

**Guam Resident Coral Reef Survey**  
**September 27, 2011**

Introduction: Hafa Adai- My name is \_\_\_\_\_. The National Oceanic and Atmospheric Administration is conducting a survey to find out how Guam residents feel about coral reefs. We expect that this will take approximately 20 minutes of your time. There is no right or wrong answers and you don't have to answer any questions you are not comfortable with. We'll also be asking some questions about you, just to be sure that we have a representative sample for our survey in terms of different age groups, ethnicities, and that kind of thing. However, we will not ask your name and all responses will be completely anonymous. Would you be willing to participate? We are happy to provide you with a copy of the results.

1. How often do you participate in each of the following activities?

	Never	Once a Year	A Few Times a Year	Once a Month	2 to 3 Times a Month	Once a Week	Several Times a Week	Every Day	No Answer
a. Swimming/wading									
b. Snorkeling									
c. Diving (SCUBA)									
d. Boarding (surfing, kitesurfing, standup paddleboarding)									
e. Jet-skiing									
f. Power boating/waterskiing/parasailing									
g. Paddling									
h. Kayaking									
i. Beach BBQ, picnic									
j. Beach clean up									
k. Fishing									
l. Gathering of marine resources (eg. sea cucumber, trochus)									
m. Hunting									
n. Other activities: Please list									

***If yes to fishing or gathering of marine resources ask:***

2. Why do you fish: [say yes to all that apply]
  - a. To feed myself and my family/ household
  - b. To sell to make a living
  - c. To sell to cover my fishing expenses
  - d. To give to extended family members and/or friends
  - e. For fun or recreation
  - f. For special occasions and cultural events, such as fiestas, lent, weddings, or baptisms
  
3. Who in Guam is responsible for managing coral reefs? I'm going to read a list, you can say all that apply.
  - a. Guam Environmental Protection Agency
  - b. Guam Bureau of Statistics and Plans, Guam Coastal Management Program
  - c. Guam Department of Agriculture, Division of Aquatic and Wildlife Resources
  - d. University of Guam Marine Lab
  - e. Federal Government
  - f. Community groups
  - g. Other

4. Please say whether you agree or disagree with each of the following statements.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Not Sure
a. Coral reefs protect the island from erosion and natural disasters.						
b. Coral reefs are a critical ecosystem in Guam						
c. Coral reefs are only important if you fish or dive						
d. Healthy coral reefs attract tourists to Guam						
e. Coral reefs are important role to our culture						

5. What the three main threats to Guam's coral reefs? [*ask open ended; do not provide examples to respondents*]
  
6. How much of a threat are the following issues to Guam's coral reefs?

	Major threat	Minor threat	Not a threat at all	Not Sure
a. Climate change				
b. Increased construction for military buildup and private sector development				
c. Poor construction practices				
d. Pollution and sedimentation from upland				
e. Dredging				
f. Trash/littering				
g. Damage from ships and boats				
h. Irresponsible scuba diving				
i. Too many recreational users				
j. Irresponsible recreational use				
k. Illegal fishing and gathering				
l. Too much fishing and gathering				
m. Increasing population size				
n. Man-made fires				
o. Off-roading				
p. Invasive species				
q. Other: Please list				

What do you think are the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> most important causes of the change in the quality of the marine environment in Guam? (you may also check less than 4 boxes)

	1 <sup>st</sup> most important	2 <sup>nd</sup> most important	3 <sup>rd</sup> most important	4 <sup>th</sup> most important
Sedimentation due to intentionally set fires				
Sedimentation due to poor development practices				
Increased runoff and stormwater				
Increased pesticides/fertilizer from golf courses and hotels				
Leakage from broken sewage pipes				
Use of improper fishing techniques (gillnets, night scuba)				
Too many fishermen				
Too many jet skis, banana boats				
Too many divers and snorkelers				
Other (specify: _____)				
Don't know				

7. In your opinion, how are Guam's marine resources doing? Please rank these categories from very bad to very good.

	Very Bad	Bad	Neither Bad nor Good	Good	Very Good	Don't Know
Water Quality						
Corals						
Amount of reef fish to eat						
Size of reef fish to eat						
Sandy beaches						
Crowding (too many people)						

In your opinion, how has the quality of the following components of the marine environment in Guam changed during your lifetime?

	Increased significantly	Increased somewhat	Remained stable	Decreased somewhat	Decreased significantly	Don't know
Live coral abundance						
Fish abundance						
Fish size						
Fish species diversity						
Algae growth						
Sedimentation						
Water pollution						

8. In general, have marine resources in Guam gotten better or worse over the last 10 years?
- Significantly Worse
  - Worse
  - No Change
  - Better
  - Significantly Better
  - Not Sure
9. How do you expect the condition of marine resources in Guam to change in the next 10 years?
- Significantly Worse
  - Worse
  - No Change
  - Better
  - Significantly Better
  - Not Sure

10. How familiar are you with marine preserves in Guam? Guam has five marine preserves which limit the types of fishing that can be done and are located at Tumon Bay, Sasa Bay, Piti Bay, Achang Reef, and Pati Point.
- Very Unfamiliar
  - Unfamiliar
  - Neither Familiar nor Unfamiliar
  - Familiar
  - Very Familiar
  - Not Sure
11. Do you support Guam's marine preserves?
12. Why or why not [open ended]?
13. Please indicate the extent to which you agree or disagree with each of the following statements.

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither Agree nor Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Not Sure</b>
a. Marine preserves protect coral reefs						
b. There should be fewer marine preserves in Guam						
c. The number of fish inside the marine preserves has increased since the marine preserves were enforced in 2001.						
d. Marine preserves have increased conflicts between different user groups in Guam						
e. There has been a net economic benefit to the Guam's coastal economy from the establishment of the marine preserves						
f. Local fisherman's livelihoods have been negatively impacted from the establishment of marine preserves in Guam						
g. Marine preserves help increase tourism in Guam						
h. I would support adding new marine preserves in Guam if I knew that the ones we have are improving Guam's marine resources						

14. The Guam military buildup is expected to increase Guam's population by 30,000 people over the next 5 to 10 years. How concerned are you about the following issues?

	Very concerned	Moderately concerned	Not concerned at all
a. Increases in traffic			
b. Increases in construction and development			
c. Loss of coral reefs from Apra Harbor dredging			
d. Loss of cultural resources			
e. Loss of local cultural values			
f. More invasive species			
g. Damage to Guam's coral reefs from increased recreational use			
h. My favorite beach getting too crowded			
i. My favorite reef spot getting too crowded			
j. Fewer fish because more people are fishing			
k. Overload of sewage system			
l. Other:			

15. What do you think would be the best ways to protect coral reefs for the future?, Please remember that Guam's population is expected to increase. Which of the following changes would you support?

Rules/Regulations	Strongly Oppose	Oppose	Neither Support nor Oppose	Support	Strongly Support	Don't Know
Increase enforcement of existing rules/regulations						
Prohibiting driving on the beach						
Establish new marine preserves						
Have seasonal and openings and closures of certain fisheries						
Establish catch limits per person for certain fish species						
Establish size limits for certain fish species						
Establish licensing program for Guam's fishermen						
Ban gill nets in Guam's waters						
Opening marine preserves to hook and line fishing from shore and talazya- or throw net-fishing from shore						
Increase community participation in coral						

reef management						
Stricter controls on construction runoff from land to the ocean						
Require vessels to remove nonnative species from hulls before entering Guam's waters						
More stringent control of pollutants to preserve water quality						
More restrictions on development (permit requirements)						
Limits on recreational use						
Require vessels use mooring buoys near coral reefs						
Reduce the number of research permits allowed on coral reefs						
Other: Please list						

Next, we'd like to get your opinion on two specific laws that have been proposed.

16. Legislation has been proposed that would prohibit scuba spear fishing in Guam waters. The purpose of this legislation would be to help protect fish stocks in Guam. However, prohibiting scuba spear fishing would impact the income of some of Guam's fishermen. Spear fishing not using scuba gear would still be allowed. Would you support or oppose this legislation?
  - a. Strongly oppose
  - b. Oppose
  - c. Neutral
  - d. Support
  - e. Strongly support
  - f. Don't know
  
17. Legislation called the Guam Coral Reef Protection Act has been proposed. This legislation would require boats that cause damage to coral reefs to pay a fine to pay for coral reef restoration. This legislation would provide funding for coral reef restoration in case of a damage event but could limit reef access by some boats. Would you support or oppose this legislation?
  - a. Strongly oppose
  - b. Oppose
  - c. Neutral
  - d. Support
  - e. Strongly support
  - f. Don't know

18. In the past year, have you heard of or seen people doing the following things in Guam?

	Yes	No
Littering on or near the beach		
Burning for hunting		
Illegally fishing in the marine protected areas		
Catching or eating sea turtles or sea turtle eggs		
Catching fish that are too small		
Breaking or standing on coral		
Off-roading		
Leaving gill nets on the reef		
Bringing non-native species to Guam		

**Great; thanks. Now I just have a few questions about you.**

19. Are you male or female?

- a. Male
- b. Female

20. May I ask your age?

21. How long have you lived in Guam?

- a. 1 year or less
- b. 2-5 years
- c. 6-10 years
- d. more than 10 years
- e. all my life

22. What village do you live in?

23. Which language do you mainly speak at home? [check all that apply]

- a. Chamorro
- b. Carolinian
- c. Other Micronesian
- d. Japanese
- e. English
- f. Korean
- g. Chinese
- h. Russian
- i. Tagalog
- j. Other: \_\_\_\_\_

24. What race/ethnicity do you consider yourself?  
Please select all that apply.

1. American Indian or Alaskan Native
2. Asian
3. Black or African American
4. Japanese
5. Carolinian
6. Chamorro
7. Chinese
8. Filipino
9. White
10. Korean
11. Native Hawaiian or other Pacific Islander
12. Yapese
13. Chuukese
14. Pohnpeian
15. Palauan
16. White
17. Hispanic or Latino
18. Other/Mixed
19. No response

25. What is the highest level of education you have completed?

- a. 8th Grade or Less
- b. 9th to 11th Grade
- c. 12th Grade, High School Grad, GED
- d. Some community college or AA
- e. College Graduate
- f. Graduate School, Law School, Medical School
- g. No Response

26. What is your occupation?

27. What is your annual household income?

1. Under \$10,000
2. \$10,000 to \$19,999
3. \$20,000 to \$29,999
4. \$30,000 to \$39,999
5. \$40,000 to \$49,999
6. \$50,000 to \$59,999
7. \$60,000 to \$74,999
8. \$75,000 to \$99,999
9. \$100,000 to \$149,999

10. \$150,000 or More

11. No Response

### OPTIONAL

28. Is your occupation affiliated with the marine environment/industry in <location>?
1. Yes
  2. No
  3. Not sure

29. If YES, please circle the industry that best fits your primary profession.

1. Commercial fishing
  2. Charter fishing
  3. Dive/snorkel operation
  4. Marina/boat operation
  5. Other watersports
  6. Eco-tour operation
  7. Ecological research
  8. Ocean and coastal management and government
  9. Artisan
  10. Education
- Beach hotel  
Other \_\_\_\_\_

How often does your family eat fish/seafood?

- a. Every day
- b. Every 2 days
- c. Twice a week
- d. Once a week
- e. Every 2 weeks
- f. Once a month
- g. Once in 2 months
- h. Never

Please indicate the main sources of the fish/seafood you consume (percentage-wise)

- a. Fish caught by myself or someone in my immediate family: \_\_\_\_\_ %
- b. Fish caught by an extended family member (eg. uncle) or friend: \_\_\_\_\_ %
- c. Purchase it from the road side : \_\_\_\_\_ %
- d. Purchase it at a flea market: \_\_\_\_\_ %
- e. Purchase it at a store/restaurant: \_\_\_\_\_ %
- f. Other, specify: \_\_\_\_\_ %

In general, where dose the fish/seafood you consume come from (where is it caught)?

- a. Reef fish and other species from inside Guam's reef: \_\_\_\_\_ %

- b. Fish caught outside Guam’s reefs (e.g deepwater, pelagic) : \_\_\_\_\_ %
- c. Imported fish/seafood from the mainland (e.g. canned from US) : \_\_\_\_\_ %
- d. Imported fish/seafood from other Pacific islands (e.g. Chuuk) : \_\_\_\_\_ %
- e. Other [added] : \_\_\_\_\_ %
- f. Not sure [added] : \_\_\_\_\_ %

Did you family’s fish/seafood diet change over the last 10 years? (check one only)

- a. Eat much less fish
- b. Eat somewhat less fish
- c. No change
- d. Eat somewhat more fish
- e. Eat much more fish
- f. Don’t know

Can you indicate the 1<sup>st</sup> most, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> most important reason why your family’s diet of fish seafood has changed? (unless answered “no change” above) you may also check less than 4 boxes

	1 <sup>st</sup> most important	2 <sup>nd</sup> most important	3 <sup>rd</sup> most important	4 <sup>th</sup> most important
We fish less/more				
We fish the same amount but catch less/more				
There is more/less sharing of fish between family, friends, etc				
Change to other food (eg. spam)				
The price of fish has increased/decreased				
Availability of certain local species changed				
Scared of ciguatera/polluted fish				
Preference for fish has changed (don’t like fish as much)				
Other: specify				
Don’t know				

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