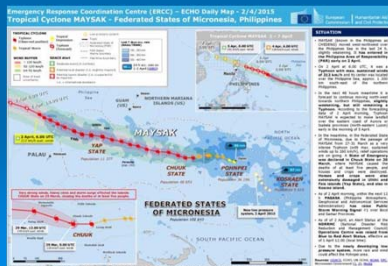
## Main Event

Typhoon Maysak  
Damage Assessment

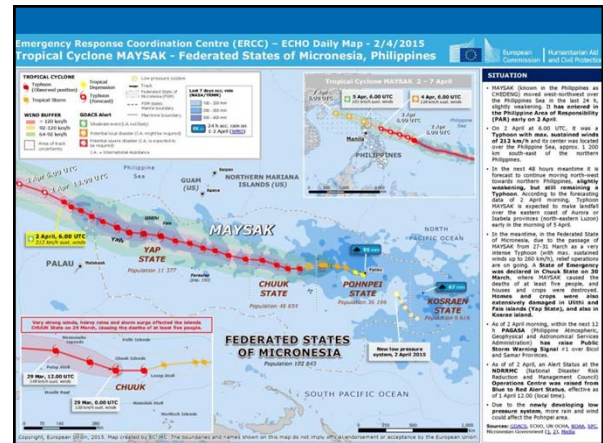
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## Typhoon Maysak

- Chuuk → Sunday March 29
- Ulithi Atoll Yap → Wednesday April 1, 2015



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## Deployment

- E-mail on Sunday April 5 – Available?
- Replied on Monday April 6 – Yes
- Travel arrangements on Tuesday April 7
- Left on Wed morning April 8 4:00 am
- Arrived on Weno at 11:30 am

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## PDA Team

- FSM & Marshall Islands
  - FEMA : Federal Emergency Management Agency
  - USAID/OFDA: Office of Foreign Disaster Assistance
  - Operate under the "Blueprint"
- PDA = Preliminary Disaster Assessment
  - Threshold of 100 homes destroyed, or
  - \$1,000,000 damage

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## PDA Team

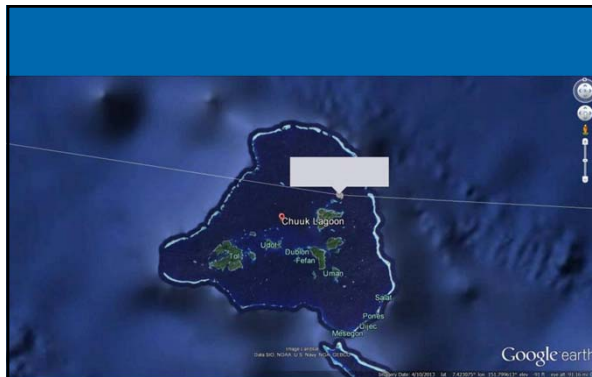
- If threshold reached
  - Local government requests US President to declare disaster (PDD)
  - FEMA assistance kicks in
- Direct assistance provided by
  - USAID (emergency supplies)
    - NGO's : local one called IOM
  - USDA (for food)
  - FEMA (housing/infrastructure)
  - SBA (business loans)

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## Day 1: Wed April 8

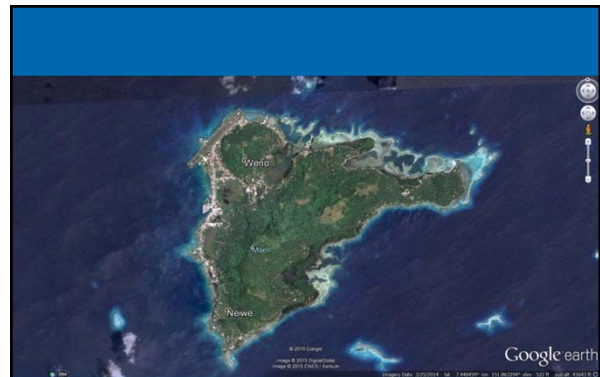
- Weno (Main Island)
  - Drive to Wichap around southern tip

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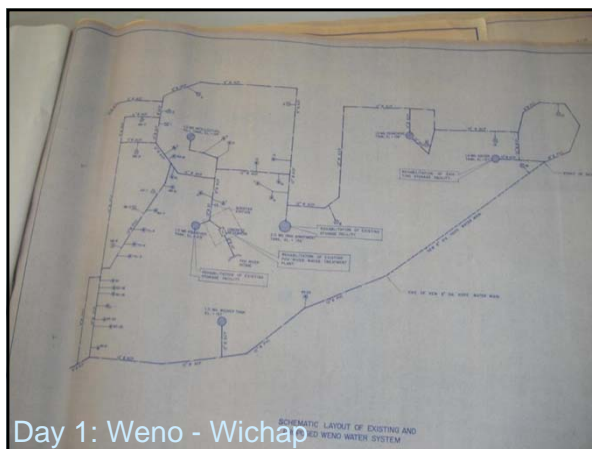
Day 1: Weno - Wichap

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Day 1: Weno - Wichap

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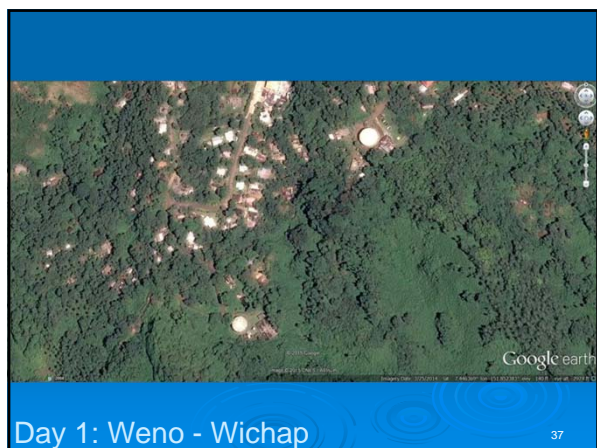
Day 1: Weno - Wichap



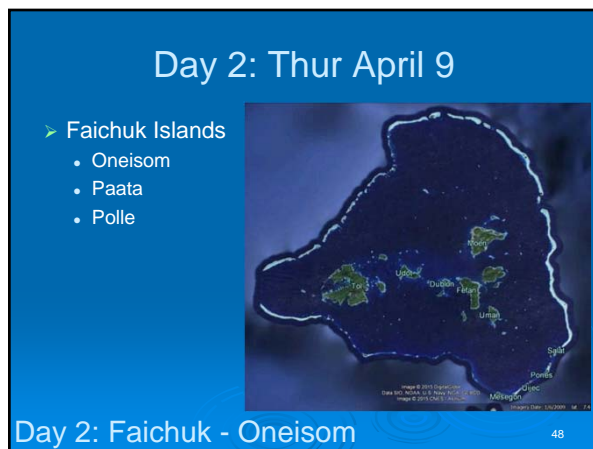
Day 1: Weno - Wichap

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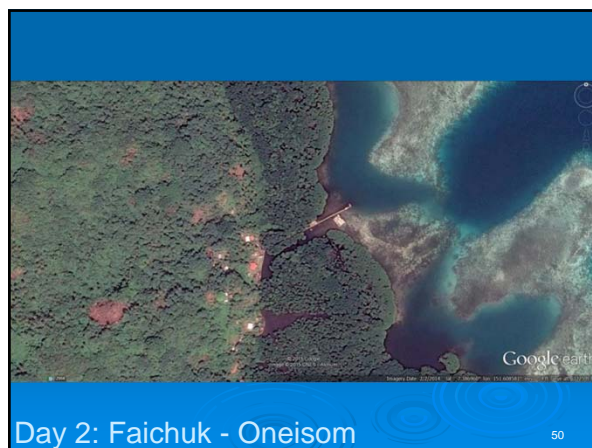




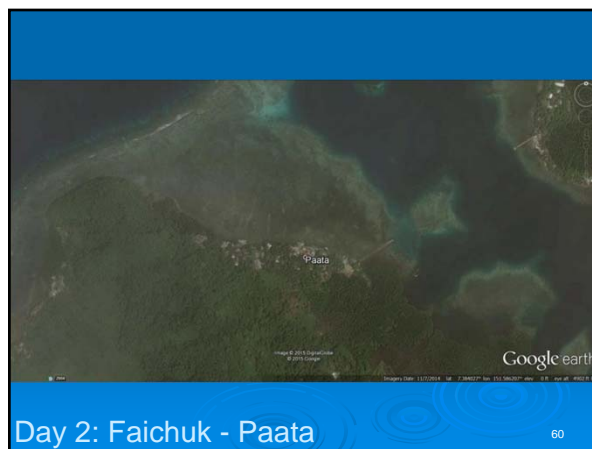












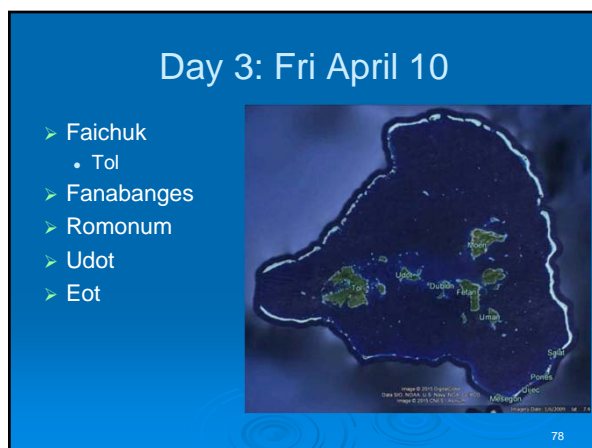
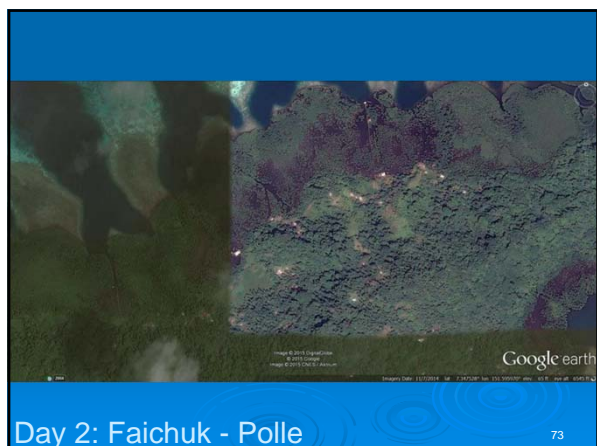




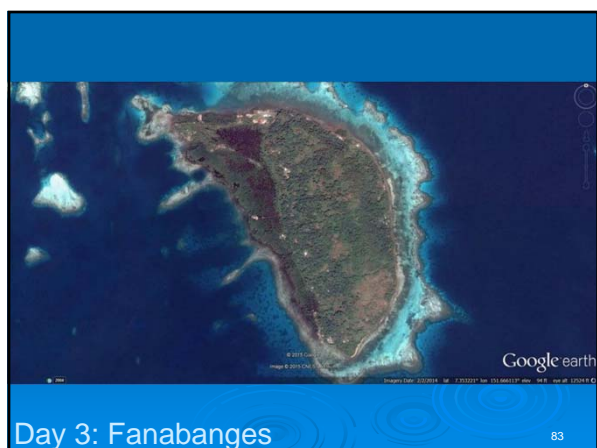
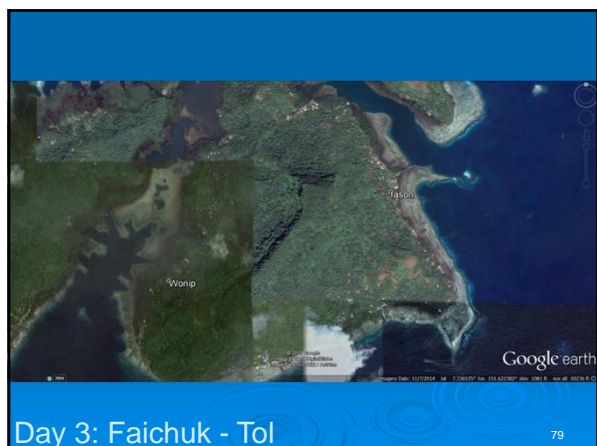
















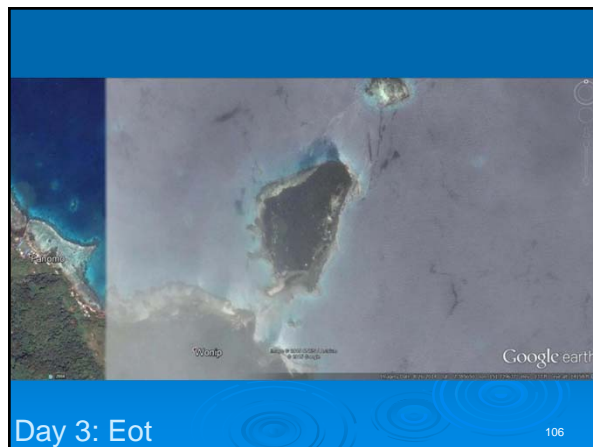








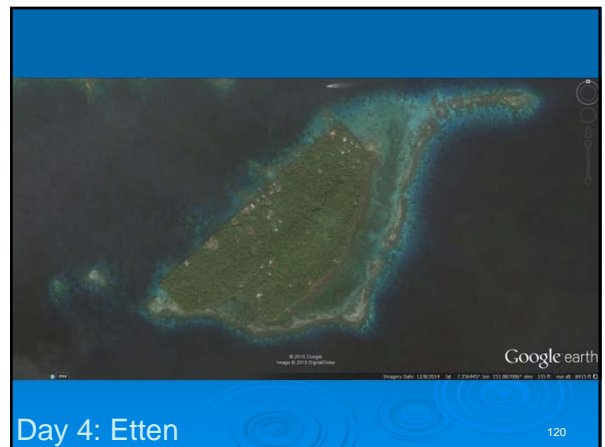








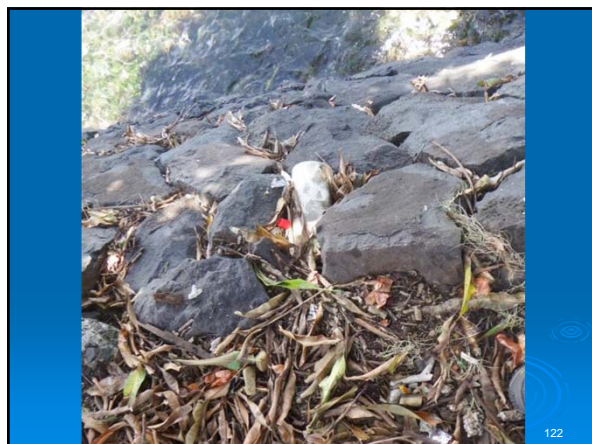




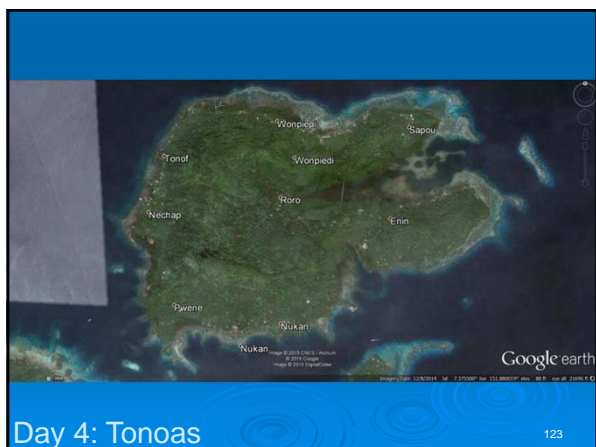




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Day 4: Tonoas

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Day 4: Tonoas



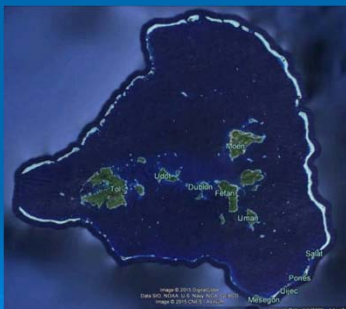
Day 4: Tonoas



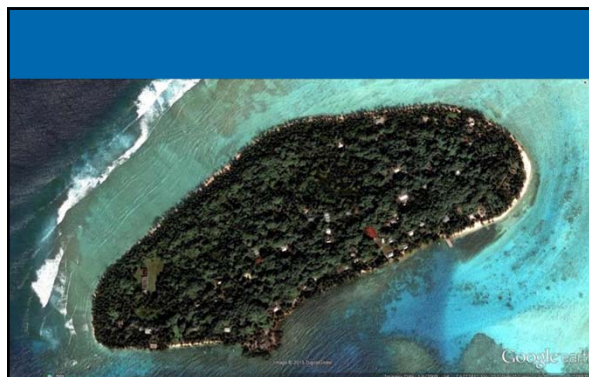
Day 4: Tonoas

Day 5: Sun April 12

- Piis Paneu
- Fonoton



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Day 5: Piis Paneu

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Day 5: Piis Paneu



Day 5: Piis Paneu



Day 5: Piis Paneu



Day 5: Piis Paneu





Day 5: Piis Paneu



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Day 5: Piis Paneu



Day 5: Piis Paneu

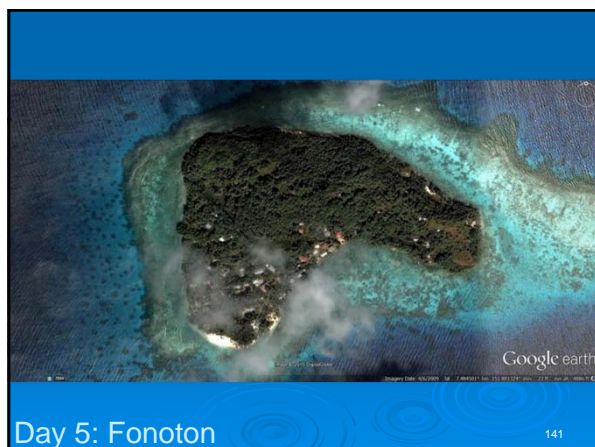


Day 5: Piis Paneu



Day 5: Piis Paneu







### Day 6: Mon April 13

- Outbriefing: Disaster Operations Center
  - LDS church provided initial response
  - International Federation of Red Cross and Red Crescent
  - IOM
  - Salvation Army
  - FSM Agencies: Health, EPA, CPUC, Ag, Trans, Telecom

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### Summary of Observations

- Most roof catchments contaminated
- Lost rain gutters and roofs (no new rain)
- Other sources available
- Water delivery by truck on Weno
- Wastewater disposal not affected
- Boat transportation available

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### Needs

- Greatest need – FOOD
- Jerry cans & aquatabs
  - Hygiene education
  - Hand soap
- Roof and guttering materials
- On Piis Paneu – investigate repair of pump

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### What are Aquatabs?



- Sodium dichloroisocyanurate (NaDCC)
  - Produces hypochlorous acid
  - Bound with cyanuric acid
  - Has a "reservoir" of chlorine
- 62% chlorine (like calcium hypochlorite)

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## Recommendation

- Threshold reached → recommend PDD

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## Wednesday April 29

The screenshot shows the FEMA website with a navigation bar at the top. The main content area features a press release titled "President Declares Disaster for the Federated States of Micronesia" dated April 29, 2015. The release number is HQ-15-020. The text of the release states that the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) has announced that federal disaster aid has been made available to the government of the Federated States of Micronesia under the Compact of Free Association between the government of the United States of America and the government of the Federated States of Micronesia, as amended. The release also mentions that the President's action makes federal funding available for U.S. Government emergency relief and reconstruction assistance to the Federated States of Micronesia in accordance with Public Law 102-188, as amended, including Article X of the Federal Programs and Services Agreement to the Compact of Free Association. The release further states that the United States Agency for International Development's Office of Foreign Disaster Assistance will coordinate U.S. Government disaster assistance efforts in conjunction with FEMA and the government of the Federated States of Micronesia. At the bottom of the page, there is a disclaimer stating that the website is for informational purposes only and that FEMA does not endorse any non-government websites, companies or organizations. The website also includes a link to the FEMA website and a link to the FEMA Twitter account.

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## End Training

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## Contact Information

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