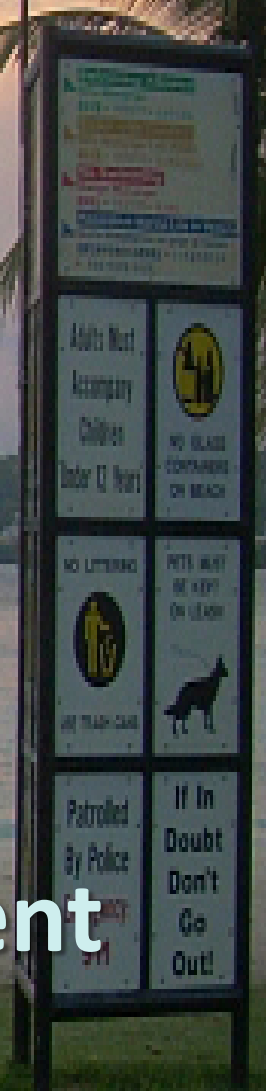
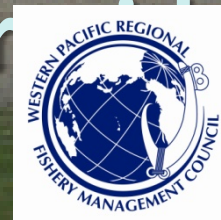


Traditional Sailing Canoes

"how we have traveled 8,000 miles and brought one with us" ...



Joseph Artero-Cameron, President
Dept of Chamorro Affairs



Why Only Climate Change?

Any change that affects the abundance of, or access to, our natural resources matters.



Meteorological Changes



- Excessive rainfall causes multiple issues
- .7in rain, **Storm water** overwhelms infrastructure
- Flooding** causes rivers of water on roads are hazards
- Loss of land, excessive erosion and red muddy water**
- Sewers Overflow** as storm water goes into the system
- Coral reefs get smothered in mud and everything suffers**

Unpredictable Rainfall



Confuses fruit trees – flower production and new growth, while moisture increases the occurrence of fungal diseases (ex. *Anthrachnose*)

Continuous moisture

Increases insect populations

-Termites

-Agricultural Pests reduce food production in the islands

-Increased moisture provides for easier opportunity to establish Invasive species such as the Rhino Beetle and allow of the expansion of their breeding range

-Mosquitoes and other disease vectors



The Vines!

Increased moisture is increasing the growth rates of parasitic and epiphytic vines that kill old trees

Many of these vines are hitchhikers from our past.



Less, but intense typhoons?

Paka (1997) Guam 236mph declared invalid instrument
could not be checked for accuracy.

Eye wall rainfall can be 7in per hour.

Destruction, no power, no water.



Typhoon *Pongsona* an **exemplification** of cultural resiliency.



Sea Level Rise?

Thursday 08 March 2012

The Telegraph

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Entire nation of Kiribati to be relocated over rising sea level threat

The low-lying Pacific nation of Kiribati is negotiating to buy land in Fiji so it can relocate islanders under threat from rising sea levels.



The low-lying Pacific archipelago of Kiribati Photo: REUTERS

By Paul Chapman, Wellington
8:59AM GMT 07 Mar 2012

176 Comments

In what could be the world's first climate-induced migration of modern times, Anote Tong, the Kiribati president, said he was in talks with Fiji

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Regardless of sea level, people are coming to Guam
Increased demand on natural resources from cultural needs and personal desires



Decline and redistribution of pelagic fish stocks

Increasing dependence on coastal resources

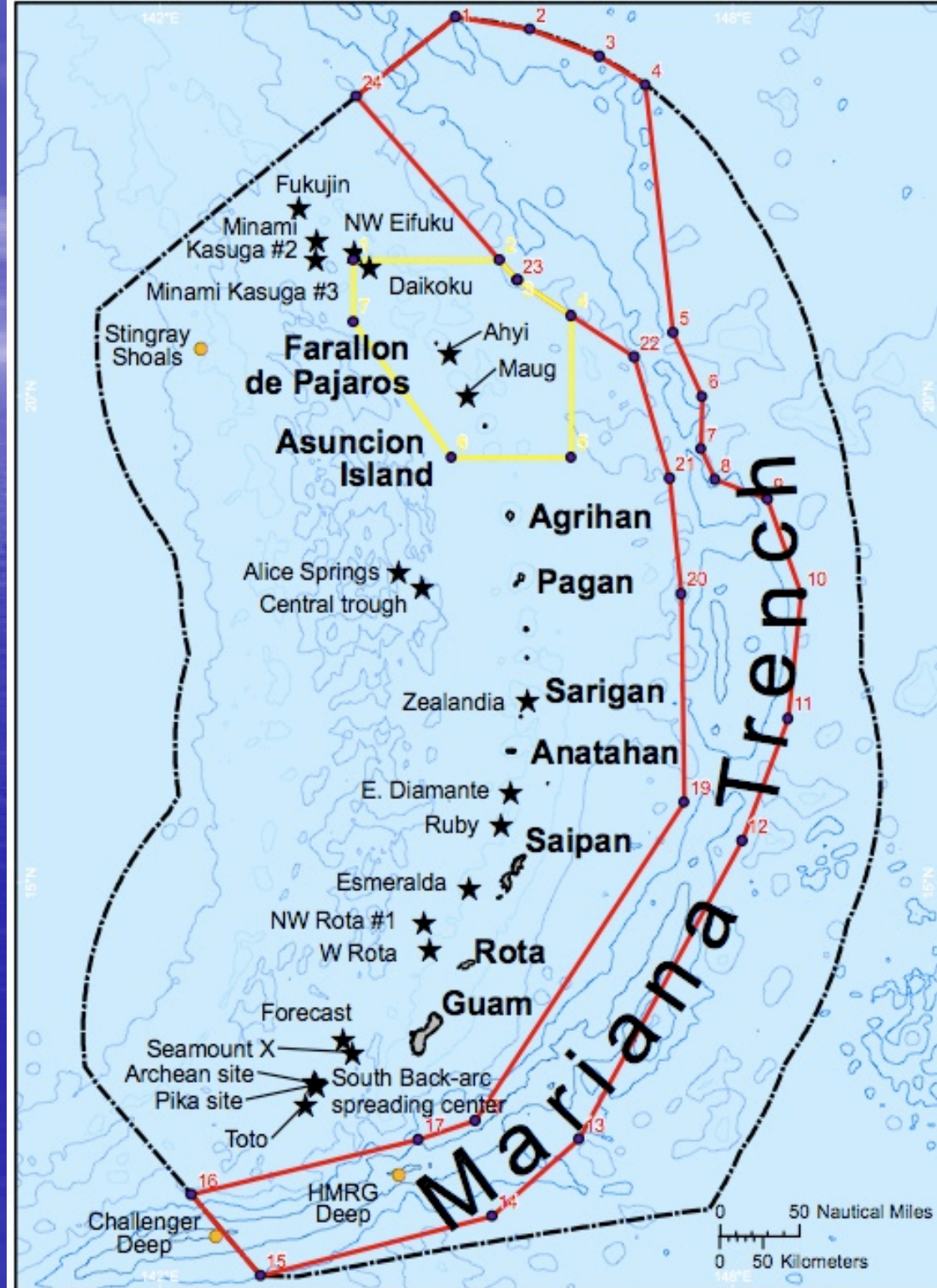
Pollution (Solids, Liquids, Rx drugs)

- compromising food safety
- decline in availability of natural resources



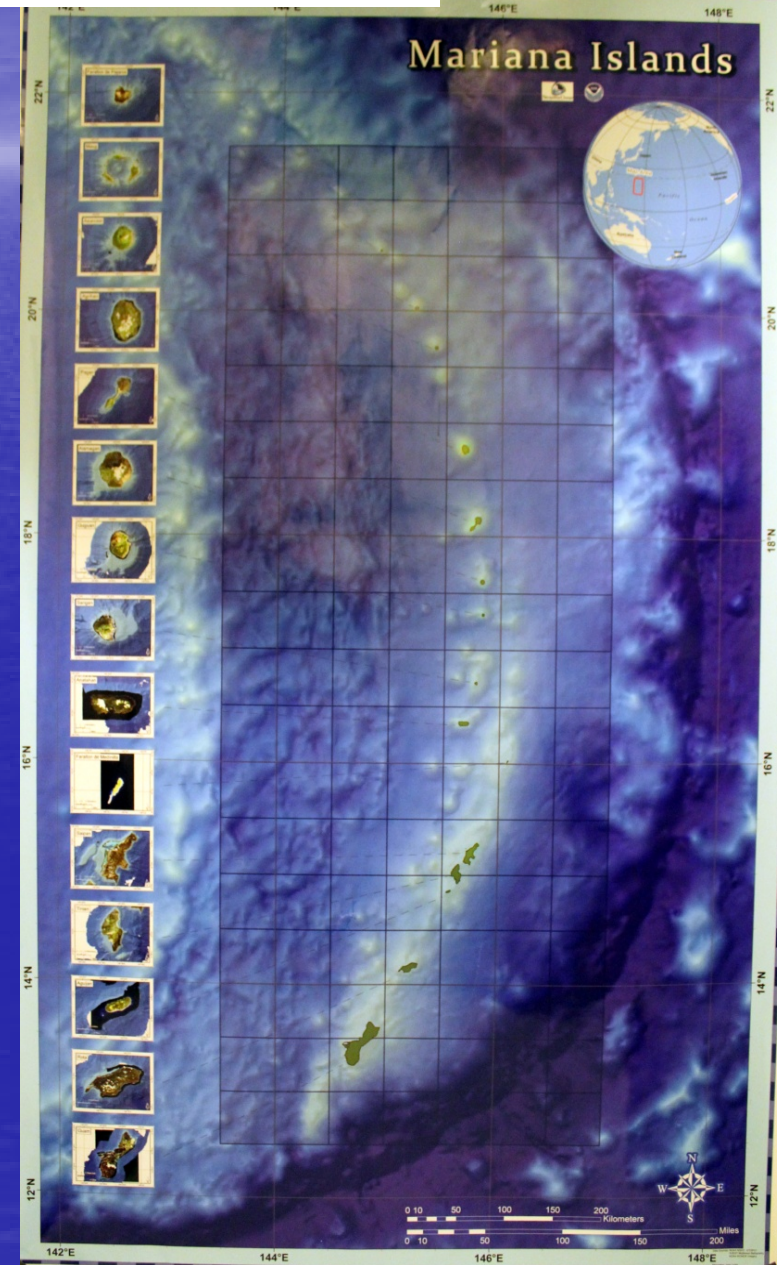
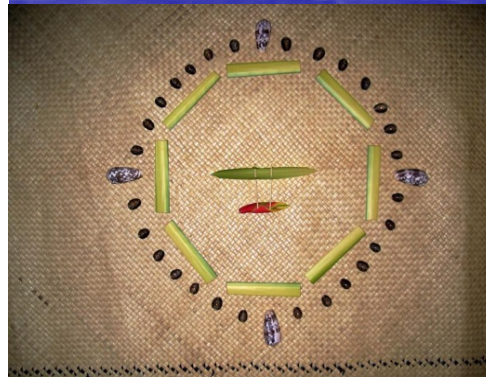
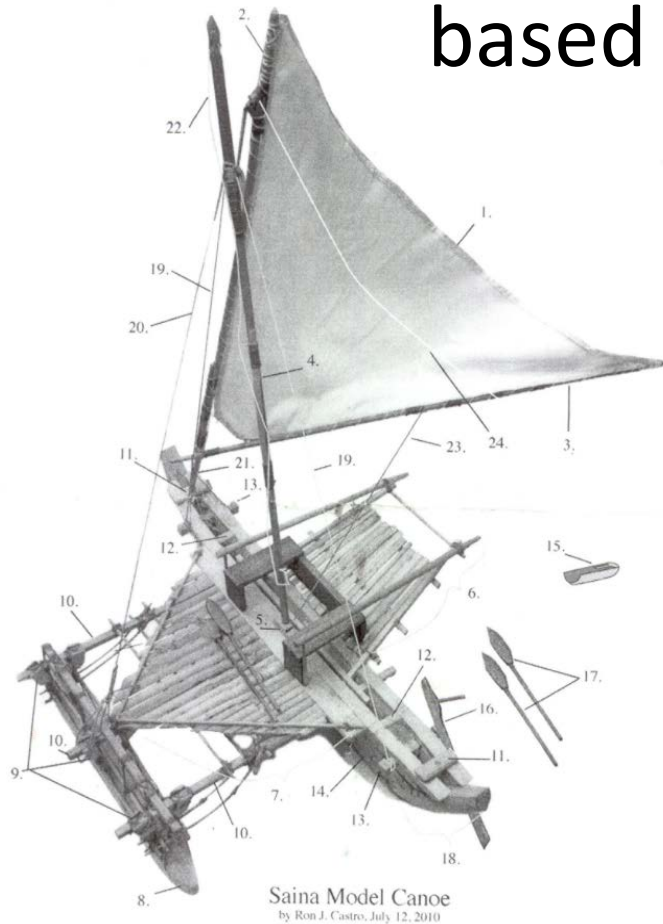
Changes in Political Climate

- National and Local Policy are continuing to decrease access to and availability of natural resources
- National Monuments and CMSP





Curriculum adaptations for the Mariana Archipelago based on the canoe concept

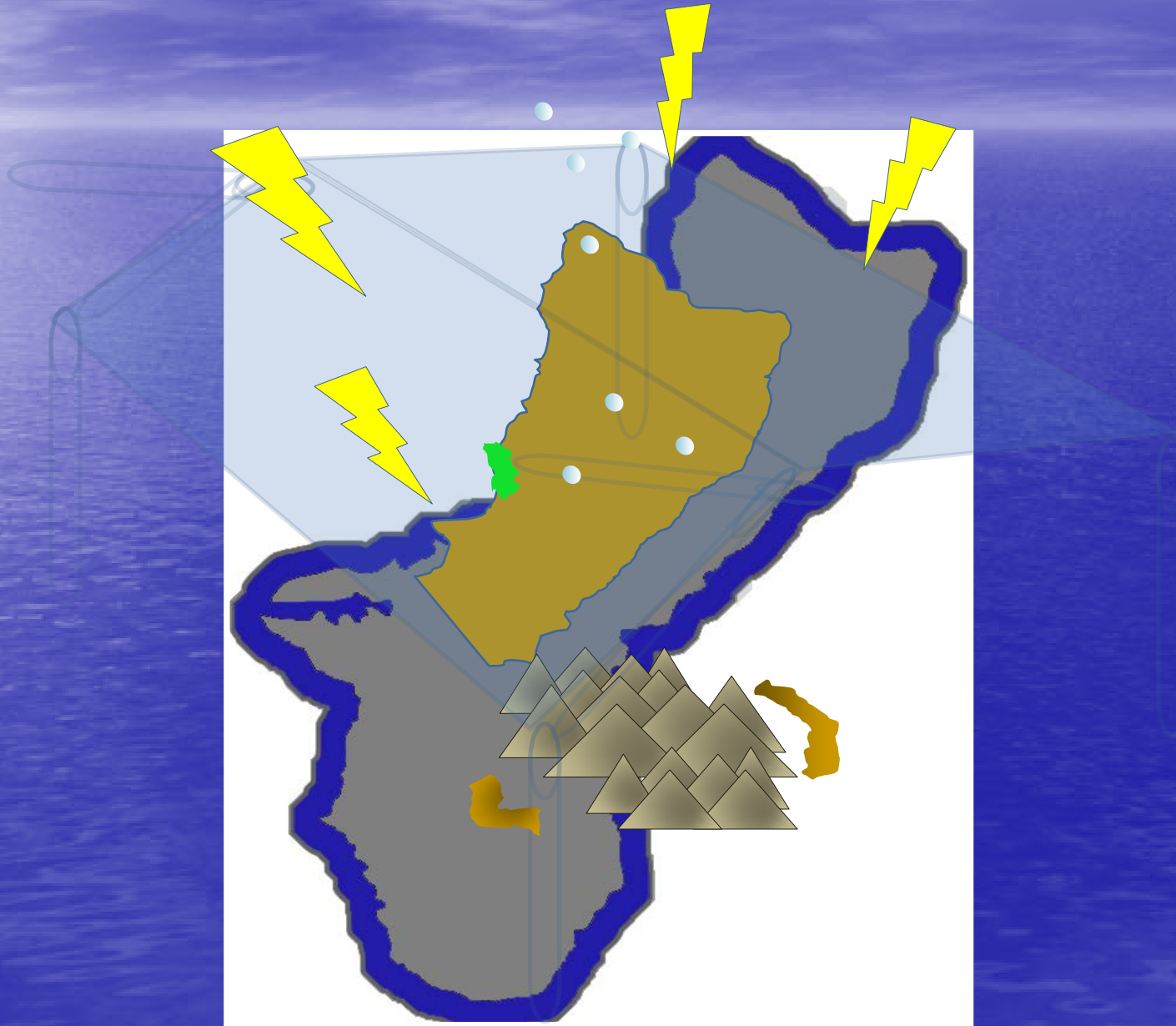


Pre-Contact Fishing Technology



10.16.2008

Physical Erosion Model of Guam



Biological Monitoring of Coastal Pollution



Monitoring the Metabolic Capacity of rabbitfish (*Siganus spinus*) as a Biomarker of Aquatic Environmental Quality.



Long-term Monitoring of Coral Reef Disturbance and Recovery



Marine Invasive Species



Kalama Park



Waipuulani Beach Park

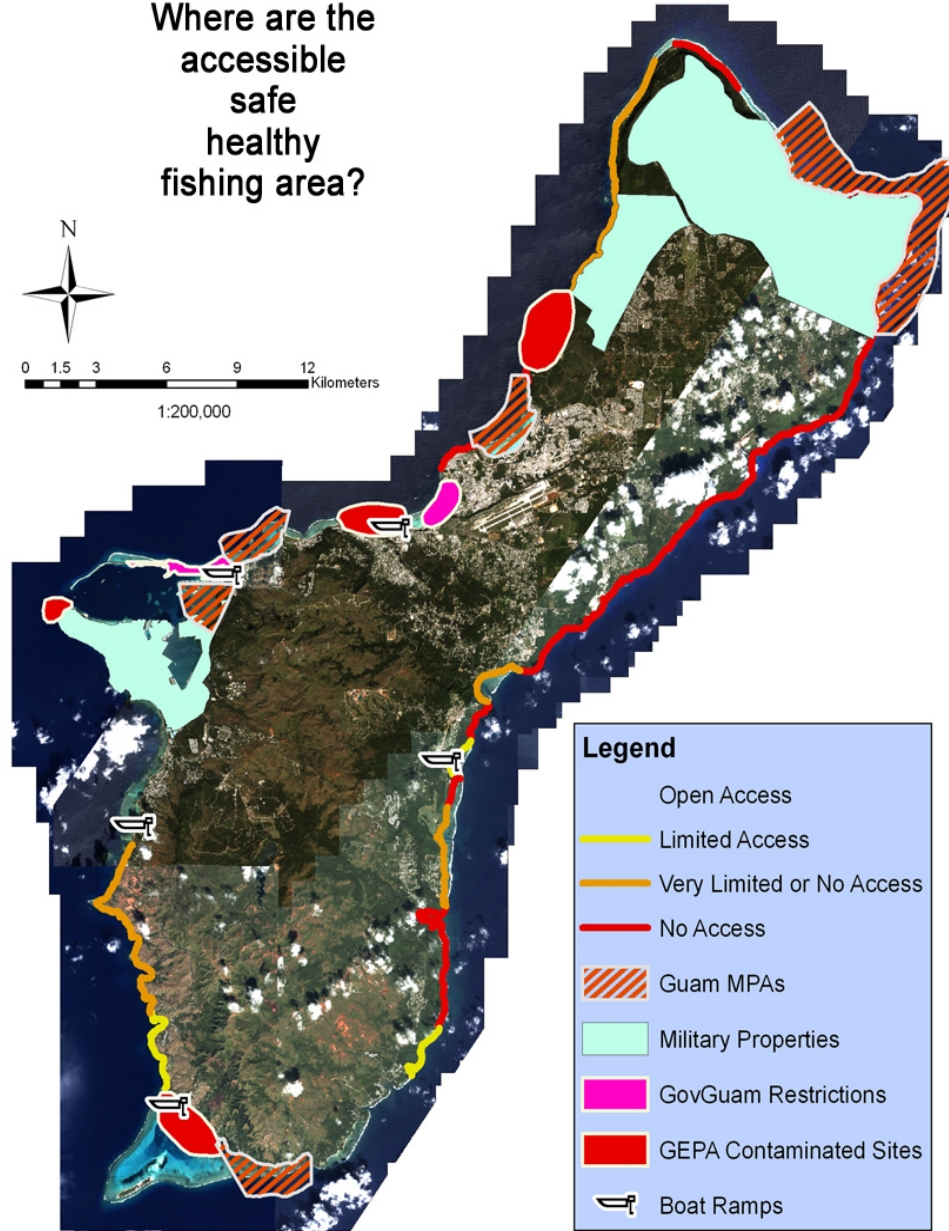
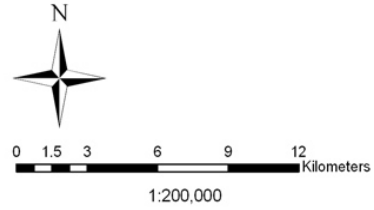


Outside solutions – The adage that one size fits all does not work.

To solve the problem, we must look at the source of the problem and not just the symptom.



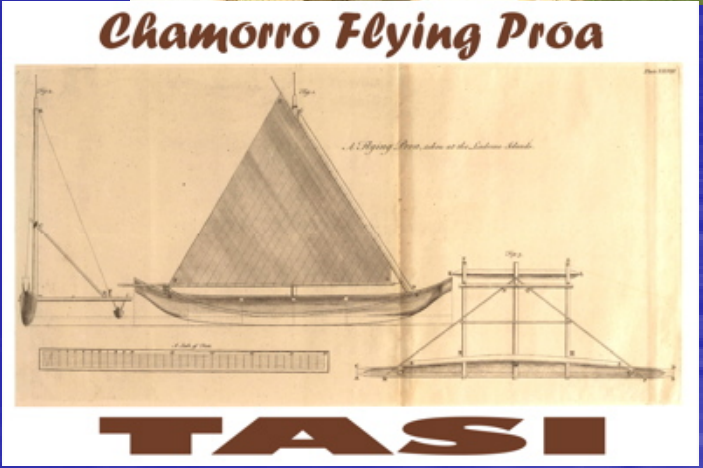
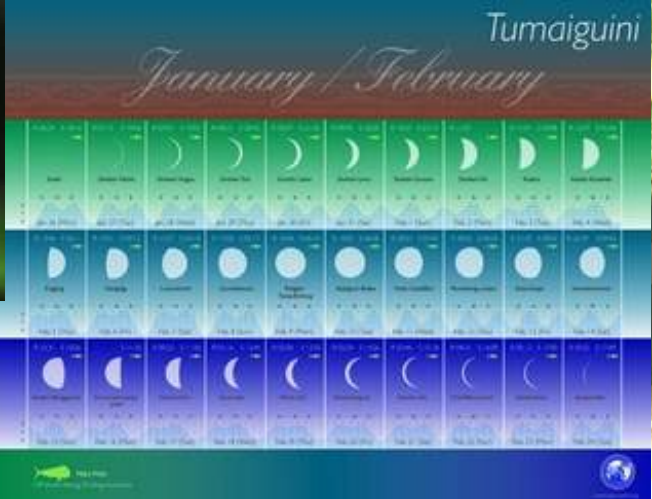
Where are the
accessible
safe
healthy
fishing area?



Legend

- Open Access
- Limited Access
- Very Limited or No Access
- No Access
- Guam MPAs
- Military Properties
- GovGuam Restrictions
- GEPA Contaminated Sites
- Boat Ramps

Indigenous Knowledge



Chamorro Value System

- **Akseptasion** – Acceptance: Be willing to understand and appreciate qualities in others
- **Inafa'målek** – Compassion and Caring: Try to understand how others feel and act on those feelings with care and concern
- **Mana'ayuda** – Cooperation: Work willingly with others toward a common goal
- **Mina'tatña** – Courage: Stand strong for your beliefs and do what's right even when others disagree
- **Inagofli'e** – Friendship: Accept, share and enjoy the companionship of others
- **Gineftåo** – Generosity: Be willing to share and give what you have to others
- **Måolek Kotdura** – Good Judgment: Make wise choices on what you know is right
- **Minagåhet** – Honesty: Be sincere, truthful, trustworthy and loyal in all that you do and say
- **Minesñgon** – Perseverance: Keep working hard to reach your goals even when it gets difficult
- **Respetu** – Respect: Always remember to show others consideration, admiration and honor
- **Responsapblidåt** – Responsibility: Always be someone others can depend on
- **Hulat Maisa** – Self-Control: Work hard to control your thoughts and behavior

Climate Change Initiatives



“...To regain our place in history as a hazard resilient island community with plenty of seafood and healthy coral reefs to sustain us, we need to play a more active, rather than adaptive, role in managing our local resources.”

- Eddie Baza Calvo
Governor of Guam

Fishing Forever!!!

“...please keep in mind that we are not just protecting coral, fish, and other animals to make us feel good inside, but we are also protecting the traditions, the cultures, and lives of the native peoples who have coexisted in harmony with the ocean’s incredible resources long before we became a part of America’s family..”

- Eddie Baza Calvo
Governor of Guam



**Dangûlo
na
Si Yu'os
Ma'ase!!!**

