COASTAL ENVIRONMENTAL DAMAGE

A PRELIMINARY SURVEY
OF
IMPACTS OF TYPHOON CHATA'AN
ON GUAM'S NATURAL ENVIRONMENT

Coordinated by
THE GUAM BUREAU OF STATISTICS AND PLANS
Assisted by
DEPARTMENT OF LAND MANAGEMENT,
DEPARTMENT OF AGRICULTURE,
THE GUAM ENVIRONMENTAL PROTECTION AGENCY,
and
THE CHAMORRO LAND TRUST COMMISSION

JULY, 2002

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Background:

The Guam Coastal Management Program has begun a multi-year strategy in 2002 under its Section 309 Program to develop an Environmental Emergency Response Plan to be annexed to the Guam Response Plan. Emergency response to the frequent declared disasters on Guam have targeted human health and safety and protection and restoration of services, structures, and properties. But actions to lessen environmental damage, especially to Guam's coral reefs, also need to be planned for. Preliminary work under this strategy indicates need to establish a procedure for assessment of environmental damage after each disaster. The ideal time frame to do the assessment should be immediately after the a typhoon, earthquake, flood or other disaster. This would be the best time because typhoon debris, for example, would not have been cleared or removed from where it originally impacted on the environment, and actions could be taken to protect resources from increased and secondary impacts.

Although procedures had not been drafted when Typhoon Chata'an passed over Guam on July 5, 2002, this disaster offered an opportunity to try an ad hoc assessment to test possible procedures.

Objectives:

The assessment will help in determining where to concentrate response efforts. For instance, heavy debris in and around certain bridges would indicate erosion up river. Knowing the type of debris indicates approximately where to look for the environmental damage or how to prevent future damage by doing preventive measures in the area. Results will serve as a preliminary baseline for

assessing environmental impacts resulting from future typhoons and storms.

As a first attempt at coastal damage assessment, this survey provided a learning experience to help craft better procedures to incorporate in the response plan.

Methods:

Ground Assessment: Staff from the Bureau of Statistics and Plans, Department of Land Management, Chamorro Land Trust Commission, and Department of Agriculture all assisted on the ground assessment. The Bureau of Plans and Statistics took the lead in this effort. The Bureau called for a meeting with the agencies/departments to brief them on the objectives of the effort. The Director also presented the plan for this ground survey to the Mayors' Council, to solicit Mayors' input and inform them why assessors would be working throughout their villages. A data form and satellite photographs in color were prepared in advance to make the assessment efficient and standardized. Pictures taken by the assessment teams were used in addition to the data forms. The pictures were done for a desktop determination of the extent of debris at a later point in time. The entire island was divided into five sections with three to six persons assigned per section. (Please see the maps, appended)

Aerial Assessment: An aerial survey of the entire island was done through the Department of Agriculture, Division of Aquatic and Wildlife Resources' contracted monthly fishing census flight. Guam Environmental Protection Agency staff volunteered to take the coastal damage photographs for the assessment during a 2.5 hour flight on July 16, 2002. Problems with turbidity at river mouths, debris accumulation and erosion were prioritized for observation, as well as debris staging sites. A file of the digitized photos would be made available to Guam Environmental Protection Agency and the Bureau of Statistics and Plans.

Water/Ocean Assessment: Dive groups were also asked to observe debris at popular dive sites, as ocean conditions allowed safe access. Whatever observations they may provide would be

reported to the Guam Diving Industry Association then in turn reported back to the Bureau of Statistics and Plans, Guam Coastal Management Program.

Results:

Ground Assessment: The five ground assessment teams went throughout the island, covering their sections on July 16, 2002. Two teams needed a second day to complete their field inspections. They recorded information on the data form such as:

Location by Municipality and by satellite photo sheet

Type of site - this would be either beach/shore, river, inland, reef, or infrastructure such as bridge, drain, road, or seawall.

Whether the site showed evidence of erosion

Type of sediments - this would be either or a combination of rocks, sand, clay soil, dirt, or gravel.

Whether the site showed evidence of debris

Type of debris - this would be either or a combination of metallic, household trash, natural wood, lumber, bamboo, coconut leaves, coconuts, dead animals, other vegetation, tires, rubber materials, and other.

Descriptions and identification of photos for the site

The five teams reported on 175 sites. Locations of each of the sites are shown in the appended six maps. The sites were broken down into five categories, of which, 75 sites were beach or shore, 30 sites were river areas, 35 sites were inland, 1 site was reef, and 34 sites were under the infrastructure category, which includes bridge, drain, road, or seawall. In the beach/shore category, 49 of the 75 sites had evidence of erosion. In the river category, 25 of the 30 sites had evidence of erosion. In the inland category, 31 of the 35 sites had evidence of erosion. In the reef category, the reef site had evidence of erosion. And finally, in the infrastructure category, 28 of the 34 sites had evidence of erosion. In total, 134 of the 175 sites had evidence of erosion. (Please see Table I.)

With regard to beach and shore erosion by municipality, the Village of Merizo had the most

sites that experienced damage from erosion, with 14 reported sites. The Village of Umatac received the second most reports of damage from erosion, with 5 observed sites. The rest of the villages had 1-3 observed sites. (Please see Table II.)

Data collected on frequency and level of debris, by municipality, are summarized in Table III. These results indicate that Typhoon Chata'an affected debris accumulation along a general gradient across the island. Although the eye of the typhoon passed over the northern end of Guam, the amounts of coastal debris deposited appeared to be highest in the South East and lowest in the North West. Localized exceptions to this general pattern occurred , but the section of Guam's coasts with the greatest storm debris problems recorded was in Inarajan and Merizo municipalities. Rivers tended to accumulate debris, especially in their lower reaches and river mouths. At bridges, blockage of debris flow down rivers occurred. This jammed debris, blocking river flow and causing flooding and risk of structural damage to bridges. (Please see photo of Agana River, appended.)

Aerial Assessment: The aerial survey that was done brought back 131 digital photographs of Guam's coastline and river mouths, debris sites and evidence of erosion. Many of the southern river mouths showed low to no turbidity, as shown in appended photo of Talofofo Bay. However, there were indications of erosion up-river and along the riverbanks. The rivers also showed debris around the bridges causing flooding in the vicinity. Evidence of this is in the Village of Merizo where several rivers overflowed their banks and flowed into several residences. It should be noted that the aerial assessment was done on July 16th, over ten days after the typhoon. Many riverbanks were cleared and the river mouths and bays had time for particles to settle. The photo of Piti Bay, appended, indicates how quickly clarity had returned to coastal waters by July 16. In contrast, Fena Reservoir remained muddy and turbid as shown in the appended photo.

Water and Ocean Assessment: The first of the twice annual mass coral spawning occurred on July 5 at the time of the typhoon impact. This resulted in freshwater and turbidity ruining the chances of new coral recruitment. Divers reported through the Diving Industry Association that reefs along the west of Guam from Double Reef to Apra Harbor were fairly free of debris from the

typhoon. Micronesian Divers Association (MDA) checked reef sites from Merizo to Agat, which had large amounts of debris following Typhoon Paka, and found lesser amounts, but some recent debris resulting from Typhoon Chata'an.

Department of Defense Assessment: Because of a lack of pre-arranged agreements and unavailability of appropriate DOD staff who were not on Guam or were assigned to other response priorities, the ground assessments could not be carried out at Guam's Navy and Air Force bases. The Aerial Survey did cover these sites.

Apra Harbor suffered serious impacts due to the typhoon sinking a Navy barge containing waste oil. Over 100,000 gallons of oil contaminated liquid waste was spilled in Inner Apra Harbor. This spread into the outer harbor and impacted Sasa Bay and the Commercial Port areas. An Incident Command Center and official response activities under federal requirements is addressing this spill. The Navy, as responsible party, has contracted cleanup experts and is coordinating with U.S. Fish and Wildlife Service, the Coast Guard, Guam Environmental Protection Agency, and Agriculture's Division of Aquatic and Wildlife Resources in assessing damages to the affected coastal resources and response needs. Detailed reports from this oil spill response will be available.

At Andersen Air Force Base, aerial photos and reporting from wildlife biologists indicate that local defoliation occurred and forest trees in limited areas were blown down. Post typhoon assessment at the areas frequented by the endangered fruit bat colony showed only minor vegetation damage and the number of fruit bats appears to have increased over pre-Chata'an counts. It is suspected that individuals may have flown in from Rota to join the Guam colony. Reefs and shores on and near the Air Force base appear to have little impact from the typhoon.

Recommendations:

Based upon observations by Micronesian Divers Association divers, and the Bureau's Coral Reef Mapping GIS Assistant, and photographic evidence of submerged debris generated by Typhoon Chata'an, there is debris damaging certain coral reef areas which could be removed by divers. The

second mass spawning of hard corals in 2002 is projected to be in the last week of July, to 1st of August. Increased success in recruiting new corals from this spawning would be aided by removal of debris from critical reef areas before the spawning. Shallow areas of potentially spawning coral colonies, rather than sites without coral recruitment value should be targeted in the divers cleanup. At least one dive shop on Guam was planning a cleanup with volunteer divers before the spawning. Support for such cleanup is needed. After Guam's Environmental Emergency Response Plan becomes adopted, a procedure for obtaining such support should be in place. But at this time, the amount of $600 for dive shop support under the Guam Coastal Management Program's current budget might be made available to the Guam Diving Industry Association for potential support of cleanup by the Association's members. Additionally a limited amount of gas under the budgeted allocation of the Coastal Management Program might be considered to be made available for volunteer dive boat use.

Response actions by the Department of Public Works, Department of Parks and Recreation, Guam Office of Military Affairs, Mayors' Offices, Department of Defense, and others, including public volunteers, had removed debris in critical areas such as roads and bridges, before the coastal damage assessment was undertaken. The aerial and ground assessments indicate that although debris along the coast amenable to a concerted cleanup is not widespread, limited sites could justify local cleanup efforts. In particular, surveyed shorelines between Agfayan Bridge, Inarajan and Ajayan Bay, Merizo, have accumulations of natural and man-made debris on public beach and shore areas above high water. These could be targeted for cleanup by volunteers or personnel assigned to cleanup duties such as Agency for Human Resources Development (AHRD) workers, under coordination of appropriate Mayors. Although such cleanup sites may be targeted along the shore of the Achang Marine Preserve, the activities would be carried out above high water level and not create additional stress to the submerged resources.

Any organized debris cleanups, on land or in the water, need to be coordinated with typhoon recovery debris disposal facilities and resources supervised by Guam Environmental Protection Agency.

TABLE I.

EROSION RESULTS, BY TYPE OF SITE

TOTAL SITES 175

A	Beach/Shore	75	NO EROSION - 26	EROSION - 49
B	River	30	NO EROSION - 5	EROSION - 25
C	Inland	35	NO EROSION - 4	EROSION - 31
D	Reef	1	NO EROSION - 0	EROSION - 1
E	Infrastructure			
(Bridge, Drain, Road, Seawall)		34	NO EROSION - 6	EROSION - 28

NO EROSION	41
EROSION	134

TABLE II.

TOTAL SITES REPORTING EROSION ON BEACH/SHORE BY MUNICIPALITY

Agana	2
Agat	2
Asan	2
Chalan Pago/Ordot	3
Inarajan	2
Mangilao	1
Merizo	14
Piti	3
Talofofo	2
Tamuning	2
Umatac	5
Yona	2

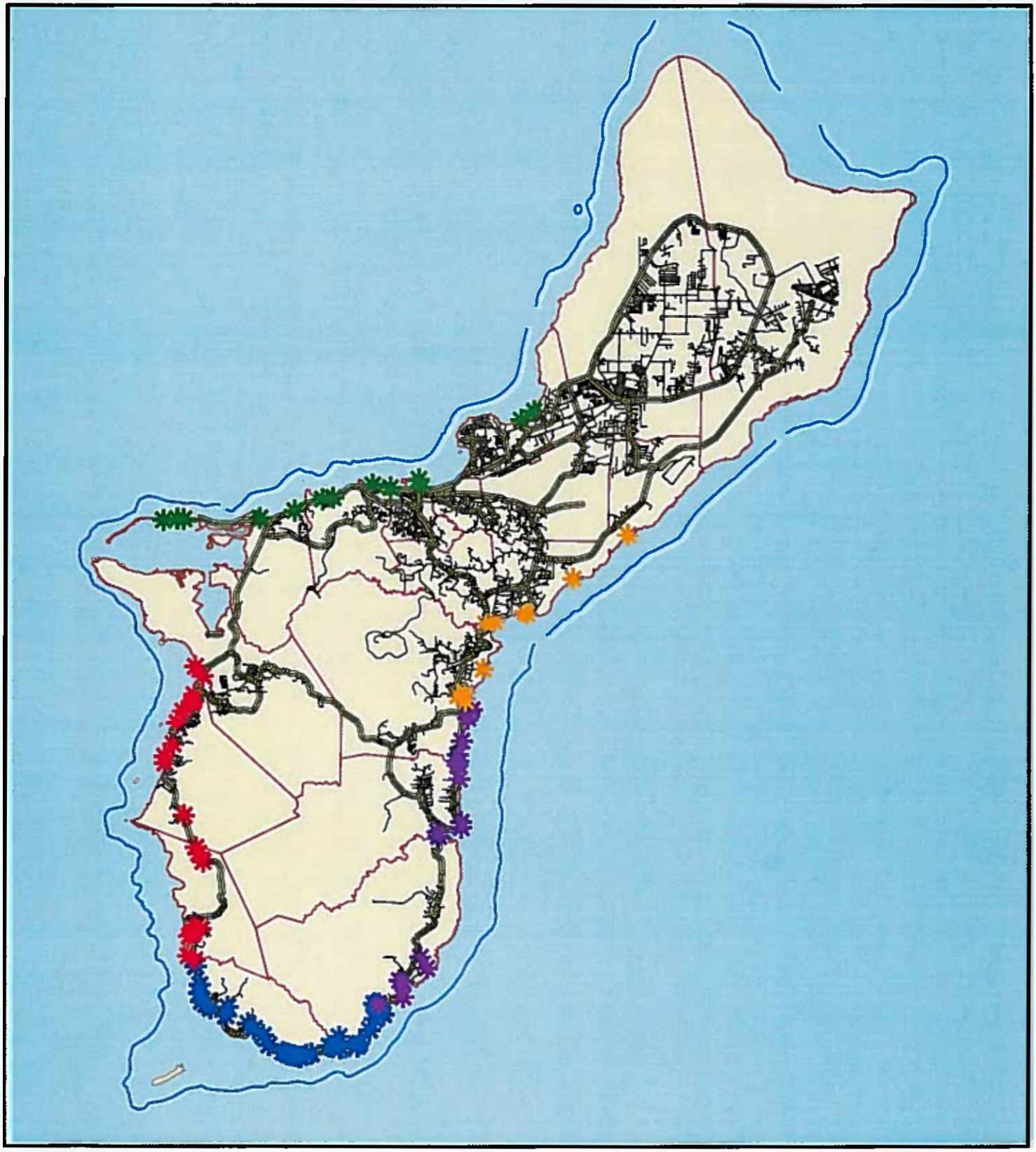
TABLE III.

RECORD OF MEDIUM AND HEAVY DEBRIS BY MUNICIPALITY

AGANA	MEDIUM	1
AGAT	MEDIUM	1
ASAN	MEDIUM	1
CHALAN PAGO/ORDOT	HEAVY	3
INARAJAN	MEDIUM	21
MERIZO	MEDIUM	14
	HEAVY	19
PITI	MEDIUM	1
TALOFOFO	MEDIUM	3
UMATAC	MEDIUM	3
YONA	MEDIUM	2

** THOSE MUNICIPALITIES NOT MENTIONED HAVE NO RECORDS FITTING THE CRITERIA.

Typhoon Chata'an Coastal Damage Sites



Guam Geodetic Network of 1993 Projection
(North American Datum of 1983)

Legend

Damage Sites
- Team 1
- Team 2
- Team 3
- Team 4
- Team 5

- Highway
- Street
- 600 ft Depth Contou

Typhoon Chata'an Coastal Damage
Team 1 Sites

Guam Geodetic Network of 1993 Projection
(North American Datum of 1983)

0 0.125 0.25 0.5 0.75 1 Kilometers

Legend

- Coastal Impact Site
- Highway
- Street
- 600 ft Depth Contour

Typhoon Chata'an Coastal Damage
Team 2 Sites

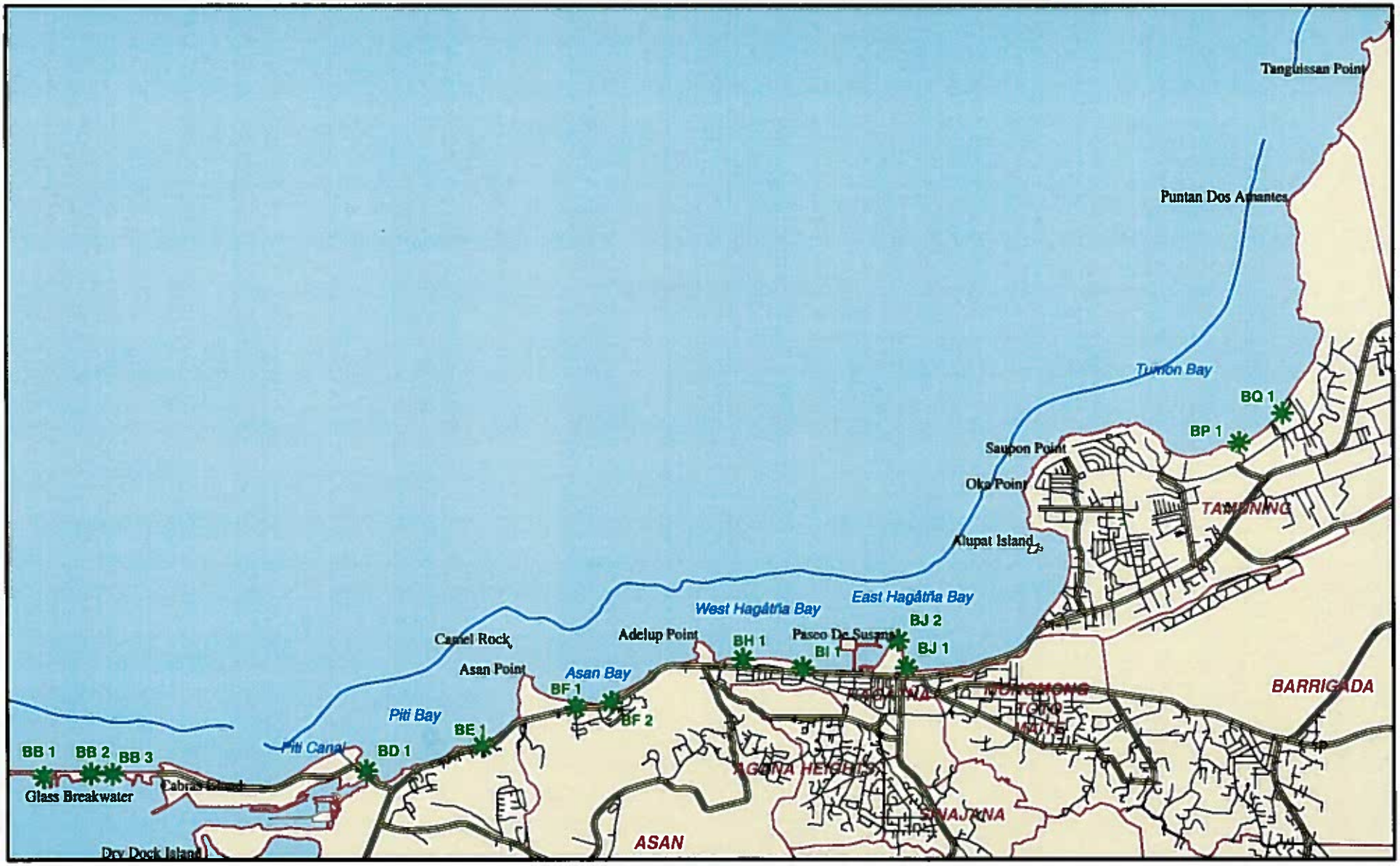
Guam Geodetic Network of 1993 Projection
(North American Datum of 1983)

0 0.35 0.7 1.4 2.1 2.8 Kilometers

Legend

- Coastal Impact Site
- Highway
- Street
- 600 ft Depth Contour

Typhoon Chata'an Coastal Damage
Team 3 Sites



Guam Geodetic Network of 1993 Projection
(North American Datum of 1983)

Legend

- Coastal Impact Site
- Highway
- Street
- 600 ft Depth Contour

Typhoon Chata'an Coastal Damage
Team 4 Sites

Guam Geodetic Network of 1993 Projection
(North American Datum of 1983)

0 0.35 0.7 1.4 2.1 2.8 Kilometers

Legend

- Coastal Impact Site
- Highway
- Street
- 600 ft Depth Contour

Typhoon Chata'an Coastal Damage
Team 5 Sites

Guam Geodetic Network of 1993 Projection
(North American Datum of 1983)

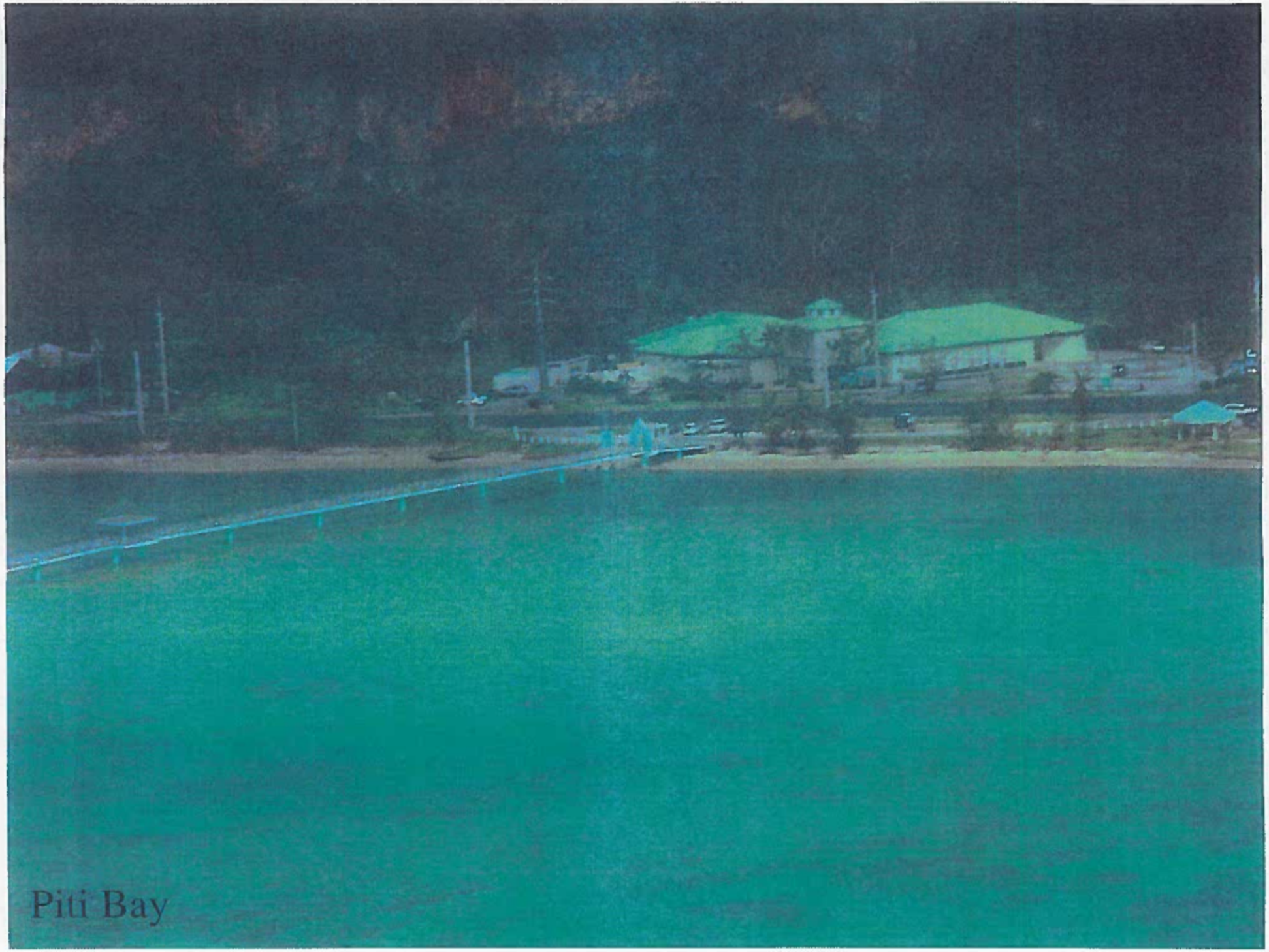
0 0.25 0.5 1 1.5 2 Kilometers

Legend

- Coastal Impact Site
- Highway
- Street
- 600 ft Depth Contour


Agana River


Talofofo Bay


Piti Bay


Fena Reservoir

Coastal/Environmental Assessment Survey

Site ID No.	Municipality	Site Name	Type of Site	Beaches Y/N	Types of Sediments (Check all that apply)					Level of Debris	Type of Debris (Check all that apply)											
					Rocks	Sand	Clay Soil	Dirt	Gravel		Metallic	Household Trash	Natural Wood	Lumber	Bamboo	Coconut Leaves	Coconuts	Dead Animals	Other Vegetations	Tires	Rubber Materials	Other: Specify Type of Debris
AGANA																						
BH 1	1	DLM to Diamond AutoParts	A	Y	1	1	1	1	1	C	1	1	1	1	1	1	1	1	1		1	
BI 1	1	DLM to Diamond AutoParts	B	Y	1	1	1	1	1	B	1	1	1	1	1	1	1	1	1	1	1	
BJ 1	1	Agana River to City Bank	A	Y	1	1	1	1	1	B	1		1	1	1		1	1		1	1	
BJ 2	1	Paseo Statue of Liberty	E	Y	1	1	1	1	1	B	1		1			1	1		1		1	
		SUBTOTAL AGANA			**4**	**4**	**4**	**4**	**4**	**0**	**4**	**2**	**4**	**3**	**3**	**3**	**4**	**3**	**3**	**2**	**4**	**0**
AGAT																						
AT 1	3	Duncan McCully BackYard	A	Y			1	1		B			1			1						
AV 1	3	Nimitz Beach	A	Y		1	1			B		1	1		1		1				1	tables
AV 2	3	Agat Marina	A							A												
AW 1	3	Chaugaan River	B	Y	1	1		1		B	1	1	1									
AW 2	3	Gaan River	B							B			1									
AX 1	3	Gaan Point	A							B			1				1		1			
AX 2	3	Finile Creek River	B	N						B		1	1									
AX 3	3	Salinas River	B	Y	1	1		1		C		1	1						1			
AX 4	3	Togcha River	B	N						B		1	1									
AY 1	3	Namo River	B	N				1		B			1									
AZ 1	3	Dadi Beach	A	N						B												
AZ 2	3	Apaca Point	A	N						B			1									
		SUBTOTAL AGAT			**2**	**3**	**2**	**4**	**0**	**0**	**1**	**5**	**10**	**0**	**1**	**1**	**2**	**0**	**2**	**0**	**1**	**0**

Coastal/Environmental Assessment Survey

Site ID No.	Municipality	Site Name	Type of Site	Erosion	Types of Sediments (Check all that apply)					Level of Debris	Type of Debris (Check all that apply)											
				Y/N	Rocks	Sand	Clay Soil	Dirt	Gravel		Metallic	Household Trash	Natural Wood	Lumber	Bamboo	Coconut Leaves	Coconuts	Dead Animals	Other Vegetations	Tires	Rubber Materials	Other: Specify Type of Debris
ASAN																						
BF 1	4	Asan Beach	A	Y	1	1			1	B			1	1		1	1		1			
BF 1	4	Memorial Park	B	Y	1	1			1	B			1	1		1	1		1			
BF 2	4	Across Joe & Flo's	A	Y	1	1		1	1	C	1	1	1	1		1	1		1	1		
		SUBTOTAL ASAN			3	3	0	1	3	0	1	1	3	3	0	3	3	0	3	1	0	0
CHALAN PAGO/ORDOT																						
CQ 2	6	Francisco Perez Picnic Fac	A	Y				1		D												
CQ 2	6	Francisco Perez Picnic Fac	A	Y						D		1			1	1	1		1			
CQ 2	6	Francisco Perez Picnic Fac	A	Y						D												
		SUBTOTAL CHALAN PAGO/ORDOT			0	0	0	1	0	0	0	1	0	0	1	1	1	0	1	0	0	0
TAMUNING																						
CZ 1	7	Urunao	A	N						A												
BV	7	Two Lover's Point								A												
BW	7	NCS Beach Tanguissan	A	N						A												
BZ	7	Urunao Beach	A	N						A												
		SUBTOTAL TAMUNING			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INARAJAN																						
AA 01	8	Agfayan Bridge	B	Y	1				1	C	1		1			1						
AA 01	8	Agfayan Bridge	B	Y		1				C	1	1				1						
AA 02	8	Agfayan Bay	A	Y	1	1			1	C	1	1	1	1		1	1		1	1	1	2
AA 03	8	Agfayan Mountain Side	C	Y						B		1										

Coastal/Environmental Assessment Survey

Site ID No.	Municipality	Site Name	Type of Site	Coastal Y/N	Types of Sediments (Check all that apply)					Level of Debris	Type of Debris (Check all that apply)											
					Rocks	Sand	Clay Soil	Dirt	Gravel		Metals	Household Trash	Natural Wood	Lumber	Bamboo	Coconut Leaves	Coconuts	Dead Animals	Other Vegetations	Tires	Rubber Materials	Other: Specify Type of Debris
AA-03	8	Agfayan Mountain Side								B												
AA-04	8	Agfayan Bay Inland Mountai	C	Y						A												
AA-04	8	Agfayan Bay Inland Mountain								A												
AA-05	8	Lada Road	C	Y	1				1	B			1									
AA-05	8	Lada Road								B												
AA-06	8	Tun Jesus D. Paulino Drive	C	Y	1				1	C	1	1	1			1	1			1		2
AA-06	8	Tun Jesus D. Paulino Drive								C												
AA-06	8	Tun Jesus D. Paulino Drive								C												
AA-06	8	Tun Jesus D. Paulino Drive								C												
AA-07	8	Agfayan Inland Highway	A	Y	1	1				B	1	1	1	1		1	1		1			2
AA-07	8	Agfayan Inland Highway								B												
AB-01	8	Lada Area Atao Beach	A	Y	1	1				C	1	1	1	1		1	1		1			2
AB-01	8	Lada Area Atao Beach								C												
AB-02	8	Tongan Creek	E	Y	1	1				C	1	1	1			1						
AB-02	8	Tongan Creek	A	Y		1				C	1	1	1									
AB-02	8	Tongan Creek								C												
AB-02	8	Tongan Creek	A	Y		1				C	1	1	1									
AC-01	8	Lada Area	E	Y	1			1		C	1		1								1	1
AC-01	8	Lada Area	A	Y		1				C	1	1	1			1	1					
AD-01	8	Ajayan Point	C	Y	1			1		C	1	1				1	1					
AD-01	8	Ajayan Point	E	Y						C	1	1				1	1		1			

Coastal/Environmental Assessment Survey

Site ID No.	Municipality	Site Name	Type of Site	Erosion Y/N	Types of Sediments (Check all that apply)					Level of Debris	Type of Debris (Check all that apply)											
					Rocks	Sand	Clay Soil	Dirt	Gravel		Metallic	Household Trash	Natural Wood	Lumber	Bamboo	Coconut Leaves	Coconuts	Dead Animals	Other Vegetations	Tires	Rubber Materials	Other: Specify Type of Debris
AD-01	8	Ajayan Point	A	Y						C	1	1				1	1		1		1	2
AD-02	8	Ija Area	C	Y			1			A												
AD-03	8	Ajayan Bay (Aha'Yan Way)	B	Y	1		1			C	1	1	1		1							
AD-03	8	Ajayan Bay (Aha'Yan Way)	E	Y						C												
AD-03	8	Ajayan Bay (Aha'Yan Way)	B	Y	1	1				C	1	1	1			1	1					1
AD-03	8	Ajayan Bay (Aha'Yan Way)	A	Y	1	1				C	1		1		1	1	1					
CA 1	8	Inarajan other Bridge	B	Y	1			1	1	C	1	1	1									
CA 2	8	Inarajan Pool	C	Y	1			1		B												
CA 3	8	Bear Rock Bridge	B	Y				1		C												1
CB 1	8	Pauliluc	B	Y				1		B			1									
CB 2	8	Inarajan Bay	B	Y				1		C	1	1			1		1		1			1
CB 2	8	Inarajan Bay	A	Y	1			1	1	C		1	1									
CC 1	8	Inarajan Bridge	B	Y	1		1	1	1	C	1		1		1		1					1
		SUBTOTAL INARAJAN			**16**	**10**	**3**	**9**	**7**	**0**	**20**	**18**	**18**	**3**	**4**	**13**	**12**	**0**	**6**	**2**	**3**	**15**
		MANGILAO																				
CR 1	9	Marine Lab	A	N						A												
CR 2	9	Marine Lab	A	Y						B												
CR 2	9	Marine Lab	A	N						B		1	1		1		1		1			
CR 2	9	Marine Lab	A	N						B												
CU 1	9	Aquaculture Facility	A	N						A												
CU 1	9	Aquaculture Facility	A	N						A												

Coastal/Environmental Assessment Survey

Site ID No.	Municipality	Site Name	Type of Site	Accessibility Y/N	Types of Sediments (Check all that apply)					Level of Debris	Type of Debris (Check all that apply)											
					Rocks	Sand	Clay Soil	Dirt	Gravel		Metallic	Household Trash	Natural Wood	Lumber	Bamboo	Coconut Leaves	Coconuts	Dead Animals	Other Vegetations	Tires	Rubber Materials	Other: Specify Type of Debris
CW 1	9	Mangilao Golf Course	A	N						B					1							1
CW 1	9	Mangilao Golf Course	A	N						B												
		SUBTOTAL MANGILAO			0	0	0	0	0	0	0	1	1	0	2	0	1	0	1	0	0	1
										MERIZO												
AD-04	10	Entering Merizo	C	Y	1			1		D	1	1	1	1	1	1	1		1	1	1	
AD-04	10	Entering Merizo	A	Y	1					D		1	1	1			1					2
AE-01	10	Merizo Highway	C	Y				1		D	1	1	1		1	1	1					
AE-01	10	Merizo Highway	A	Y		1		1		D	1	1	1									
AE-01	10	Merizo Highway	C	Y	1	1				D					1							
AE-01	10	Merizo Highway	C	Y	1	1		1		D	1	1	1		1		1		1			1
AE-01	10	Merizo Highway	A	Y	1	1				D	1	1	1						1			2
AE-02	10	Liguan Point	A	Y	1	1				D	1	1		1		1	1		1	1		
AF-01	10	Achang Reef Reserve	B	Y	1					C	1	1				1	1		1			
AF-01	10	Achang Reef Reserve	E	Y						C												
AF-01	10	Achang Reef Reserve	B	Y	1	1				C		1	1			1	1		1			1
AF-02	10	J.C. Arriola Beach	A	Y						C			1									
AF-03	10	Merizo Highway	A	Y	1	1				D	1	1	1			1	1		1			
AF-04	10	Candaso's Beach	A	Y	1	1				D	1	1	1			1	1		1			2
AF-05	10	Bridge	A	Y		1				D	1	1	1		1	1		1				1
AF-05	10	Bridge	E	Y	1	1				D	1	1	1	1		1	1		1			
AG-01	10	Shoreline before Southern	A	Y	1	1				D	1	1	1			1	1		1			2

Coastal/Environmental Assessment Survey

Site ID No.	Municipality	Site Name	Type of Site	Erosion Y/N	Types of Sediments (Check all that apply)					Level of Debris	Type of Debris (Check all that apply)											
					Rocks	Sand	Clay Soil	Dirt	Gravel		Metallic	Household Trash	Natural Wood	Lumber	Bamboo	Coconut Leaves	Coconuts	Dead Animals	Other Vegetations	Tires	Rubber Materials	Other: Specify Type of Debris
AG-01	10	Shoreline before Southern	C	Y	1	1		1		D	1	1	1	1		1	1					
AG-01	10	After hse # 1411	C	Y	1			1		D		1		1		1	1		1			2
AG-01	10	After hse # 1411	A	Y		1				D			1	1		1						2
AG-02	10	Small bridge after Southern	A	Y		1				D												
AH-01	10	After bridge	C	Y	1			1		D		1	1			1	1		1			1
AH-01	10	After bridge	A	Y	1	1				D		1	1			1	1		1			2
AH-02	10	Next to Barcinas Apt. Units	E	Y		1	1	1		C	1	1	1	1	1	1	1		1	1	1	
AI-01	10	Infrastructure	E	Y	1			1		B		1	1	1		1	1		1	1		
AI-02	10	Ditch (culvert)	C	Y	1			1		C		1	1			1	1		1			2
AI-02	10	Ditch (culvert)	C	Y						C			1						1			1
AK-01	10	Bridge located after Hemlan	E	Y	1			1		C	1	1			1		1		1			1
AK-01	10	Bridge located after Hemlan	E	Y	1			1		C	1		1		1							
AK-02	10	Geus Road	E	Y	1			1		C		1			1	1	1		1			1
AK-02	10	Geus Road	E	Y	1			1		C		1			1	1	1		1			
AL-01	10	Bridge near Chalan Joseph	E	Y	1			1		B	1	1				1	1		1			1
AL-01	10	Bridge near Chalan Joseph	E	Y	1			1		B						1	1		1			
AL-02	10	Bridge after Nangauta Hous	E	Y				1		B		1				1			1			
AL-02	10	Bridge after Nangauta Hous	E	Y	1			1		B		1				1			1			1
AL-03	10	Across from Merizo Pier Par	C	Y	1			1		B				1					1			
AL-03	10	Across from Merizo Pier Par	C	Y	1			1		B												1
AL-04	10	Hillside behind Cemetery	C	Y			1			A												

Coastal/Environmental Assessment Survey

Site ID No.	Municipality	Site Name	Type of Site	Erosion Y/N	Types of Sediments (Check all that apply)					Level of Debris	Type of Debris (Check all that apply)											
					Rocks	Sand	Clay Soil	Dirt	Gravel		Metallic	Household Trash	Natural Wood	Lumber	Bamboo	Coconut Leaves	Coconuts	Dead Animals	Other Vegetations	Tires	Rubber Materials	Other: Specify Type of Debris
AL-04	10	Hillside behind Cemetery	C	Y			1			A												
AM-01	10	Bile Bridge	E	Y	1			1		C	1					1	1		1			1
AM-01	10	Bile Bridge	E	Y	1			1		C	1	1	1						1			
AM-02	10	Hillside before Togan	C	Y	1			1		B												
AM-02	10	Hillside before Togan	A	Y	1			1		B		1							1			
	10	Cocos Island	A	Y						C												
		SUBTOTAL MERIZO			31	16	3	24	0	0	19	29	23	10	10	25	24	1	28	4	2	27
										PITI												
BB 1	12	Family Beach	A	Y	1					C	1		1	1						1		
BB2	12	Port (East of Hotel Rd)	E	Y	1	1			1	A												
BD 1	12	Piti Channel (USO Beach)	E	Y	1					B	1	1										
BE 1	12	Piti Bomb Hole	A	Y	1	1	1	1	1	B			1			1	1		1			
BQ 3	12	Port ("E" Wharf)	A	Y	1	1			1	B	1		1	1					1		1	
		SUNTOTAL PITI			5	3	1	1	3	0	3	1	3	2	0	1	1	0	2	1	1	0
										SANTA RITA												
1	13	Pale De Leon Street	C	Y				1		A												
2	13	Pale De Canals	C	Y	1			1		B	1	1	1			1	1	1				
3	13	Pale Eugenio	C	Y	1			1		B	1	1	1	1		1	1		1			
4	13	Pale Ramon	E	Y	1			1		B	1	1			1	1		1				
4	13	Pale Ramon	E	Y	1			1		B	1	1				1	1		1			1
5	13	Pale Ferdinan Way	E	Y						B												

Coastal/Environmental Assessment Survey

Site ID No.	Municipality	Site Name	Type of Site	Erosion (Y/N)	Types of Sediments (Check all that apply)					Level of Debris	Type of Debris (Check all that apply)											
					Rocks	Sand	Clay/Soil	Dirt	Gravel		Metallic	Household Trash	Natural Wood	Lumber	Bamboo	Coconut Leaves	Coconuts	Dead/Animals	Other Vegetations	Tires	Rubber Materials	Other: Specify Type of Debris
5	13	Pale Ferdinan Way	B	Y	1			1		B			1		1	1		1	1			
5	13	Pale Ferdinan Way	B	Y	1			1		B		1	1							1		
6	13	Georgio S. Borja Street	C	Y	1			1		B		1	1	1						1		
		SUBTOTAL SANTA RITA			7	0	0	8	0	0	4	6	5	2	2	5	3	3	3	2	0	1
		TALOFOFO																				
CH 1	15	Lookout								B												
CH 2	15	Talofofo Bay	A	Y				1		B			1						1			
CH 2	15	Talofofo Bay	D	Y				1		B			1						1			
CH 2	15	Talofofo Bay	E	Y				1		B									1			
CH 3	15	Talofofo Park	A	Y				1		C			1						1			1
CH 3	15	Talofofo Park	C	Y				1		C									1			1
CH 3	15	Talofofo Park	E	Y				1		C			1						1			1
CJ 1	15	Public Beach	C	N		1				B			1									
CJ 1	15	Asanite	A	N						B			1									
CJ 1	15	Asanite	E	N						B												
CK 3	15	Jeff's Pirates Cove	A	N		1				B			1									
CK 3	15	Jeff's Pirates Cove	B	N		1				B			1									
CK 3	15	Jeff's Pirates Cove	C	N		1				B												
		SUBTOTAL TALOFOFO			0	4	0	6	0	0	0	0	6	0	0	0	0	0	6	0	0	3

Coastal/Environmental Assessment Survey

Site ID No.	Municipality	Site Name	Type of Site	Erosion Y/N	Types of Sediments (Check all that apply)					Level of Debris	Type of Debris (Check all that apply)											
					Rocks	Sand	Clay Soil	Dirt	Gravel		Metallic	Household Trash	Natural Wood	Lumber	Bamboo	Coconut Leaves	Coconuts	Dead Animals	Other Vegetations	Tires	Rubber Materials	Other: Specify Type of Debris
TAMUNING																						
BP	16	Ypao Beach	A	Y						A												
BQ	16	Matapang Beach	A	Y						A												
	16	Salas Beach	A	N						A												
		SUBTOTAL TAMUNING			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UMATAC																						
AN 1	17	Toguan Bay	A		1					B			1									
AN 1	17	Toguan Bay	E		1					B			1									
AN 2	17	Mamatgun Point	A	Y			1			B			1									
AN 2	17	Mamatgun Point	C	Y			1			B			1									
AO 1	17	Fort Soledad	A	Y	1	1			1	B			1						1			
AO 2	17	Umatac Cemetery	A	Y	1		1			B			1		1		1		1			
AO 3	17	Umatac Bridge	E	Y			1			C	1	1	1		1							
AO 4	17	Umatac Bay Area	A	Y	1	1	1	1	1	B	1		1		1						1	
AO 5	17	Umatac Church	A	Y	1	1	1	1	1	C			1		1				1			
AR2-1	17	Cetti Bay Overlook	A							A					4							
AR2-2	17	Cetti River	B	Y	1		1			B			1			1	1					
AS 1	17	Sella Bay	B	Y	1		1			B			1			1			1			
AT 1	17	Taelayag River	B	Y	1		1			C	1	1	1									
		SUBTOTAL UMATAC			9	4	9	2	3	0	3	2	12	0	8	2	2	0	4	0	1	0

Coastal/Environmental Assessment Survey

Site ID No.	Municipality	Site Name	Type of Site	Presence Y/N	Types of Sediments (Check all that apply)					Level of Debris	Type of Debris (Check all that apply)											
					Rocks	Sand	Clay Soil	Dirt	Gravel		Metallic	Household Trash	Natural Wood	Lumber	Bamboo	Coconut Leaves	Coconuts	Dead Animals	Other Vegetations	Tires	Rubber Materials	Other: Specify Type of Debris
YIGO																						
CZ 2	18	Ritidian	A	N						A												
		SUBTOTAL YIGO			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
YONA																						
CK 1	19	North of River	A	Y		1				B			1				1		1			
CK 2	19	Togcha River	A	Y				1		B			1									
CK 2	19	Togcha River	B	Y				1		B												
CL 1	19	Togcha	C	Y		1				B			1				1		1			
CM 1	19	SE of Hotel Accion Ylig	A	N						B					1		1		1			
CM 2	19	Point		N						A												
CM 3	19	Back of Togcha Cemetary	C	N		1				B												
CM 4	19	Golf Course		N						A												
CN 1	19	Behind Accion Hotel	A	N						B							1					
CN 1	19	Behind Accion Hotel	A	N						B					1							
CN 2	19	Ylig Bridge	B	Y						C												
CN 2	19	Ylig Bridge	B	Y						C			1		1	1	1		1			
CN 3	19	Turtle Cove	A	N						A												
CO 1	19	Tagachang Beach	A	N						A												
CQ 1	19	Pago Bridge/River	B	Y						B						1						
CQ 1	19	Pago Bridge/River	B	Y						B									1			
		SUBTOTAL YONA			0	3	0	2	0	0	0	0	4	0	3	2	6	0	5	0	0	0
		TOTAL			77	49	22	62	20	0	55	66	91	23	34	56	58	7	64	12	12	47

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NEWSROOM

Endangered Species on Guam Closer to Gaining Critical Habitat Protection

Fish and Wildlife Service to Make Decisions by June 2003

April 16th, 2002

Contact Info:
David Henkin, Earthjustice, 808-599-2436

Print-Friendly Version

Lead Office:
Honolulu

Program Area:
Wildlife

Guam-- On Tuesday, April 16, 2002, the Marianas Audubon Society and Center for Biological Diversity, represented by Earthjustice, formally settled their lawsuit against the Secretary of the Interior and United States Fish and Wildlife Service (Service) over the Service's refusal to designate critical habitat for six endangered species from Guam and the Northern Mariana Islands: the Mariana crow (Corvus kubaryi), Guam Micronesian kingfisher (Halcyon cinnamomina cinnamomina), Guam broadbill (Myiagra freycineti), Guam bridled white-eye (Zosterops conspicillata conspicillata), Mariana fruit bat (Pteropus mariannus), and little Mariana fruit bat (Pteropus tokudae). Under the terms of the settlement agreement, the Service acknowledged that its actions violated the federal Endangered Species Act ("ESA") and agreed to make new critical habitat decisions for these species no later than June 1, 2003. Chief Judge John S. Unpingco of the federal district court on Guam rejected the Government of Guam's objections to the settlement, stressing that GovGuam's "desire to present its arguments ... is outweighed by the public's interest in conserving judicial resources by encouraging settlements" and that GovGuam's claims that the settlement would harm to GovGuam's interests were largely "speculative" and based on" pure conjecture"

The Service listed all six species as endangered in 1984, and their continued survival remains in doubt due largely to predation by the introduced brown tree snake and continued fragmentation and destruction of their native habitat. While all six species were once common throughout Guam, only two-- the Mariana crow ("åga" in Chamoru) and Mariana fruit bat (fanihi) -- are now known to occur naturally in the wild on Guam and are restricted to a few distinct forested areas. Captive breeding programs have allowed the Guam Micronesian kingfisher (sihek) to avoid extinction, and there are plans eventually to reintroduce it to native forest habitat in the northern part of Guam

"Today, Guam's forests are silent, their native birds absent," noted Gretchen Grimm president of the Marianas Audubon Society. "Since critical habitat will help protect the habitat that is essential for reintroduction and recovery efforts to succeed, this settlement provides new hope that in the future, our forests will once again ring with the calls of Guam's native animals"

"Critical habitat" consists of those areas that must be managed to permit an endangered species to recover to the level where it is safe, in the foreseeable future, from the danger of extinction. Under the ESA, federal agencies may not carry out, fund, or approve any actions that result in destroying or adversely modifying critical habitat. Since the restrictions associated with critical habitat designation are directed solely at federal agency actions, designation generally has little direct effect on private landowners and serves primarily an educational role, informing the public as well as local government officials about areas essential to the conservation of imperiled plants and animals. Moreover, since critical habitat does not depend on who owns the land, designation would not prevent the Navy or Air Force from returning "excess" military lands to the Government of Guam or to local families.

"We are pleased that the Service finally saw the error of its ways and agreed to reconsider designating critical habitat for these species," said David Henkin, attorney with Earthjustice. "Given the significant federal presence in Guam and the Northern Mariana Islands, critical habitat is vital to ensure that the countless federal activities taking place here every day -- whether they involve a land transfer, road construction, military training, or granting access for resort development -- will not destroy the habitat that these endangered species need to survive and, eventually, to recover."

The Guam species face threats from a variety of federal actions, including military training; the clearing and fragmentation of forest habitat for roads, warehouses or other construction projects; the construction of resorts, golf courses, and other recreational facilities where federal permits are required; and the release or exchange of excess military property without adequate assurances for habitat protection.

"Designating and protecting critical habitat makes good scientific sense," said Peter Galvin, conservation biologist for the Center for Biological Diversity. "After all, what's the point of spending millions to rescue a species like the Guam Micronesian kingfisher from the brink of extinction if you don't also protect the habitat it will need to recover?"

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NEWSROOM

Federal Judge Finds U.S. Military in Violation of Migratory Bird Treaty Act

March 14th, 2002

Contact Info:
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Paul Achitoff (808) 599-2436 at Earthjustice

Print-Friendly Version

Washington, DC-- Judge Emmit G. Sullivan of the U.S. District Court for the District of Columbia granted summary judgment last week in a lawsuit establishing that the Navy and Department of Defense are in violation of the Migratory Bird Treaty Act (MBTA) by bombing and shelling a small island in the Pacific Ocean (Farallon de Medinilla, in the Northern Marianas), and killing protected birds.

The Migratory Bird Treaty Act, was passed in 1918 and implements several international treaties regarding protected birdlife that the U.S. is a party to. The MBTA prohibits killing or otherwise harming migratory birds in the absence of a permit issued in accordance with regulations. The Navy admitted that protected birds are killed by the training exercises, and applied to the U.S. Fish and Wildlife Service (FWS) for a permit to continue, but the FWS declined to issue a permit in 1996. Nevertheless, the Defense Department continued to bomb the island illegally, claiming that the MBTA doesn't apply to federal agencies.

On March 13, 2002, the Court issued the ruling and ordered the parties to submit additional briefs concerning the nature and scope of an injunction limiting or halting training activities that kill protected birds. A hearing in the remedy phase of the case is scheduled for April 30, 2002.

FDM is an island used by at least two-dozen species of birds, including at least a dozen species of migratory birds that nest at FDM. FDM is home to breeding colonies of great frigatebirds and masked boobies as well as the endangered Micronesian Megapode.

Peter Galvin, Conservation Biologist for the Center for Biological Diversity stated "The ruling upholds the U.S. commitment to the protection of migratory birds and to meeting our treaty obligations."

Paul Achitoff, Attorney for Earthjustice stated "We are pleased that the Court has held that all federal agencies, including the military, need to follow federal environmental laws."

The suit was filed on December 21, 2000 and was assigned case #CV-3044 EGS.