

GUAM

Annual Performance Report

**Fisheries, Wildlife, State Wildlife and Endangered Species
Recovery Programs**

ANNUAL PERFORMANCE REPORTS

FY 2010

December 30, 2010

Division of Aquatic and Wildlife Resources,
Department of Agriculture
163 Dairy Road
Mangilao, Guam 96913
671-735-3955/6

**Guam Wildlife Restoration Annual Performance Reports
FW-3C-18, W-1-R-18,**

Table of Contents

Project number and name: FW-3-C-18. C-1, Job1. Coordination of Guam’s Fish and Wildlife Programs..... 7

Project number and name: FW-3-C-18. Sub-Project C-4: Install Generator for the Division’s Administration and Wildlife Buildings..... 10

Project number and name: W-1-R-18. Subproject A. Management of Guam’s populations of Birds and Mammals. Study No. W-1: Game and Non-game Birds, Job 1. Survey and Inventory of Resident and Migrant Birds of Guam and Rota 12

Project number and name: W-1-R-18. Subproject A. Study No. W-2: Native Mammals, Job 1: Population biology of Marianas fruit bats in the Mariana Islands. 16

Project number and name: W-1-R-18. Subproject A. Management of Guam’s populations of Birds and Mammals. Study No. W-3: Introduced mammal investigation, Job 1. Population biology of deer and feral Asiatic water buffalo. 19

Project number and name: W-1-R-18. Subproject A. Management of Guam’s populations of Birds and Mammals. Study No. W-4: Monitoring Harvest of Game Mammals and Birds, Job 1. Harvest of Deer, Feral Pigs, Feral Carabao and Black Francolin 23

Project number and name: W-1-R-18. Subproject B: Natural History and Ecology of Guam’s Vertebrates. Study No. W-1: Threatened and Endangered Species, Job 1: Natural History of Endangered Birds. 25

Project number and name: W-1-R-18. Technical Assistance to Activities Affecting Guam’s Wildlife Resources. Study No. W-1: Technical Assistance. 27

Project number and name: W-1-R-18. Coordination of Guam’s Wildlife Programs, Study No. W-1: Coordination, Job 1: Wildlife Coordination 29

Project number and name: W-1-R-18. Predator Control in Support of Guam’s Native Species Recovery. Study No. W-1: Feral Cat Control, Job 1: Cat Control in support of Guam rail establishment. 31

Project number and name: F-1-R-14. Guam Fisheries Development Construction of Fisheries Office Building..... 33

Project number and name: F-1-R-17. Project 1. Offshore Fisheries Participation, Effort, and Harvest Surveys 36

Project number and name: F-1-R-17. Project 2. Management of Guam's Marine Fisheries. Inshore Fisheries Participation, Effort, and Harvest Surveys.....	40
Project number and name: F-1R-17. Project 3. Inshore Kids Fishing Derby	44
Project number and name: F-1-R-17. Project 4. Technical Assistance to Activities Affecting Guam’s Fisheries Resources.....	50
Project number and name: F-1-R-17. Project 5. Visual Stock Assessment Surveys of Marine Preserves and Control Sites	53
Project number and name: F-17-R-1. Project 1. Freshwater-monitoring Program..	55
Project number and name: F-17-R-1. Project 2. Fisheries Studies in Fena Lake	57
Project number and name: F-17-R-1. Project 3. Masso Reservoir Fisheries Monitoring.....	59
Project number and name: F-19-E-1. Project 6. Guam Sports Fish Aquatic Education. Job 1. Printing, Development, And Distribution Of Fisheries Posters, Brochures, Marine Preserve Public Service Announcements, And Educational Outreach Items.....	61
Project number and name: F-19-E-1. Project 6. Guam Sports Fish Aquatic Education. Job 2: Produce posters and brochures illustrating: land events as they affect Guam’s Coastal waters, reef and fisheries; life cycle of five common reef fishes; and reef fish functional group	63
Project number and name: F-19-E-1. Project 6. Guam Sports Fish Aquatic Education. Guam Sports Fish Aquatic Education. Job 3: Maintenance and expansion of Aquatic education website.....	65
Project number and name: F-19-E-1. Project 6. Guam Sports Fish Aquatic Education. Job 4: Maintain digital library of fish and marine habitat photos.....	67
Project number and name: F-19-E-1. Project. 6. Guam Sports Fish Aquatic Education. Job 5. Public Presentations of Aquatic Resources	69
Project number and name: F-6-B-6. Repair and Maintenance of the Merizo Boat Ramp and Pier.....	71
Project number and name: F-20-B-1. Repair and Maintenance of the Agat Marina Boat Ramp Facility.....	74
Project number and name: F-21-B-1. Repair and Maintenance of the Boat Ramp, Docks A, B and pilings at the Agana Boat Basin	77
Project number and name: F-8-D-5 Maintenance and Repair of Fishing Platforms	81
Project number and name: F-9-D-7. Maintenance and Redeployment of DAWR FADs and SWMs.....	88
Project number and name: F-11-D-3. Masso Reservoir Restoration.....	93

Project number and name: F-15-E-1. Installation and Maintenance of Cultural Educational Signs along Guam’s shores..... **95**

Project number and name: F-16-D-1. Guam Fisheries Development Boathouse Repairs and Improvements..... **105**

Project number and name: F-14-R-1. Project 1. Management of Guam's Marine Fisheries Resources. Job 2: Assessing patterns of movement and life history traits of the orangespine unicornfish (*Naso lituratus*) and bluespine unicornfish (*N. unicornis*) in relation to marine preserves on Guam **107**

Project number and name: F-14-R-1. Project 2. Guam Sport Fish Aquatic Education Job 1. Professional, Interactive, Portable Educational Displays. **115**

Project number and name: F-14-R-2: Characterization of Mangrove Snapper Spawning Aggregations and Sites in Selected Outer Estuarine Bays of Guam, Phase II **117**

Project number and name: F-14-R-3 Analyzing and Assessing Recreational Impacts on Coral Reef Habitat and Determining a Carrying Capacity Within Marine Preserves. **120**

Project number and name: F-14-R-4: Determination of reef fish spawning aggregation sites on Guam II: northern and eastern coast surveys..... **131**

Project number and name: F-14-R-5. Connectivity of reef fish populations within the Mariana Islands and the Greater Micronesia Region..... **135**

Project number and name:F-14-R-6: Field Guide "Marine Plants of Guam"
139

Project number and name: F-14-R-7 Assessing Guam’s reef fish spawning aggregations..... **142**

Project number and name: F-14R-9: Recruitment sources and dynamics of the unicorn fish *Naso unicornis* on the fringing reefs of Guam..... **145**

Project number and name: F-14-R-10: Assessing Patterns of Movement, Recruitment, and Spawning Frequency of *Lethrinus harak* in Relation to Guam’s Marine Preserves..... **148**

Project number and name: F-14-R-11: Guam Natural Resource Attorney Services **153**

FY2010 STATE WILDLIFE GRANT STATE WILDLIFE GRANT
..... **T-3-R-1**

Project number and name: W-1: Reestablishing Island Swiftlets to Former Swiftlet Caves..... **157**

Project number and name: W-2: Survey of the Terrestrial Gastropods of the Northern Limestone Plateau in Guam..... **160**

Project number and name: W-3: Implementation of Comprehensive Wildlife Conservation Strategy. **162**

Project number and name: W-4: Reproductive Behavior and Parental Care by Captive Guam Micronesian Kingfishers.....	164
STATE WILDLIFE GRANT T-4-M	167
Project number and name: W-1: Mariana Fruit Bat Snake Control	168
Project number and name: W-2: Implementation of Guam’s Comprehensive Wildlife Conservation Strategy.....	170
Project number and name: W-3: Renovation of DAWR Wildlife Lab	172
STATE WILDLIFE GRANT T-5-HM-1	174
Project number and name: W-1: Survey of the Terrestrial Gastropods of the Volcanic Highlands and Limestone Habitats in Southern Guam	175
Project number and name: W-2: Cocos Island Biosecurity Monitoring	177
Project number and name: W-3: Tarague Basin Swiftlet Cave Brown Treesnake Protection.....	180
Project number and name: W-4: Guam Insect Biodiversity	182
STATE WILDLIFE GRANT	186
T-2-1-R	186
Project number and name: W-1: Recovery of the Guam Micronesian Kingfisher, Job 1: Captive Breeding of Guam Micronesian Kingfishers.....	187
Project number and name: W-1: Recovery of the Guam Micronesian Kingfisher, Job 2. Releasing Captive Bred Guam Micronesian Kingfishers on Guam and other Suitable Islands.....	189
Project number and name: W-1: Rodent Eradication and Non-target Impacts Monitoring on Cocos Island, Guam	192
Project number and name: W-2: Early Detection, Monitoring and Control of Invasive Species.....	194
Project number and name: W-3: Monitor Lizard Reduction on Cocos Island.....	197
Project number and name: W-4: Cocos Island Lizard Survey.....	199
Project number and name: W-5: Locally Captured Geckos for MK Food Source	201
ENDANGERED SPECIES	203
E-5-TW-1FY2010	203
Subproject and job number and name: Establishment of Non-Essential Experimental Population of Ko’ko’, <i>Gallirallus owstoni</i> , on Rota, CNMI.....	204
ENDANGERED SPECIES E-4-TW-1 FY2010	206
Subproject and job number and name: Avicultural Management of Ko’ko’, Sihek, and Åga.....	207

ENDANGERED SPECIES E-6-TW-1	FY2010
.....	210
Subproject and job number and name: Environmental Education for Guam’s Endangered Species.....	211
ENDANGERED SPECIES	215
E-2-12 FY2010	215
Subproject and job number and name: Subproject A: Avicultural Management for Rails, Kingfishers and Crows, Job 1: Captive Propagation of Guam Rails	216
Subproject and job number and name: Subproject A: Avicultural Management for Rails, Kingfishers and Crows, Job 2: Mariana Crow Avicultural Support	219
Subproject and job number and name: Subproject A: Avicultural Management for Rails, Kingfishers and Crows, Job 3: Captive Propagation of Guam Micronesian Kingfishers	222
Subproject and job number and name: Sub-Project B: Development of an Experimental Population of Guam Rails on Rota and Other Suitable Islands, Job 1: Establishment of Experimental Population of Guam Rails on Rota and Other Suitable Islands.	225

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: FW-3-C-18

Grant name: Guam Fish and Wildlife Coordination

Project number and name: **FW-3-C-18. C-1, Job1. Coordination of Guam's Fish and Wildlife Programs**

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budgeted	Actual ___ or Estimated <u>X</u>
Federal:	\$173,548	\$ 128,548
State:		
Other:		
Total Federal:	\$173,548	\$128,548
Total match:		
Total project:	\$173,548	\$ 128,548

5. Objectives:

To plan, coordinate, supervise, and administer all Sport Fish and Wildlife Restoration Programs during the granting period.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See "Supplemental Information" for additional requirements and "Attachments" for specialized tables.

The objectives were met by the following:

1. The Chief and Assistant Chief of DAWR ensured the attendance of staff at meetings focused on natural resource issues, as well as, planned and documented activities pertaining to fish and wildlife programs. The Department of Agriculture was represented on all regulatory matters relating to fish and wildlife resources, which involved meeting with other local and federal agencies, such as the US Navy and Air Force. The administration and coordination responsibilities were funded 50% by local funds.
2. Staff was tasked with submitting grant proposals, grant agreements, and performance reports pertaining to all funding sources. These included annual Grant Agreements for 1) Project FW-3C, Guam Fish and Wildlife Coordination, which is jointly funded by Wildlife and Sport Fish Restoration Funds; 2) Project F-1-R, Guam Sport Fish Investigation, which covers sport fish research, surveys, and related activities funded by Sport Fisheries (DJ) funding; and 3) W-1-R, Guam Wildlife Investigations and survey activity. In addition, annual Grant Agreements were prepared for Fisheries Development, Endangered Species Recovery (Section 6), Aquatic Nuisance Species and Brown Treesnake Technical Assistance Grant projects. State Wildlife Grants were extended and/or obligated to fund wildlife projects; the grants included T-3-R, T-4-M, T-5-HM, T-6-R, T-7-C-1, T-8-D-1, and T2-1-R-1.
3. Staff conducted technical review of draft, final environmental impact statements, and environmental assessments, as these documents were made available.
4. Wildlife: Staff attended the Federal Aid Basics grants course in May 25, 2010; others traveled to NCTC, Shepardstown, West Virginia; Rota of release rails and cat control work; and, New York City and Arlington RARE meetings in June 2010. Travel costs were paid various sources.
5. Fisheries: Fisheries Staff attended various meetings including: Western Pacific Fisheries Management Council Meeting November 2009, March 2010; Western Pacific Fisheries Management Council Data Workshop; Micronesian Challenge in February 2010; also the Federal Aid Basics grants course in May 25, 2010; and, an Ecosystem Monitoring Workshop in June 2010 in Noumea, New Caledonia.
6. The proposed US Marine Relocation from Okinawa Japan, to Guam is requiring more attention from GDAWR and other natural resource agencies.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work. N/A

Name, title, phone number, and e-mail address of person compiling this report:
Celestino F. Aguon, Chief, 671-735-3979, tino_aguon@hotmail.com, and Jay T.

Gutierrez, Assistant Chief, 671-735-3980, jaytgutierrez@yahoo.com

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: FW-3-C-18

Grant name: Guam Fish and Wildlife Coordination

Project number and name: **FW-3-C-18. Sub-Project C-4: Install Generator for the Division's Administration and Wildlife Buildings**

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budgeted	Actual <u> </u> or Estimated <u>X</u>
Federal:	\$45,000	\$45,000
State:	\$15,000	\$15,000
Other:		
Total Federal:	\$45,000	\$45,000
Total match:	\$15,000	\$0.0
Total project:	\$60,000	\$45000

5. Objective:

To provide a reliable power supply to Administration Section of DAWR during Guam's frequent power outages due to storms, earthquakes, and other adverse conditions. The total estimated cost is \$60,000.

7. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

8. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

The objective was partially met due to time constraints. The project was awarded to a local contractor and plans for a design build generator and housing, as well as construction of the generator shelter. The grant was extended and the project will continue into fiscal year 2011.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Celestino F. Aguon, Chief, 671-735-3979, tino_aguon@hotmail.com, and Jay T. Gutierrez, Assistant Chief, 671-735-3980, jaytgutierrez@yahoo.com

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: W-1-R-18

Grant name: Guam Wildlife Restoration Program

Project number and name: **W-1-R-18. Subproject A. Management of Guam's populations of Birds and Mammals. Study No. W-1: Game and Non-game Birds, Job 1. Survey and Inventory of Resident and Migrant Birds of Guam and Rota**

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budgeted	Actual __or Estimated__
Federal:	\$48,512.24	\$ 23,229.30
State:		
Other:		
Total Federal:	\$48,512.24	\$ 23,229.30
Total match:		
Total project:	\$48,512.24	\$ 23,229.30

5. Objectives:

1. To determine population trends, distribution and breeding status of the Mariana crows by conducting monthly searches for birds in northern Guam and semi-annual surveys on Rota.
2. To determine population trends, distribution and breeding status of the Mariana gray swiftlet by conducting quarterly cave counts of birds entering and exiting Mahlac cave and monthly searches for new caves throughout Guam.
3. To determine population trends of other game (black francolin) and non-game birds (yellow bittern, blue breasted quail, Micronesian starling, Eurasian tree sparrow, white tern, brown noddy, and migrant species) by conducting annual roadside surveys throughout the island.

4. To determine population trends and distribution of Guam rails on the island of Rota in areas where they occur by conducting playback surveys along transects and roadways.
5. Conduct surveys for rails on Cocos Island and other areas where rails are released.
6. Determine habitat use of migrant bird species.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Objective 1. During the breeding season, observations were conducted in Andersen Air Force Base property. As a direct result, DAWR discovered two male birds in fiscal year 2010 in the Munition Storage Area (MSA). There were no nest observations and no signs of other crows in the wild.

Table 1: Fiscal-Year 2010 Crow Observations

Months	Areas							Comments
	MSA	Tarague	Pati	NWF	Golf course	NCTMS	GNWR	
October	2	-	-	-	-	-	-	2 males
November	2	-	-	-	-	-	-	2 males
December	2	-	-	-	-	-	-	2 males
January	2	-	-	-	-	-	-	2 males
February	2	-	-	-	-	-	-	2 males
March	2	-	-	-	-	-	-	2 males
April	-	-	-	-	-	-	-	

* 2 males identified are Amariyu and Kahit

Objective 2. There were four counts conducted of the swiftlet population in FY10. The population count data are as follows: November 973, March 741, May 1119 ± 65, August 1080. The May count was a four consecutive day count to measure observer bias.

Objective 3. The annual Spring Bird Count occurred in late May 2010 and was completed in early June 2010. Twenty-three routes, excluding Naval Magazine and NCTMS, were surveyed throughout the island covering 212 stations.

Eurasian tree sparrow (n=866) was the most abundant bird species, followed by the Black francolin (n=572). A total of 131 Micronesian starlings were observed during the annual Spring Bird Count (64-AAFB, 16-Mt. Santa Rosa, 51-Cocos Island Resort). The Philippine turtledove (n=365) and the Eurasian tree sparrow occurred in all 23 survey-routes.

Table 2: Table 1. Fiscal Year 2010 Spring Bird Count

Area	sta.	Species													
		BBQU	BLDR	BLFR	BLNO	BRNO	CAEG	COMO	ETSP	ISSW	MACR	MIST	PTDO	WHITE	YEBI
Tarague	10		2	15					20				11		4
MSA	10		8	72					35		1		32		7
NWF	10		4	52					21				19		5
Andersen Hse	10		19	22		4			103			64	26	7	9
Andy south	10		8	12					13				11		3
NCTMS	0														
Mt. Santa Rosa	10		10	25					30			16	22		7
Capitol improvement road	10														
Y Sensong road	10		7	6					18				5		2
Two Lover's Point	10		3	8					25				11		4
Barrigada Hill	10		15	42					45				14		6
Navy Golf Course	10		2	29			10		42				19		14
Tiyan	10		10	24			14		62				13		12
Toto Pipeline	10		8	14			6		31				18		6
Cross Island Road	10		7	8					41				16		9
Pulantat(Leo Palace rd)	10		9	32					42	6			9		3
Nimitz Hill(Channel 10)	10		8	41					62				35		5
Res. Craft Beach Road	4		5	31					51				21		7
Orote	6		10						31				14	6	9
**NavMag	0		21	27	6	8			46				26	12	15
Dandan	8	18	4	21					23				10		5
Ija	8	6	3	22					14				6	2	4
Umatac	10		3	42					25				10	4	6
Merizo	6		8	27					48				8		2
Cocos Island	10				37	42			38			51	9	12	
total	212	24	174	572	43	54	30	0	866	6	1	131	365	43	144

Objective 6. The migratory birds observed during the fiscal year throughout the island of Guam and Cocos Island include: whiskered tern, pacific barn swallow, whimbrel, ruddy turnstone, black-necked stilt, lesser golden plover, pacific reef heron, brown booby, wedged-tail shearwater, northern shoveler, northern pintail and green winged teal. The ruddy turnstone and black-necked stilt were observed at the Inarajan aquaculture farm. The pintail, shoveler, teal, and whiskered tern were observed in man-made ponds at Starts Golf Course, Dededo, and Leo Palace Golf Course, Yona.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

Objective 4. No roadside survey was conducted for rails in Rota during FY10 due to lack of staff. The survey is expected to resume in FY11.

Objective 5. Rails were not released on Cocos Island in FY10; therefore, no survey was conducted.

9. List any publications or in-house reports resulting from this work.

Brindock, K. 2010. Mariana Gray Swiftlet Count Observer Bias Study. In House Report, Public Works Department, Naval Base, Guam.

Name, title, phone number, and e-mail address of person compiling this report:

Jeffrey S. Quitugua, Wildlife Biologist, 671-735-3996, jeff_quitugua73@yahoo.com
Suzanne Medina, Wildlife Biologist, 671-735-3985, medinas@guam.net

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: W-1-R-18

Grant name: Guam Wildlife Restoration Program

Project number and name: **W-1-R-18. Subproject A. Study No. W-2: Native Mammals, Job 1: Population biology of Marianas fruit bats in the Mariana Islands.**

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Andersen Air Force Base, Guam

4. Costs:

Source	Budgeted	Actual <u>or Estimated</u> <u>X</u>
Federal:	\$7,405.05	\$3,871.50
State:		
Other:		
Total Federal:	\$7,405.05	\$3,871.50
Total match:		
Total project:	\$7,405.05	\$3,871.50

5. Objective:

Determine population trends and age-structure of fruit bats on Guam by conducting monthly counts of known roost sites including the Andersen Air Force Base roost.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

The objective was met through monthly bat population surveys at the Pati Point colony and known roost sites on Andersen Air Force Base. An average of 4.5 man-hours were spent per count to determine population size, age structure, and sex ratio. An average of six man-hours were spent per solitary bat search to determine, population size, age structure, sex ratio, roost area, and tree species.

During the report period, the colony was active with few individuals ($n=10$). However, several individuals were observed in solitary roost sites within the Pati Point area. The average sex ratio per count at the Pati Point colony is 2 females to every 1 male. There were no observations of young bats at the colony or solitary roost sites.

Bat searches at historical roosting sites (Figure 1) at East Pati Point, Golf Course area, Tarague Basin, Munition Storage Area, Northwest Field, and Guam National Wildlife Refuge were conducted to determine if there was evidence of bat movement within Andersen.

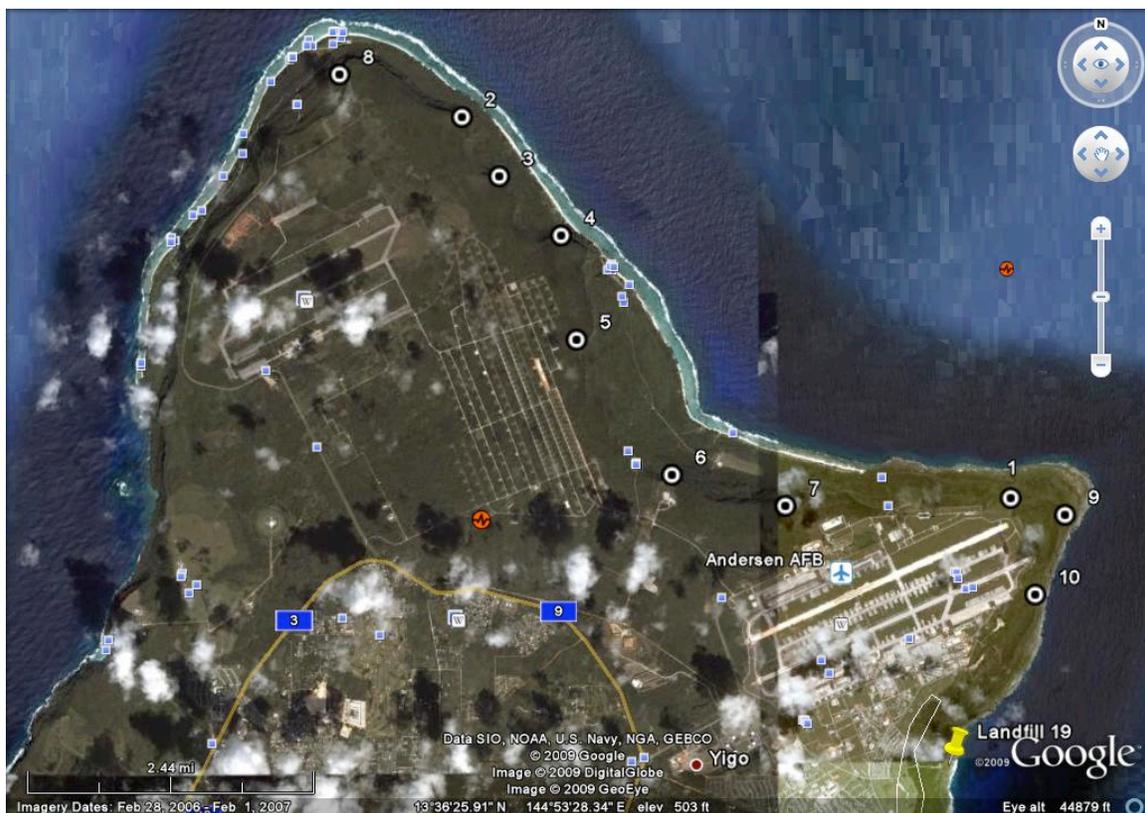


Figure 1: Known roost sites for Mariana fruit bat in AAFB.

Bats were observed within the general area of historical roosting locations (4 out of the 10). Four bats were observed at Site 9, 2 bats were observed at site 10, and 3 were observed at site 7 roosting on a *Ficus* tree. In addition, 10 bats were observed between site 1 and site 9 in the Pati Point area in March and April 2010.

Incidental sightings of bats were documented during the fiscal year. Date of observation, area, number of bats observed, type of observation and comments are identified in the table.

Table 1: Incidental sightings and reports for fruit bats.

Date	Area	# bats observed	Observation	Comment
Oct 2009	MSA, AAFB	1	Visual; reported by UOG grad student	Bat was seen flying within the Habitat Management Unit.
Nov 2009	NWF, Area 27, AAFB	2	Visual; reported by public hunter	Bats were seen flying WSW along cliff line.
Nov 2009	Tanguissan Beach	4	Visual; reported by recreational hikers	Bats were seen flying NE of Lost Pond by cliff line.
Mar 2010	Wusstig Road, Yigo	1	Visual; reported by resident	Bat was seen flying ENE towards AAFB.
May 2010	Sinajana pipe line	3	Visual; reported by Navy contractor	Bats were seen flying towards ravine along the pipeline area.
Aug 2010	NWF, Area 29	2	Visual; reported by public hunter	Bat was roosting on a <i>Ficus</i> tree near the edge of the cliffline, ~25' ag.
Sep 2010	Uranao Area	6	Visual; reported by local fisherman	Bats were seen flying inland towards the Uranao's cliff line.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Jeffrey S. Quitugua, Wildlife Biologist, 671-735-3956/96, jeff_quitugua73@yahoo.com

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: W-1-R-18

Grant name: Guam Wildlife Restoration Program

Project number and name: **W-1-R-18. Subproject A. Management of Guam’s populations of Birds and Mammals. Study No. W-3: Introduced mammal investigation, Job 1. Population biology of deer and feral Asiatic water buffalo.**

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budgeted	Actual __or Estimated__ <u>X</u>
Federal:	\$6,409.74	\$2,903.66
State:		
Other:		
Total Federal:	\$6,409.74	\$2,903.66
Total match:		
Total project:	\$6,409.74	\$2,903.66

5. Objectives:

1. Determine deer abundance by conducting monthly spotlight counts in northern Guam on Andersen Air Force Base (AAFB) at Pati Point, Munitions Storage Area and Northwest Field and other appropriate routes in southern Guam.
2. Document noteworthy sightings of deer throughout Guam.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Objective 1. Deer population surveys were conducted in Andersen Air Force Base (AAFB) property in fiscal year 2010. Pati Point, Northwest Field (NWF) and Munitions Storage Area (MSA) are survey routes used to determine deer population in northern Guam. Each route is a hunting area in AAFB. MSA and part of Pati Point area are restricted to bow hunting.

The method for deer surveys involves two staff members: a driver and an observer. The observer identifies deer along the 12.87 km (8 miles) survey route determining age class (fawn, yearling, doe or buck) using a spotlight. For bucks, the number of tines is noted.

In 2008, hunting activities were discontinued at Pati Point as result of low fruit bat numbers at the colonial roost site. Since then, the amount of deer observed during the counts has increased. In the eight-mile survey route on average, 3.5 deer per kilometer were observed this fiscal year. The largest single nightly count at Pati Point was in March 2010 with 113 deer and the lowest night count occurred on October 2009 with 87 deer.

Table 1: Composition of deer observed during spotlight counts on Pati Point, FY10.

Class	Oct	Nov	Dec	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Total	Mean	SD
Unkn Buck Spike	6	4	8	10	8	3	0	4	5	10	8	9	75	6.3	3.1
2 pt	8	10	5	5	4	8	13	9	7	10	7	8	94	7.8	2.5
3pt	4	3	7	5	2	10	4	7	2	9	13	11	77	6.4	3.7
4pt	1	1	3	2	4	7	3	2	6	8	6	1	44	3.7	2.5
Doe	0	0	1	1	0	3	0	0	1	2	2	1	11	0.9	1.0
Yearling	22	27	19	18	25	28	31	26	35	29	23	27	310	25.8	4.9
Fawn	9	11	16	17	13	11	8	13	11	10	10	14	143	11.9	2.7
Unkn Deer	10	15	8	10	9	11	15	10	14	7	11	9	129	10.8	2.6
Total Deer	27	30	22	31	26	32	33	29	29	21	31	22	333	27.8	4.2
Miles Trav	87	101	89	99	91	113	107	100	110	106	111	102	1216	101.3	8.7
MI	8	8	8	8	8	8	8	8	8	8	8	8	8	8.0	0.0
Deer / KM	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	152.0	0.27	0.03699
	3.4	3.8	2.8	3.9	3.3	4.0	4.1	3.6	3.6	2.6	3.9	2.8	8.0	3.468	0.51984
														75	7552

Northwest Field (NWF) is an active area used for public hunting and military training. The number of deer observed during the counts is relatively low compared to the other survey routes on Andersen property. In the eight-mile survey route, 2.5 deer per kilometer were observed this fiscal year on average. The largest single nightly count at NWF was on November 2009 with 68 deer and the lowest night count occurred on April 2010 with 31 deer.

Table 2: Composition of deer observed during spotlight counts on NWF, FY10.

Class	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total	Mean	SD
Unkn Buck	8	3	6	3	0	0	0	4	0	0	0	4	28	2.3	2.8
Spike	2	4	3	8	3	2	1	4	3	2	0	3	35	2.9	2.0
2 pt	2	4	1	2	2	1	0	0	1	3	2	0	18	1.5	1.2
3pt	0	0	1	0	0	0	0	0	1	0	1	0	3	0.3	0.5
4pt	0	1	0	0	0	0	0	0	0	1	0	0	2	0.2	0.4
Doe	7	13	9	12	3	13	7	9	7	8	5	11	104	8.7	3.1
Yearling	5	7	6	8	5	3	3	8	3	11	8	6	73	6.1	2.5
Fawn	12	9	13	9	1	2	4	7	5	4	3	4	73	6.1	3.9
Unkn Deer	24	27	15	21	38	17	16	14	18	11	18	21	240	20.0	7.2
Total Deer	60	68	54	63	52	38	31	46	38	40	37	49	576	48.0	11.7
Miles Trav	8	8	8	8	8	8	8	8	8	8	8	8	96	8.0	0.0
Deer / MI	0.4	0.4	0.3	0.3	0.7	0.4	0.5	0.3	0.5	0.3	0.5	0.4	2.5	0.42	0.0
Deer / KM	3.0	3.4	1.9	2.6	4.8	2.1	2.0	1.8	2.3	1.4	2.3	2.6	38.4	2.5	0.89

Munition Storage Area (MSA) is an active bow hunting area restricted to military personnel working in the MSA. On October 2008, depredation activity by the Volunteer Conservation Officers Program was discontinued in the MSA as result of the low number of crows observed in the area. Deer numbers in MSA have been on the rise since depredation activity discontinued. In FY10, on average 2.13 deer per kilometer were observed within the 8-mile survey route. The highest count was 101 deer on March 2010 and the lowest count was 37 in November 2009.

Table 3: Composition of deer seen during spotlight counts on MSA, FY10.

Class	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total	Mean	SD
Unkn Buck	8	4	7	9	0	7	6	8	4	6	7	6	72	6.0	2.4
Spike	2	1	4	7	3	3	0	5	7	8	5	6	51	4.3	2.5
2 pt	2	4	5	5	0	7	0	3	2	1	4	3	36	3.0	2.1
3pt	1	1	4	3	0	5	2	7	4	6	5	5	43	3.6	2.2
4pt	0	2	1	4	5	1	0	2	3	1	3	2	24	2.0	1.5
Doe	14	11	16	19	24	37	34	15	18	14	19	24	245	20.4	8.1
Yearling	10	4	7	15	1	11	20	17	19	15	21	12	152	12.7	6.4
Fawn	6	5	3	9	12	8	11	8	4	7	6	10	89	7.4	2.8
Unkn Deer	11	5	9	17	19	22	24	14	18	23	19	24	205	17.1	6.2
Total Deer	54	37	56	88	64	101	97	79	79	81	89	92	917	76.4	19.6
Miles	8	8	8	8	8	8	8	8	8	8	8	8	8	8.0	0.0

Trav															
Deer / MI	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	114.6	0.22	0.048
Deer / KM	1.4	0.6	1.1	2.1	2.4	2.8	3.0	1.8	2.3	2.9	2.4	3.0	8.0	2.135	0.77

Objective 2. Noteworthy sightings of deer were recorded for fiscal year 2010 throughout Guam while conducting other field activities such as crow search, site inspections, and bat surveys. A total of 41 deer, 62 wild pigs and nine carabao were observed during the fiscal year.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:
 Jeffrey S. Quitugua, Wildlife Biologist, 671-735-3956/96, jeff_quitugua73@yahoo.com

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: W-1-R-18

Grant name: Guam Wildlife Restoration Program

Project number and name: **W-1-R-18. Subproject A. Management of Guam's populations of Birds and Mammals. Study No. W-4: Monitoring Harvest of Game Mammals and Birds, Job 1. Harvest of Deer, Feral Pigs, Feral Carabao and Black Francolin**

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budgeted	Actual <u> </u> or Estimated <u> </u> X
Federal:	\$6,680.68	\$3871.58
State:		
Other:		
Total Federal:	\$6,680.68	\$3871.58
Total match:		
Total project:	\$6,680.68	\$3871.58

5. Objectives:

1. Determine the hunter harvest of deer, feral pigs and black francolin by analyzing mandatory hunter questionnaires and hunter logs from Andersen Air Force Base.
2. Tabulate depredation permit take of deer, feral pigs, feral carabao and black francolin based on monthly Depredation Reports, which are required of all permittees for the duration of their permit.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Objective 1. A total of 573 hunting licenses and 1556 deer tags were sold in FY2010. Under Guam Hunting Regulations, there is a no tag requirement and bag limit for feral pigs. Hunting questionnaire reports indicated 132 deer and 97 pigs removed in Government of Guam and private properties. Tabulation of ungulates taken from Andersen’s hunting program was not completed during the report period.

Objective 2. Depredation permits are issued for property damage caused by ungulates. A total of 36 depredation permit applications were issued in FY2010. There were 31 private landowners and farmers registered for depredation permits and 5 permits were issued to AAFB. A total of 294 feral pigs and 256 deer were tallied as of June 2010, final data reports are pending for AAFB. Under AAFB permits, a total of 55 pigs and 157 deer were taken under FY 2010. There was no harvesting of carabao or black francolin under depredation permit.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:
Jeffrey Quitugua, Wildlife Biologist, 671-735-3955/6, jeff_quitugua73@yahoo.com

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: W-1-R-18

Grant name: Guam Wildlife Restoration

Project number and name: **W-1-R-18. Subproject B: Natural History and Ecology of Guam's Vertebrates. Study No. W-1: Threatened and Endangered Species, Job 1: Natural History of Endangered Birds.**

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budgeted	Actual <u>or Estimated</u> <u>X</u>
Federal:	\$103,322.72	\$33,418.80
State:		
Other:		
Total Federal:	\$103,322.72	\$33,418.80
Total match:		
Total project:	\$103,322.72	\$33,418.80

5. Objectives:

1. To determine the nesting success, home range, habitat requirements and activity patterns of Mariana crows in northern Guam in the Andersen air force Base Area, and on Rota.
2. To determine the nesting success and activity patterns of the Guam (Mariana gray) swiftlet at the Mahlac, Fachi, and Maemong caves.
3. To determine estimated number of pairs, clutches and size, nesting success and activity patterns of Guam rails in Area 50 and on Rota.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Objective 2. Four swiftlet counts took place at Mahlac cave in FY10. In November, the observations included 45 birds nesting with nine chicks present. In March, the observations included 47 birds on nests, five eggs and two chicks. In May, the observations included 75 adults on nests, 12 chicks and 5 eggs. In August, the observations included 87 adults on nests, 26 chicks and 3 eggs.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

Objective 1. The Guam population consists of two male crows. The population was monitored however no natural history studies were conducted. No crow work on Rota was conducted during the fiscal year due to permitting issues.

Objective 3. Due to the lack of staff biologists and technician, no fieldwork was done on Rota this fiscal year.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Jeffrey S. Quitugua, Wildlife Biologist, 671-735-3996, jeff_quitugua73@yahoo.com
Suzanne Medina, Wildlife Biologist, 671-735-3985, medinas@guam.net

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: W-1-R-18

Grant name: Guam Wildlife Restoration Program

Project number and name: **W-1-R-18. Technical Assistance to Activities Affecting Guam’s Wildlife Resources. Study No. W-1: Technical Assistance.**

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budgeted	Actual <u> </u> or Estimated <u> </u> X
Federal:	\$67,393.23	\$30,972.40
State:		
Other:		
Total Federal:	\$67,393.23	\$30,972.40
Total match:		
Total project:	\$67,393.23	\$30,972.40

5. Objectives:

1. To minimize the adverse impacts resulting from the construction of recreational, commercial, military and public facilities by attending, reviewing, making recommendations, etc. Report on the number of projects reviewed and provide information on the amount of habitat preserved, mitigations implemented, etc.
2. Participate in emergency exercises to salvage wildlife and/or minimize impacts of accidental oil and toxic substance spills on wildlife.
3. To pursue the possibility of establishing safe-harbor, habitat conservation plan agreements with private landowners and non-federal land to encourage the protection and enhancement of lands conducive to native wildlife.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

GDAWR reviewed and provided technical assistance for projects impacting wildlife on Guam in FY2010. GDAWR has worked closely with Andersen Environmental, US Fish and Wildlife Service, Guam National Wildlife Refuge, several Government of Guam agencies and private environmental contractors through informal and formal meetings to mitigate some of the impacts to natural resources.

In addition, GDAWR reviewed proposed projects and federal consistencies for proposed projects by Government of Guam agencies (Department of Public Works- Highway Division and Clearing and grading permits, Bureau of Statistics and Plans, Guam Environmental Protection Agency, Department of Land Management, and Guam Waterworks Authority) and several private consultant entities.

Major projects proposed during this reporting period include MIRC FEIS/OEIS, Draft and Final EIS for the marine relocation, EIS for the Jinapsin Access Road project, and numerous Federal Highway projects throughout Guam.

With the anticipation of the military build-up, DAWR staff attended monthly Natural Resources sub-committee meetings with Guam EPA, BSP, Guam’s Historical Preservation Office, National Park Service, GNWR, and NAVY-JGPO representatives and provided input regarding anticipated impacts to threatened and endangered species and their habitats.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Jeffrey S. Quitugua. Biologist, (671) 735-3996, jeff_quitugua73@yahoo.com

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: W-1R-18

Grant name: Guam Wildlife Restoration

Project number and name: **W-1-R-18. Coordination of Guam’s Wildlife Programs, Study No. W-1: Coordination, Job 1: Wildlife Coordination**

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budgeted	Actual <u>X</u> or Estimated <u>__</u>
Federal:	\$167,477	\$71623.66
State:		
Other:		
Total Federal:	\$167,477	\$71623.66
Total match:		
Total project:	\$167,477	\$71623.66

5. Objectives:

To plan, coordinate, supervise, and administer all wildlife restoration programs including programs for endangered species recovery, wildlife population monitoring, implementing of management plans, conduction technical assistance and review of projects affecting Guam’s wildlife, and ensuring legislation that affect Guam’s wildlife are in alignment with other regulations.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Throughout FY 2009 there were two wildlife biologists that rotated through the position in an acting capacity to ensure the smooth operation of wildlife restoration programs. General duties of the Wildlife Supervisor include coordination of staff schedules, signing of timesheets, ensuring projects and reports are completed as assigned, reviewing documents for Chief and Director’s signature, responding to public inquiries, and communicating general policies and procedures to wildlife staff.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist III, 671-735-3985, medinas@guam.net

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
 FY 2010

1. State: Guam

Grant number: W-1R-18

Grant name: Guam Wildlife Restoration

Project number and name: **W-1-R-18. Predator Control in Support of Guam’s Native Species Recovery. Study No. W-1: Feral Cat Control, Job 1: Cat Control in support of Guam rail establishment.**

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budgeted	Actual <u>X</u> or Estimated <u>__</u>
Federal:	\$22,037.15	\$20,086.00
State:		
Other:		
Total Federal:	\$22,037.15	\$20,086.00
Total match:		
Total project:	\$22,037.15	\$20,086.00

5. Objectives:

1. Remove feral cats from release sites and areas where Guam rails occur.
2. Opportunistically remove other non-native species that impact bird survival.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Forty-four Tomahawk Live Traps and 35 Oneida 1.5 Soft Leg-Hold Traps were set throughout FY10. Two purchase orders contracting JAM’s Wildlife Services on Rota resulted in a total of 8,272 trap nights with 17 feral cats trapped. Trapping took place at and around known rail locations and the release site (Duge area).

Outside of the two contracts with JAM’s Wildlife Services, 18 cats were removed from the Duge area as well.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist III, 671-735-3985, medinas@guam.net

John Mendiola, JAM’s Wildlife Services, 670-898-8505, arlinda_pinaula@yahoo.com

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources

1. State: Territory of Guam Grant number: F-1-R-14

Grant name: Guam Sport Fish Investigations

Project number and name: F-1-R-14. Guam Fisheries Development Construction of Fisheries Office Building

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam:

4. Costs:

Source	Budgeted	Actual X or Estimated
Federal : Sport Fish Restoration	\$1,062,334.27	\$192
State	-0	
Other: _____	-0	

Total Federal	\$1,062,334.27	\$192
Total match	-0	
Total project:	\$1,062,334.27	\$192

5. Objectives:

- a. GDAWR will develop a Scope of Work based on the draft Fisheries office and warehouse with a wet laboratory design by August 31, 2007.
- b. GDAWR will develop a Scope of Work to design a 50KVA diesel generator with housing to be installed adjacent to the fisheries office by August 31, 2007 to provide reliable power supply to the Fisheries office during Guam’s frequent power outages because of generator shutdowns or repairs by the Guam Power Authority, storms, earthquakes, and other adverse conditions.
- c. After GDAWR completes the environmental assessment (EA) and the expected finding of no significant impact (FONSI) is determined, a work request will be sent to the Department of Public Works to bid out the project.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

The Department of Public-Works identified and awarded a construction contract to build the new Fisheries Building with the Back-up Power and Parking Lot added. With 90% of the plans including blue prints of the building complete a notice to proceed (NTP) was approved. The new building will be built mainly on Lot No. 1110-1-1 NEW and a part of the proposed building will be on Lot No. 2395-5. The current memorandum of understanding (MOU) between U.S. Fish and Wildlife Service (USFWS) and the Guam Department of Agriculture identified only Lot No. 2395-5 as the site for the building. Consequently, the MOU had to be amended to include the second lot. Because of the discrepancy with the lots, the MOU was amended to add Lot No. 1110-1-1 NEW. The MOU was signed by the Director of the Guam Department of Agriculture, the Chief of the U.S. Fish and Wildlife Federal Assistance Program Region 1, and is currently being routed to the Guam Attorney General’s Office for approval. After which, it will be sent to the Governor of Guam for final approval.

The Guam Historic Preservation Office also advised GDAWR that because the project is funded by USFWS the request for a Section 106 consultation of the National Historic Preservation Act should be initiated by USFWS or the USFWS should delegate the responsibility to GDAWR. The USFWS sent a letter to the Preservation Office stating that the project has no potential to cause effects on historical properties based on the fact that the site had previously been used for at least 15 years as a demonstration farm. The letter went on to state that if the Preservation Office did not agree with the determination then the USFWS authorizes the Division of Aquatic and Wildlife Resources to initiate consultation with GDAWR concerning the proposed construction. The Preservation Office did not agree and stated that the demonstration farm was conducted at another location within the Department.

The Preservation Office required that an archaeological subsurface testing in consultation with the state archaeologist be conducted to determine the presence or non-presence of historic properties within the lot. Subsequent findings would determine if further archaeological work would be required or if the project would proceed without further archaeological mitigation, which would then be stated in the Certificate of Approval (COA). The Preservation Office sent over a scope of work and a list of consultants to contact to conduct the archaeological subsurface. Agriculture is currently obtaining price quotations from the consultants to conduct the subsurface testing.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work. N/A

Name, title, phone number, and e-mail address of person(s) compiling this report:

Jamie Bass, Fisheries Technician II, Phone (671) 735-3958, jddbass@hotmail.com.

Jay T. Gutierrez, Acting Assistant Chief, DAWR, Phone (671) 735-3980, E-mail
jaytgutierrez@yahoo.com

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources
FY 2010

1. State: Territory of Guam

Grant number: F-1-R-17

Grant name: Guam Sport Fish Investigations

Project number and name: F-1-R-17. Project 1. Offshore Fisheries Participation, Effort, and Harvest Surveys

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 31, 2010

3. Location of work: Island of Guam

4. Costs:

Source	Budgeted	Actual <u> </u> or Estimated <u> X</u>
Federal :	\$101,592.00	\$108,630.00
State	- 0 -	- 0 -
Other:	- 0 -	- 0 -
Total Federal	\$101,592.00	\$108,630.00
Total match	- 0 -	- 0 -
Total project:	\$101,592.00	\$108,630.00

5. Objectives:

- a. To monitor the health of Guam's reef, bottom, and pelagic fishery resource by conducting 192 offshore surveys each year at the three largest boat-launching facilities on island.
- b. To continue gathering limited biological data that will add to a long-term historical database on Guam's fish species by conducting 192 offshore surveys over a one-year period at the three largest boat-launching facilities on island.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

GDAWR’s Fisheries Section, conducted 192 offshore surveys (96 survey days with an AM and PM shift) including offshore creel surveys at the Agana Boat Basin (four a month), the Agat Marina (twice a month), and the Merizo Pier (twice a month), as well as participation surveys conducted four (4) times a month around the entire island to obtain data on islandwide boat based activity. All surveys were conducted, with no surveys missed during the fiscal year. To ensure adequate coverage, fisheries staff were doubled for weekend surveys at the Agana Boat Basin and Agat Marina to increase the number of interviews and make fish identification run quicker and smoother. The resultant data is then expanded to estimate the amount of fish harvested by boat-based methods and to identify trends in the fishery for both fiscal and calendar year reports.

The survey encountered 573 unique boats during boat-based creel surveys, 33% higher than the estimated 431 boats encountered in FY010. Trolling and Bottom fishing dominated the boat-based surveys, with 452 unique boats engage in trolling and 339 boats engaged in bottom fishing. A minimum total of 123 boats were intercepted engaging in snorkel spear fishing, while a minimum of 19 unique boats were encountered engaging in SCUBA spear fishing.

The number of intercepts per boat-based methods compared with FY08 is as follows: Trolling: 712 interviews up from 536; Bottom fishing: 150 interviews up from 130; snorkel spear fishing: 26 interviews compared from 25; SCUBA spear fishing: 3 interviews up from 3 in FY09; Jigging: 3 interviews up from 2; and Gillnetting: 6 interviews down from 8. Trolling is the most intercepted boat-based method since the creel survey time coincides with the departure and return time for the vast majority of trailered boaters engaged in this method. Charter fishing boats, too, are easily intercepted and fisheries staff have established a friendly relationship with that sector. Bottom fishing and spear fishing, on the other hand, can be difficult to survey if their catch is packed in ice or if the fishermen opt not to cooperate. Interviews with SCUBA fishermen have become to be difficult to obtain, with members of that fishing sector resorting to threats and uncivil language. Fishing methods such as overnight bottom fishing, spear fishing, and jigging are the most difficult to intercept since their return time often occurs past midnight.

Table 1 below summarizes the total boat-based harvest for FY10 and total harvests for the top five (5) boat-based methods. Comparing FY09 and FY10 harvest values, overall harvest values and trolling catch increased. Overall Harvest increased 35%, trolling increased 35%, bottom fishing increased a 28%, SCUBA spearing remained the same, snorkel spearing increased 46%, and gillnetting increased 17.1%.

SCUBA spearing and gillnetting intercepts to obtain participation, effort, and catch data remains elusive and can be difficult to obtain an adequate number of interviews. SCUBA

spearfishing tend to be confrontational while gillnetting and other methods may occur less often and are intercepted less often. Therefore, the significant increases of these methods may be a reflection of over- or under-expansion, where total catch is determined from the catch from a relatively few number of interviews multiplied by a relatively high number of expanded trips.

Table 1: Five-Year Harvest Totals for Top Five (5) Boat-Based Methods

Year	Total Harvest (metric tons)	Trolling (metric tons)	Bottomfishing (metric tons)	SCUBA Spearfishing (metric tons)	Snorkel Spearfishing (metric tons)	Gillnet (metric tons)
2007	303.1	246.6	25.6	12.3	8.6	7.0
2008	288.4	197.0	25.9	11.4	11.6	3.2
2009	370.3	272.1	40.1	19.1	13.4	14.4
2010	443.8	367.8	28.8	19.0	11.3	8.6
5-year Average	351.4	270.9	30.1	15.5	11.2	8.3

Table 2 shows the five-year trends with CPUE (catch per gear-hour) with the six most commonly encountered methods. Comparing FY09 and FY10 CPUE values, trolling increased 17%, bottom fishing decreased 7%, SCUBA spearfishing remained the same, snorkel spearfishing decreased 25%, jigging decreased 10%, and gillnetting decreased 12%. The CPUE values for SCUBA spearfishing, and gillnetting were above the five year average, while trolling, bottom fishing, snorkel spearfishing, and jigging were below the five year average.

Table 2: Five (5) Year Average CPUE for Boat-Based Methods

Year	Trolling CPUE (kg/gear-hour)	Bottomfishing CPUE (kg/gear-hour)	SCUBA Spearfishing CPUE(kg/gear-hour)	Snorkel Spearfishing CPUE (kg/gear-hour)	Jigging CPUE (kg/gear-hour)	Gillnet CPUE (kg/gear-hour)
2006	1.97	0.87	2.01	1.22	1.10	5.80
2007	2.43	0.82	7.47	1.73	1.1	5.7
2008	1.86	0.68	3.39	1.63	1.41	2.26
2009	1.66	0.66	7.47	1.39	1.10	8.53
2010	1.94	0.57	7.47	1.04	1.00	9.55
5-year Average	1.97	0.72	5.56	1.40	1.14	6.37

During FY10, trolling was dominated by skipjack tuna (*Katsuwonus pelamis*) with 160 metric tons (mt). Bottomfishing was dominated by onaga (*Etelis coruscans*), 1.8 mt, although a significant amount of bottomfish (2.4 mt) were not able to be identified to the species level. Data since FY09 seem to indicate that deepwater bottom fish species are overtaking shallow bottomfish species in total harvest. However, this may be due to having intercepted comparatively much deeper bottom fishing activity than shallow bottom fishing activity. For snorkel spearfishing, approximately 10% of their catches were not able to be broken down to the species level. Snorkel spearfishing was dominated by the striped surgeonfish (*Acanthurus lineatus*, 2.0 mt) and the bluespine unicornfish (*Naso unicornis*, 0.9 mt). SCUBA spearfishing was dominated by the highfin

rudderfish (*Kyphosus cinerascens*) 3.2 mt, the bluespine unicornfish (3.2 mt) and whitespotted surgeonfish (*Acanthurus guttatus*), 1.1 mt). In addition, approximately 6.3 mt of moray eels, probably taken due to interaction between the moray eel and the speared catch, were taken.

Some funding, technical support, hardware and software, and travel opportunities were provided by the Western Pacific Fishery Management Council and the Pacific Fishery Science Center. However, the bulk of the funding for the Offshore Creel Program is provided through Federal Aid.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work.

- a. Guam. Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region, 2009 Annual Report. Western Pacific Regional Fishery Management Council. Honolulu, Hawaii.
- b. Guam. Pelagic Fisheries of the Western Pacific Region, 2009 Annual Report. Western Pacific Regional Fishery Management Council. Honolulu, Hawaii.

Name, title, phone number, and e-mail address of person compiling this report: This report was prepared by Thomas Flores, Jr. Fisheries Biologist III, Telephone number (671) 735-4033, E-mail thomaspflorej@yaho.com.

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources (GDAWR)
 FY 2010

1. State: Territory of Guam

Grant number: F-1-R-17

Grant name: Guam Sport Fish Investigations

Project number and name: F-1-R-17. Project 2. Management of Guam's Marine Fisheries. Inshore Fisheries Participation, Effort, and Harvest Surveys

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 31, 2010

3. Location of work: Guam, Island-Wide

4. Costs:

Source	Budgeted	Actual <u>X</u> or Estimated
Federal : Sport Fish Restoration	\$124,067.00	\$125,674.00
State	-0-	- 0 -
Other: _____	-0-	- 0 -

Total Federal	\$124,067.00	\$125,674.00
Total match	-0-	-0-
Total project:	\$124,067.00	\$125,674.00

5. Objectives:

- a. To monitor the health of Guam’s reef and bottom fishery resource by conducting 192 inshore surveys each year along the coastline of Guam.
- b. To continue gathering limited biological data that will add to a long-term historical data base on Guam’s fish species by conducting 192 inshore surveys each year along the coastline of Guam.
- c. To monitor the health of Guam’s reef and bottom fishery resource by conducting 24 aerial surveys each year along the coastline of Guam.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

The project is part of the ongoing collaborative efforts between GDAWR, the Western Pacific Regional Fishery Management Council, and the Pacific Fishery Science Center to combine the inshore and offshore creel data to enable more appropriate and accurate fishery data summaries and interpretation, which may be used to promulgate laws to properly manage Guam's food fish resources. Some funding, technical support, hardware and software, and travel opportunities were provided by the Western Pacific Fishery Management Council and the Pacific Fishery Science Center. However, the bulk of the funding for the Inshore Creel Program is provided through Federal Aid.

7. Describe how the objectives were met. See "Supplemental Information" for additional requirements and "Attachments" for specialized tables.

Inshore Surveys

A total of 192 inshore creel and participation surveys (96 creel surveys and 96 participation surveys) were conducted along Guam's shoreline during FY10. A total of 43.0 metric tons of finfish and invertebrates was harvested in FY10, a decrease of 85% from the 282.6 metric tons harvested in FY09. The significant decrease was due to a decrease in the catch of juvenile rabbitfish (*Siganus sp.*). A total of 226 metric tons of juvenile rabbitfish was caught in FY09, compared to approximately 3 metric tons caught in FY10.

The Catch per Unit Effort (CPUE) for major shore-based methods showed wide variation between methods. CPUE for shore-based snorkel spear fishing decreased 90%, 0.06 kg/gear-hour in FY10 compared to 0.67 kg/gear-hour in FY09. CPUE for castnetting decreased 95%, 0.3 kg/gear-hour in FY10 compared to 6.5 kg/gear-hour in FY09. Hook-and-line CPUE decreased 80%, 0.03 kg/gear-hour in FY10 compared to 0.16 kg/gear-hour in FY09. Gillnetting showed a 228% increase in CPUE, 2.5 kg/gear-hour in FY10 compared to 0.76 kg/gear-hour in FY09.

The number of intercepts or interviews for the most common shore-based methods encountered in FY10 were 219 for Hook and Line (compared with 245 in FY09), 56 for Castnetting (compared with 59 in FY09), 9 for Gillnetting (compared with 13 in FY09), 6 for shore-based snorkel spearing (compared with 5 in FY09), and 5 for Hooks and Gaffs (compared with 4 in FY09). There were no intercepts for surround nets and shore-based SCUBA spearing in FY10.

Table 1: Summary of Top Seven (7) Shore-Based Fish Species Caught by Method

Species	Hook and Line (kg)	Castnet (kg)	Gillnet (kg)	Snorkel Spear (kg)	Surround Net (kg)	Hooks & Gaffs	Total (kg)
<i>Acanthurus triostegus</i> , convict tang	52	2,182	2,606	22	7		4,869
<i>Moolgarda seheli</i> , bluespot mullet			4,828	1	1		4,830
<i>Naso unicornis</i> , Bluespine unicornfish		867	3,069	91	1		4,030
<i>Siganus spinus</i> , Scribbled rabbitfish	415	1,529	1,056	35	59		3,094
Juvenile goatfish, <i>Mulloidichthys</i>		2,553					2,553
<i>Octopus sp.</i>				45		2,417	2,462
<i>Kyphosus vaigiensis</i> , lowfin rudderfish			2,396	30		14	2,426

Table 1 summarizes the top seven (7) species harvested during FY10 by shore-based methods. The top species harvested were the convict tang (*Acanthurus triostegus*, 4.9 metric tons), the bluespot mullet (*Moolgarda seheli*, 4.8 metric tons), the bluespine unicornfish (*Naso unicornis*, 4.0 metric tons), scribbled rabbitfish (*Siganus spinus*, 3.1 metric tons), juvenile goatfish (*Mulloidichthys sp.*, 2.6 metric tons), octopus (2.5 metric tons), and the lowfin rudderfish (*Kyphosus vaigiensis*, 2.4 metric tons). Large species of fish, such as parrot fish, groupers, and snappers, did not make the top shore-based species harvested.

Aerial Surveys

A total of 24 aerial surveys were conducted during FY10. A total of 1,270 marine animals were observed during FY10, an increase of 66% compared with 764 marine animals observed during FY09. Turtles comprised 81% of all animals observed, with 1,033 individuals observed. In addition, 168 dolphins, 30 whales, 23 sharks, 11 manta rays, and 5 eagle rays were observed. Turtle observations were highest during the months of December (109), April (91), and May (89), and all whales were observed in January.

9. List any publications or in-house reports resulting from this work.

1. Flores, T. "Bottomfish Plan Team Report" in Guam Module, Bottomfish Plan Team Annual Report, 2009. Western Pacific Regional Management Council. Honolulu, HI.
2. Flores, T., Tibbatts, R. "Pelagic Plan Team Report in Guam Module, Pelagic Plan Team Annual Report, 2009. Western Pacific Regional Management

Council, Honolulu, HI.

Name, title, phone number, and e-mail address of person compiling this report:

Thomas Flores, Jr., Fisheries Biologist III, fax (671) 734-6570, phone (671) 735-4033, thomasfloresjr@yahoo.com.

Annual Project Performance Report
Guam Division of Aquatic and Wildlife Resources (GDAWR)
FY 2010

1. State: Territory of Guam

Grant number: F-1-R-17

Grant name: Guam Sport Fish Investigations

Project number and name: F-1R-17. Project 3. Inshore Kids Fishing Derby

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 31, 2010

3. Location of work: Island of Guam

4. Costs:

Source	Budgeted	Actual <u>X</u> or Estimated <u>X</u>
Federal : _____	\$32,713.00	\$32,713.00
State		
Other: _____		
Total Federal	\$32,713.00	\$32,713.00
Total match		
Total project:	\$32,713.00	\$32,713.00

5. Objectives:

1. To teach sport fishing, provide young fishers with a positive fishing experience, and foster in them a conservation and management ethic, which will be determined through evaluation forms, by hosting two kid's fishing derbies each year for 150 participants at an appropriate site along the coastline of Guam. (See attached evaluation form.)
2. To provide an opportunity for parents and children to learn about and practice basic fishing skills including knot-tying and casting by participating in the Department's fishing derbies and clinics that are held twice each year.

6. If the work in this grant was part of a larger undertaking with other

components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met.

This year two derbies were held; the first on July 31st, and the second on August 14th. A total of 40 children competed in the derby on July 31st, and caught a total of 91 fish. Weather conditions were fair, with some short rain showers, but generally ok, and water conditions were flat. On August 14, 70 children competed, and caught a total of 45 fish. Weather conditions were good, overcast, but no rain and little wind. The water was a bit choppy

Two workshops were held for kids who were registered but didn't know how to fish or needed practice. The first workshop was held on Saturday, July 24, and the second was held on Saturday, August 7. 6 kids on July 24, and 9 kids attended the workshops on August 7. All participants were given evaluation forms, and asked to provide comments and suggestions for the Kids Derby. A total of 65 evaluation forms were returned to DAWR staff, 27 on July 31, and 38 on August 14. Please see attached the results of the surveys.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work. None

Name, title, phone number, and e-mail address of person compiling this report: This report was prepared by R. Brent Tibbatts. Fisheries Biologist II, (671) 735-3987. email- brent.tibbatts@gmail.com

Evaluation sheet for 7-31-2010

27 responses turned in- some questions had more than one response, and some were left blank

How did you hear about the derby?

Newspaper- 111111111111111111

Advertisement-1

News-1

Older siblings-11

Staff-11

Agat summer camp-1

Mayors office flyer-1

Friend-1

Mom-1

What other areas would you like to have the Kids Fishing Derby at?

Tumon-1111111111111111

Agat-111

Achang-1

Piti-11111

Current location fine-11

Tarague-1

Naval station-11

Inarajan-11

Ritidian-111

Merizo pier-1

Fena Lake-1

Paseo-1

New to the island, but any fishing area is good-1

What do you think would make the derby better?

Good the way it is-111111111

Other than location, great-1

Longer time-111

Shade-11

Change the time, earlier or later-11

More rods to use-1

Location-11

This is our first derby and it was pretty good-1

Officials wear better marked uniforms-1

Did you learn anything about conservation?

Catch and release-allowing small fish to grow big-11111111

Not fishermen destroying fish population but tourist attractions-1

Fish should be measured-1

Knew everything about-1

Must conserve our resources-1

Culture-1

As a first time parent to enter children in fishing derby, it was interesting-1

Preservation of our marine life-1

My children had to take a class on it at McCool elementary-1

Yes-1

No-1

Always try to practice and teach my children about their future-1

Results for evaluation forms for August 14, 2010 Kids Fishing Derby

38 responses turned in- some questions had more than one response, and some were left blank

How did you hear about the derby?

- Advertisement-11
- Relatives/friends-111111
- Newspaper-11111111111111111111
- Dept of Ag. employee-111
- Website-11
- Radio-1111
- Coral Reef Marine Center ad-11
- TV-1
- Media-11
- Previous participant-1111

What other areas would you like to have the Kids Fishing Derby at?

- Piti-11111
- Tumon-1111111111
- Pago Bay-1
- Matapang-11
- Ypao-11111
- Cocos Island-11
- Ritidian-1
- A place with fish-1
- Achang Bay-1
- Fena Lake-11
- This was great-1
- Beaches in the southern part of Guam.-1
- I don't fish so I don't know good areas.-1
- Inarajan-1
- Fish Pond-1
- Talofof-1
- Location is good.-11
- Nimitz Beach-11
- Rota-1
- Merizo-11
- Alupang cove.-1
- Doesn't matter. Fun everywhere-1
- Diego Beach-1
- Preserves-1
- Paseo bridge-1
- East Agana-1

What do you think would make the derby better?

- Expand the event to become a festival with more educational awareness programs, importance with conservation, MPAs , watersheds, forestry, etc.-1
- Earlier start-111
- It was good as it was-11111
- Location-11111
- More time to fish-11
- Fish. Not the derby's fault, but Guam's resources are hammered. Kill 'em all and leave your garbage behind-1
- Adjust timing to maximize the height-11
- It seems ok to me-1
- Around where there could be more fish-1
- More info on clinic-1
- Was organized. Excellent activity for my children.-1
- Tips in the class on how to bait a hook.-1

Afternoon fish like 4 to 5.-1
 My kids always enjoy the derby every year.-1
 Offshore wind.-1
 More fish-1
 Less rocky areas.-1
 Fiesta table-1
 Food vendors-1
 Water stations-1
 Announcer needs a microphone. Pre draw tickets, and post winners up.-1
 Include a derby for parents and teenagers-1
 Did you learn anything about conservation?
 Releasing baby fish so that they can grow and produce more fish-1111111
 Conservation is important for future generations to enjoy the fisheries-1
 No-111
 Love the fishery-1
 Takes a long time to get a fish community-1
 We're doomed-1
 Catch and release can improve future yield-1
 If the fish is too small, put it back to grow bigger.-11
 Catch and release is good-11
 Event contributes to cleaning reef.-1
 I guess we are not doing a good job at conservation. There were not many fish.-1
 Release small fish-1
 Monitoring of fish growth in Asan.-1
 Overfishing hurts everyone.-11
 The earlier we start conserving, the more fish there will be in the future.-1
 Fish like to congregate by the rocks.-1
 Asan beach park is overfished.-1
 Significance of the park and its relation to how the liberation of Guam began.-1
 Preservation is good for reef and fishes.-1

Other comments

Thank you for giving the kids this wonderful opportunity. What about a treasure hunt at various parks for older kids?-1
 Have different age category winners-111
 Provide hats for the participants-1
 Provide sunblock and requirements before participating-1
 More passes for the mall-1
 Have a PA system so announcements can be heard better-1
 Too much raffle shit. Chinese junk should be neither purchased nor produced.-1
 Have different types of bait available-1
 Well run derby this year-1
 Great assistance, great job-1
 Very well run today. Thank you for everyone's assistance. We had fun.-1
 Create a similar program for schools to participate.-1
 You should have water containers for refilling water bottles instead of all the garbage plastic bottles. Don't save the biggest prizes for last in the raffle.-1
 Water level plays a big role in catching fish.-1
 Thank you for such a nice program. Keep it up. This is my second generation of grandchildren that participated in the derby.-1
 Job well done.-1
 Wonderful event. Excellent staff. Great attitude and service. Thank you.-1
 More staff.-1
 Faster moving hook retrievers-1
 No dogs.-1
 Wonderful time. Maybe two derbies per year. As a grandparent, it was wonderful to see you take an interest in the children and future fishermen.-1
 Fantastic event. Well organized, great nutritious food, staff is friendly. Thank you, Dept. of Agriculture.-1
 Thank you to the staff for holding this great event and for your effort releasing my kids stuck lines. Please consider an even for teens.-1
 Do not have anyone go into the water where the kids are fishing because it chases the fish away. Please don't give out the suggestion form if you are going to have it at the same location.-1

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources (GDAWR)
 FY 2010

1. State: Territory of Guam

Grant number: F-1-R-17

Grant name: Guam Sport Fish Investigations

Project number and name: F-1-R-17. Project 4. Technical Assistance to Activities Affecting Guam’s Fisheries Resources

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 31, 2010

3. Location of work: Guam: Island-wide

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budgeted	Actual X or Estimated
Federal : Sport Fish Restoration	\$49,802.00	\$53,241.00
State		
Other:	-0-	
Total Federal	\$49,802.00	\$53,241.00
Total match		
Total project:	\$49,802.00	\$53,241.00

5. Objectives:

To provide technical information and increase public awareness on sport fishing and related issues to the public, the private sector, and local and federal government agencies on the island of Guam, as needed each year, through written comments and attendance at meetings.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

During FY 2010, the Fisheries Section reviewed over fifty (50) project proposals, including developmental plans, environmental assessments, environmental impact statements, and permit applications. Fisheries Staff attended approximately seventy-five (75) meetings and made approximately fifty (50) field inspections to review these proposals. Fisheries personnel maintained good working relationships with the Department of Land Management, Department of Parks and Recreation, Guam Bureau of Statistics and Plans, Guam Environmental Protection Agency, Guam Hotel & Restaurant Association, Guam Visitor's Bureau, University of Guam, U.S. Army Corps of Engineers (ACOE), National Park Service, U.S. Fish and Wildlife Service, Western Pacific Regional Fisheries Management Council, National Marine Fisheries Service, Natural Resources Conservation Service, U.S. Navy, U.S. Coast Guard, and U.S. Air Force regarding matters of environmental concern.

Various Fisheries staff actively served as members of the following groups: Western Pacific Regional Pelagic Plan Monitoring Team, Western Pacific Regional Bottomfish Plan Monitoring Team, Western Pacific Regional Coral Reef Ecosystem Plan Monitoring Team, Guam Coral Reef Initiative Advisory Group, Mitigation Working Group, Marine Preserve Eco-permitting Working Group, Guam Seashore Reserve Working Group, and international fishery organizations such as the Secretariat of the Pacific and FAO.

The Fisheries Section also provided the following technical assistance in FY 10:

1. Technical support to the Division's Agricultural Development Services (ADS), which represents the Department and the Division on the Application Review Committee (ARC), to review applications for rezoning, variances, and various types of development as they pertain to fisheries concerns.
2. Provided comments to proposed projects conducted by the University of Guam's Marine Laboratory. During FY10, an increase in projects propose by the University of Guam's Marine Laboratory was observed, including collection by off-island researchers.
3. Information to the Western Pacific Regional Fisheries Management Council (WESPAC) and the Plan Monitoring Team (PMT) on projects for bottomfish, pelagic fisheries and coral reefs.
4. Provided recommendations to the Guam Seashore Reserve Plan, which would help protect Guam's resources from various developmental activities.
5. Responses to requests for information on bills and laws and regulations pertaining to fish, endangered species, fishing and importation of fish.

6. Provided technical assistance to recreational activities in marine preserves including high school sports, religious organizations, new tourist-related businesses, and competitive sports.
7. Provided technical assistance to individuals requesting for information for harvest of coral and other marine biota.
8. Approximately, fifty (50) presentations on fisheries resources and marine conservation to schools and organizations during the year.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work. N/A

Name, title, phone number, and e-mail address of person compiling this report: Thomas P. Flores, Jr., Acting Fishery Supervisor, (671) 735-4033,
thomaspflorejr@yahoo.com

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources (GDAWR)
 FY 2010

1. State: Territory of Guam

Grant number: F-1-R-17

Grant name: Guam Sport Fish Investigations

Project number and name: F-1-R-17. Project 5. Visual Stock Assessment Surveys of Marine Preserves and Control Sites

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Achang Marine Preserve, Piti Bomb Holes Marine Preserve, Asan Bay, backside of Cocos lagoon

4. Costs:

Source	Budgeted	Actual ___ or Estimated ___X___
Federal :	\$20,900	\$21,171.00
State		
Other: _____		

Total Federal	\$20,900	\$21,171.00
Total match		
Total project:	\$20,900	\$21,171.00

5. Objectives:

1. To evaluate the effect on sport fish populations caused by the creation of five marine preserves where fishing is restricted or prohibited by conducting fish counts and timed-swim counts on at least 16 permanent transects located in reef flat and lagoon habitats in Achang Reef Flat Marine Preserve, Piti Bomb Holes Marine Preserve, Asan Bay, Pago Bay, and Cocos Lagoon, over a one year period.

2. To evaluate the effect on sport fish populations caused by the creation of five marine preserves where fishing is restricted or prohibited by conducting fish counts and timed-swim counts on at least 16 permanent transects located at the 20', 30', 40', and 50' depth contours of the fore reef slopes in Achang Reef Flat

Marine Preserve, Piti Bomb Holes Marine Preserve, Asan Bay, and the backside of Cocos lagoon, over a one year period.

3. To evaluate the effect on sport fish populations caused by the creation of five marine preserves where fishing is restricted or prohibited by conducting video-transects/quadrats on 16 transects located on the fore reef slope of Piti Bomb Holes Marine Preserve and Asan Bay.
4. To assess Tumon Bay Marine Preserve and an appropriate control site to determine transect locations and conduct fish counts and timed-swim counts on 32 permanent transects over a one year period.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

The Department was unable to conduct any surveys within the marine preserves because an MPA coordinator was not hired. Currently, documents have been drafted to hire an individual as a MPA coordinator on a limited term basis. If the individual withdraws their application during the hiring process like the past on island applicants, the Department will seek candidates from off island.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

See #7 above.

9. List any publications or in-house reports resulting from this work.

Name, title, phone number, and e-mail address of person compiling this report:

Jay T. Gutierrez, Assistant Chief, (671) 735-3980, jaytgutierrez@yahoo.com

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources (GDAWR)
 FY 2010

1. State: Territory of Guam

Grant number: F-17-R-1

Grant name: Guam Sport Fish Investigations

Project number and name: F-17-R-1. Project 1. Freshwater-monitoring Program.

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Island of Guam

4. Costs:

Source	Budgeted	Actual <u>X</u> or Estimated _____
Federal : _____	\$42,130.00	\$34,744
State		
Other: _____		

Total Federal	\$41,493.00	\$34,744
Total match		
Total project:	\$41,493.00	\$34,744

5. Objectives:

1. To monitor the freshwater fishery resource by surveying seven streams in three watersheds each year for analysis and comparison between watersheds by using appropriate parametric and non-parametric tests.
2. Conduct surveys of Guam’s freshwater resources (rivers, caves sinkholes, reservoirs) to identify Guam’s freshwater biological resources. (See attached table)
3. Create a database showing the distribution and relative abundance of Guam’s freshwater biological resources.

6. If the work in this grant was part of a larger undertaking with other

components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met.

Surveys were conducted in seven streams to determine the effect a dam has on tropical river fauna. In order to determine species composition, organism density, and habitat characteristics, visual surveys and physical data collections were conducted in randomly chosen quadrats, in both experimental (impacted by the dam) and control (not affected by the dam) rivers. Data was entered into a spreadsheet so statistical analyses can be performed to compare data between experimental and control sites and within baseline data collected in FY/97.

DAWR heightened public awareness of native freshwater species to increase public interest in maintaining healthy freshwater ecosystems. Distributing flyers and posters of the freshwater fauna of Guam to various schools and civic groups as well as conducting presentations to groups of school children about the freshwater fauna of Guam accomplished this.

Several rivers in which the freshwater fauna was unknown were surveyed, and the data collected and entered into a database. The goal of this survey is to produce a comprehensive inventory of Guam's freshwater biological resources, and to provide a baseline for future environmental work in the rivers. New biological data was collected from two rivers in 2010.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work.
None

Name, title, phone number, and e-mail address of person compiling this report:

R. Brent Tibbatts. Fisheries Biologist II, (671) 735-3987, brent.tibbatts@gmail.com

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources (GDAWR)
 FY 2010

1. State: Territory of Guam

Grant number: F-17-R-1

Grant name: Guam Sport Fish Investigations

Project number and name: F-17-R-1. Project 2. Fisheries Studies in Fena Lake

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Island of Guam

4. Costs:

Source	Budgeted	Actual <u>X</u> or Estimated <u> </u>
Federal : _____	\$2099.00	\$1729.39
State		
Other: _____		

Total Federal	\$2099.00	\$1729.39
Total match		
Total project:	\$2099.00	\$1729.39

5. Objectives:

Monitor the freshwater fishery in Fena Reservoir by conducting a stock assessment, using electrofishing and mark-recapture methodology to determine species density, and other environmental parameters.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. Due to ongoing access issues with the Navy, work on this project was not completed in 2010.

8. Discuss differences between work anticipated in grant proposal and

grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work.

None

Name, title, phone number, and e-mail address of person compiling this report: This report was prepared by R. Brent Tibbatts. Fisheries Biologist II, Telephone number 735-3987. E-mail- brent.tibbatts@gmail.com

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources (GDAWR)
FY 2010

1. State: Territory of Guam

Grant number: F-17-R-1

Grant name: Guam Sport Fish Investigations

Project number and name: F-17-R-1. Project 3. Masso Reservoir Fisheries Monitoring

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Island of Guam

4. Costs:

Source	Budgeted	Actual <u>X</u> or Estimated ___
Federal : _____	\$25,878.00	\$20,451.63
State		
Other: _____		

Total Federal	\$26,775.00	\$20,451.63
Total match		
Total project:	\$26,775.00	\$20,451.63

5. Objectives:

To monitor the freshwater fishery resource in Masso reservoir and to develop a management plan for recreational fishery on the lake by conducting mark-recapture studies on a yearly basis to collect biological information of the freshwater fisheries resource.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

10. List any publications or in-house reports resulting from this work. None

Name, title, phone number, and e-mail address of person compiling this report: This report was prepared by R. Brent Tibbatts. Fisheries Biologist II, Telephone number 735-3987. E-mail- brent.tibbatts@gmail.com

- have a question and answer session, and those individuals who answer a question correctly will receive the outreach items.
- e. Digitize poster and brochure files for future use.
 - f. Distribute other fisheries posters as they become available to further the knowledge pertaining to aquatic resources of Guam.
 - g. Obtain a purchase order by August 2010 to print 6,000 (ea) of the 2010 marine preserve calendars and distribute to the public to increase communication and knowledge of Guam's aquatic, freshwater, and marine preserve resources.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See "Supplemental Information" for additional requirements and "Attachments" for specialized tables.

The following objectives were met by the following activities during FY10: 1) Purchase orders were obtained for the printing of 1000 of (ea) "Help Save Guam's Reefs" -pencils, pens, and bumper stickers. The following items were given out during presentations for question and answer during outreach events and handed out during creel surveys. 2) Freshwater resource posters are in supply of (5,000). Posters were not ordered this FY10. 3) Fisheries posters pertaining to aquatic resources of Guam were distributed to the general public, Government agencies, Private companies and educational institutions. 4) A Purchase order was obtained September 18, 2010 to print 6000 (ea) 2011 Fish Wall and pocket Tide chart/Marine Preserve/Freshwater/Aquatic resources. 5) Purchase orders were not obtained this FY10 (December 10, 2010) for the purchase of Multilingual Reef/Ocean Fish Posters. Inventory was conducted and resulted in a sufficient amount resulting in (6,000 ea) 12,000 total fish posters.

Several of the other objectives were not met this FY10 due to time constraints. 1) Marine preserve posters were not created and produced. 2) The ordering of fisheries related conservation items (pins) for public distribution at lectures, presentations and other venues, were not completed this fiscal year.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Nathaniel Martin, Resource, Education, and Information Officer (Acting), (671) 735-3955/56, nathanemartin@hotmail.com.

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Territory of Guam

Grant number: F-19-E-1

Grant name: Guam Sport Fish Aquatic Education

Project number and name: F-19-E-1. Project 6. Guam Sports Fish Aquatic Education. Job 2: Produce posters and brochures illustrating: land events as they affect Guam's Coastal waters, reef and fisheries; life cycle of five common reef fishes; and reef fish functional group

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam: Island wide

4. Costs:

Source	Budgeted	Actual or Estimated <u>X</u>
Federal: Sport Fish Restoration	\$11,312	\$0
State		
Other:		
Total Federal	\$11,312	\$0
Total match		
Total project:	\$11,312	\$0

5. Objectives:

- a. Contract to update reef fish life cycle brochure and print (1000 @) for public dissemination.
- b. Contract to develop sedimentation brochure on the impacts to reefs and then print brochures (1000 @) for public education.
- c. Assemble erosion-reef poster brochure elements incorporating text, line art and photographs (2000 @).
- d. Upon completion of printing, the posters and brochures will be distributed to the public.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Several of the objectives were not met FY10 due to time constraints. 1) A printer company was not identified to print poster and brochures. 2) Purchase orders for posters and brochures were not completed. 3) Posters and brochures were not distributed to the public, educational institutions, to include displays.

The partially completed erosion-reef poster, brochure elements and produce text, line-art and photographs produced from previous FY09 was archived in the REIO digital library.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work. N/A

Name, title, phone number, and e-mail address of person compiling this report:

Nathaniel Martin, Resource, Education, and Information Officer (Acting), (671) 735-3955/56, nathanemartin@hotmail.com.

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Territory of Guam

Grant number: F-19-E-1

Grant name: Guam Sport Fish Aquatic Education

Project number and name: F-19-E-1. Project 6. Guam Sports Fish Aquatic Education. Guam Sports Fish Aquatic Education. Job 3: Maintenance and expansion of Aquatic education website

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam: Island wide

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”.

Source	Budgeted	Actual or Estimated
Federal: Sport Fish Restoration	\$24,799	\$0.0
State		
Other:		
Total Federal	\$24,799	\$0.0
Total match		
Total project:	\$24,799	\$0.0

5. Objectives:

- a. Contract web-master services to maintain the software programming of the GDAWR aquatic website, and to, update the design/appearance of the website.
- b. REIO provides content maintenance: Post available aquatic education materials, project reports, photos, etc.
- c. Disseminate new information in a timely manner.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

The following objectives were not met for FY10 due to time constraints: 1) Contract web-master services to maintain the software programming of the Aquatics website. 2) Resource Education and Information Officer (REIO) did not provide content maintenance due to lack of access to website 3) REIO was not able to Post available aquatic education materials, project reports, photos, etc. 4) REIO did not disseminate new information in a timely manner.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work. N/A

Name, title, phone number, and e-mail address of person compiling this report:

Nathaniel Martin, Resource, Education, and Information Officer (Acting), (671) 735-3955/56, nathanemartin@hotmail.com.

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Territory of Guam

Grant number: F-19-E-1

Grant name: Guam Sport Fish Restoration Aquatic Education

Project number and name: F-19-E-1. Project 6. Guam Sports Fish Aquatic Education. Job 4: Maintain digital library of fish and marine habitat photos

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam: Island wide

4. Costs:

Source	Budgeted	Actual or Estimated
Federal: Sport Fish Restoration	\$15,353	\$0.0
State		
Other:		
Total Federal		
Total match		\$0.0
Total project:	\$15,353	\$0.0

5. Objectives

- a. Maintain photographs of the images needed in the assessment, digitally photographing fish and marine habitats.
- b. Update photographs on the Fisheries section poster display board and have them printed.
- c. Archive the images as JPEG files on Gold/archival compact disks to assure retention of the quality of the images.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

The objectives of this project were not met for FY10: Due to time constraints

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work.
N/A

Name, title, phone number, and e-mail address of person compiling this report:

Nathaniel Martin, Resource, Education, and Information Officer (Acting), (671) 735-3955/56, nathanemartin@hotmail.com.

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Territory of Guam

Grant number: F-19-E-1

Grant name: Guam Sport Fish Aquatic Education

Project number and name: F-19-E-1. Project. 6. Guam Sports Fish Aquatic Education. Job 5. Public Presentations of Aquatic Resources

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam: Island wide

4. Costs:

Source	Budgeted	Actual or Estimated <u>X</u>
Federal: Sport Fish Restoration	\$81,713	\$18,624.00
State		
Other:		
Total Federal	\$81,713	18,624.00
Total match	-0-	
Total project:	\$81,713	18,624.00

5. Objectives:

To increase understanding of the importance of reefs, the knowledge of fish and other marine life, Guam’s marine preserves, and awareness of watersheds, and the erosive damaging effects of grassland fires by presentations to various groups, events, and schools.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

The objectives were met by the following activities during FY10:

a) The Division of Aquatic and Wildlife Resources (DAWR) delivered a total of thirty-seven (37) presentations on endangered species, coral reef ecology, toxic marine sea creatures, and fish to: public and private elementary, middle schools and high schools; University of Guam (UOG) classes; different summer camps; and the Department of Defense Education Activity (DODEA) High, elementary, middle, and high schools.

b) Aquatic presentations were observed and critiqued by the Resource, Education and Information officer for: preparation; adequate use of teaching aids, and delivery style.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

The dramatic difference in projected and actual costs could be attributed an unforeseen increase in the number of request for fishery related talks that included presentations at public and private schools, the University of Guam, and Fish Cooperative meetings.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report: Thomas P. Flores, Jr., Acting Fishery Supervisor, (671) 735-4033,

thomaspfloresjr@yahoo.com.

Nathaniel Martin, Resource, Education, and Information Officer (Acting), (671) 735-3955/56, nathanemartin@hotmail.com.

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources
 FY 2010

1. State: Territory of Guam

Grant number: F-6-B-6

Grant name: Guam Sport Fish Investigations

Project number and name: F-6-B-6. Repair and Maintenance of the Merizo Boat Ramp and Pier

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Village of Merizo

4. Costs:

Source	Budgeted	Actual <u> </u> Estimated <u> X </u>
Federal : _____	\$ 104,606.00	\$ 0.
State	-0-	-0-
Other: _____	-0-	-0-

Total Federal	\$ 104,606.00	\$ 0
Total match	-0-	- 0 -
Total project:	\$ 104,606.00	\$ 0

5. Objectives:

1. Have a contract in place to replace the Merizo boat ramp’s damaged walkway rubber bumpers and wooden supports for the bumpers, repair the Merizo Pier’s damaged concrete cross beams supporting the damaged pier bumpers, and replace the missing upper and lower bumper system on the eastern side of the pier by November 2009.
2. Replace the signage crediting Sport Fish Restoration for the Construction of the Merizo Pier to include crediting Sport Fish Restoration for the construction of the current parking lot/double boat ramp/wash-down facility.

3. Conduct at least two (2) clean-up days by fisheries staff to remove trash and fishing gear that may have entered the waters immediately around the Merizo Pier due to recreational and subsistence fishing activity.
4. Have a contract in place to water-blast the one (1) public boat ramp at the Merizo Boat Ramp by November 2010.
5. Have a contract in place to fix the damaged lighting and wiring at the Merizo Pier by December 2010.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met.

The Merizo Pier is a heavily used recreational and subsistence fishing area. The facility boats as a double ramp, lightings, and a locale adjacent to the channel north of the Cocos island which provides fishermen the opportunity to fish for resident food fish species as well as pulse fisheries. Upkeep of the facility ensures fishing opportunities for the public, including persons with disabilities.

The contract to repair the damages on the pier and replace the bumpers around the boat ramp walkways was awarded to Hubtec International Company for \$94,500 at the beginning of the fiscal year, but was not able to be signed by all agencies during FY10. The primary hold up occurred when the Department of Public-Works delivered the contract to the Attorney General's office in February for review, and despite numerous follow-ups, the contract did not leave the AG's office until September 2010. Having only the Governor's office to sign the contract, a request to have the grant extended until the end of FY11 should ensure the completion of this major repair work. Constant follow up with the project engineer from the Department of Public Works ensured that Agriculture was informed of the status of the contract to repair the pier and boat ramp walkway.

Several of the objectives were not met during the fiscal year. Late dispersal of boating access funds limited the time necessary to obtaining several quotations and prioritizing of the objectives to ensure that the contract to do the repair work was first met during FY10. Late dispersal of funding for this project made it not feasible to pursue water blasting of the ramp. Attempts were made to obtain quotations for rewiring of the lighting and updating the sign crediting Federal Aid for the funds, however, vendors were unable to give timely quotes for these two objectives. Trash pickup around the pier, however, was done twice during the fiscal year.

Two (2) clean up days around the boat ramp and pier facility were accomplished during FY10. This was completed by staff assisting during offshore creel surveys and addition of the site to the Guam Coastal Cleanup yearly activities. Dive physicals were done

during the summer in order to ensure that future cleanups involved diving the channel right off the pier.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

As a result of the late dispersal of boating access funds, replacing the sign crediting Federal Aid and obtaining a contract to repair the pier's damaged lighting were not completed. However, the waters around the pier and boat ramp were cleaned three times during FY10. Two days were done when staff was conducting creel surveys at the pier and the Guam Coastal Cleanup activities also cleaned up around the pier on September 25th. A majority of the trash collected were soda and beer cans, tires, metallic waste, and fishing line. The involvement of the Mayor's office has been maintaining the grounds of the facility daily and providing a presence that deters most vandalism.

Responsibility for maintaining the Merizo boat ramp and pier facility was given to the Merizo Mayor's office in February 2010. A Memorandum of Understanding was signed between Agriculture and the Merizo Mayor's office to ensure that the keeping the facility open to the public was continued, especially since this was a condition enabling federal funds to be used at Merizo. Agriculture is responsible for obtaining contractual work for repair work and for paying the power bill for the lights. The Mayor's office is responsible primary for grounds maintenance and paying the water bill. DAWR's project coordinator met several times with the Merizo Mayor to discuss possible future work.

9. List any publications or in-house reports resulting from this work.

Name, title, phone number, and e-mail address of person compiling this report: This report was prepared by Thomas Flores, Jr., Acting Fisheries Supervisor, (671) 735-4033, thomaspfloresjr@yahoo.com.

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources
 FY 2010

1. State: Territory of Guam

Grant number: F-20-B-1

Grant name: Guam Sport Fish Investigations

Project number and name: F-20-B-1. Repair and Maintenance of the Agat Marina Boat Ramp Facility

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 31, 2010

3. Location of work: Village of Agat

4. Costs:

Source	Budgeted	Actual <u>X</u> or Estimated <u>__</u>
Federal : _____	\$98,606.00	\$18,500.00
State	-0-	-0-
Other: _____	-0-	-0-

Total Federal	\$98,606.00	\$18,500.00
Total match	-0-	- 0 -
Total project:	\$98,606.00	\$18,500.00

5. Objectives:

1. Have a contract in place to repair the damaged walkway at the northern side of the public boat ramp at the Agat Marina by November 2009.
2. Remove any of the existing bumpers at both walkways at the public boat ramp at the Agat Marina and replace the missing bumpers with new rubber bumpers by November 2009.
3. Have a contract in place to waterblast the one (1) public boat ramp at the Agat Marina by November 2009.

4. Meet with the appropriate Port Authority staff to first determine the feasibility, and if feasible, develop a Scope of Work to remove appropriated sections of the existing damaged concrete beam and metal winch which is used by sport fishermen to offload large pelagics, such as Pacific blue marlins, directly into their vehicles from their boats. Then, obtain a contract to design and build a new winch system somewhere appropriate in the approximate area which will be available to the general

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met.

The Agat Marina is a marina providing recreational boaters and fishermen access to the southern banks to Apra Harbor. The facility has a double boat ramp with fixed walkways, lighting, and a winch to offload large pelagic fish. The boat ramp provides closer access to southern fishing grounds and Apra Harbor.

The contract to fix the damaged walkway was awarded to EVM Construction for \$48,800, and the Notice to Proceed was given on August 23rd. However, several weeks later the Department (DAWR) was informed that an additional damage was done to the piling at the damaged walkway, damage that may have been overlooked by the Department of Public-Works. Staff from the Port Authority of Guam, the Department of Public-Works, and the Department of Agriculture, are expected to meet at the beginning of the fiscal year to discuss a possible change order in order to do the necessary work to fix the damaged walkway. A total of \$80,000 was originally budgeted for this project.

Several of the objectives were not met during the fiscal year. Late dispersal of boating access funds limited the time necessary to obtaining several quotations and prioritizing of the objectives to ensure that the contract to do the repair work was first met during FY10. Late dispersal of funding for this project made it not feasible to pursue water blasting of the ramp. Also, the Department of Public-Works omitted changing the damaged wooden bumpers alongside the boat ramp walkway. Attempts were also made to obtain quotations for replacing the corroded winch adjacent to the boat ramp, and the Department is waiting for quotations from potential vendors. The Port Authority of Guam has been providing assistance with determining how much work needs to be done with the winch, either to replace only the damaged winch mechanism or removing the entire structure and replace it entirely.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

As a result of the late dispersal of boating access funds, replacing the corroded winch, waterblasting the boat ramp, and contracting out the wooden bumpers were not completed. The primary objective is to obtain contractual work to repair the damaged walkway was realized. A extension of the grant was requested to FY11, and with the major contract having been awarded, the objectives of this grant should be met at the end of FY11.

9. List any publications or in-house reports resulting from this work.

Name, title, phone number, and e-mail address of person compiling this report: This report was prepared by Thomas Flores, Jr., Acting Fisheries Supervisor, (671) 735-4033, thomaspfloresjr@yahoo.com.

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources
 FY 2010

1. State: Territory of Guam

Grant number: F-21-B-1

Grant name: Guam Sport Fish Investigations

Project number and name: F-21-B-1. Repair and Maintenance of the Boat Ramp, Docks A, B and pilings at the Agana Boat Basin

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Village of Agana

4. Costs:

Source	Budgeted	Actual <u>X</u> or Estimated _____
Federal : _____	\$520,106.00	\$ 1,693.76
State	-0-	-0-
Other: _____	-0-	-0-

Total Federal	\$520,106.00	\$ 1,693.76
Total match	-0-	- 0 -
Total project:	\$520,106.00	\$ 1,693.76

5. Objectives:

Job 1: Repair of Dock A at the Agana Boat Basin

1. Issue a contract to replace the Damaged Dock A Agana Boat Basin walkway with a composite wood lumber by January 2010. (\$250,088.00)

Job 2: Repair of Dock B at the Agana Boat Basin

1. Issue a contract to replace the damaged Dock B Agana Boat Basin walkway with composite wood lumber by May 2010. (\$180,000)

Job 4: Extend the Pilings at the Agana Boat Basin

1. Explore the option to replace existing pilings that may not be able to support the piling extensions, and then submit a Port-approved Scope of Work to allow for these pilings to either be replaced or stabilized. Status of the pilings should be completed by November 2009.
2. Conduct a feasibility study to determine if any of the pilings at the Agana Boat Basin are capable of supporting a five (5) foot extension composed of an overlapping metal pole filled with concrete.
3. Issue a contract to extend pilings at the Agana Boat Basin by May 2010, if supported by engineering standards. (\$75,000.00)

Job 5: Waterblast the two (2) boat ramp at the Agana Boat Basin

1. Have a contract in place to waterblast the two (2) public boat ramps at the Agana Boat Basin by November 2009. (\$7,0000.00)

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met.

The Agana Boat Basin is the heaviest used boat ramp facility for recreational boaters and fishermen on Guam. The facility boasts two double ramps, lightings, security cameras, and access to fuel and a business that buys fish. Commercial dive boats and parasail operations heavily use this facility.

The Port Authority of Guam is responsible for maintaining the Agana Boat Basin. Because berthed boats participating in eligible fishing activity for Federal Aid funding use the facility, a cost-sharing agreement between the Port Authority of Guam and the Department of Agriculture was developed. Activities such as waterblasting are paid for 100% by Agriculture, while other eligible activities that result in use by berthed boats are cost-shared, with Agriculture paying 82.5% of the cost.

Currently, the contract to repair Dock A was awarded to Hubtec Corporation for \$253,000. The Notice to Proceed was given to Hubtec on June 14, 2010 and the company has been working on obtaining the proper permits before an in-water work commences. The plan for Dock B is currently being finalized, and a pre-conference meeting for Dock B is expected to occur the first week of October.

Several of the objectives were not met during the fiscal year. Late dispersal of boating access funds limited the time necessary to obtaining several quotations and prioritizing of the objectives to ensure that the contract to do the dock replacement work was first met during FY10. Late dispersal of funding for this project made it not feasible to pursue

water blasting of the ramp. Attempts were made to obtain quotations for extending the pilings at the Marina, but an assessment by the Port Authority to determine which pilings may need replacing is still ongoing but should be completed early FY11.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

As a result of the late dispersal of boating access funds, obtaining a contract to do waterblasting and to extend the existing pilings was not completed. However, a contract to begin replacing Dock A was completed, and Scopes of Work to obtain a contract to replace Docks B is close to completion. Completion of the feasibility study to approach replacing the pilings to ensure they are able to hold the additional weight should also be completed early FY11. An extension of the grant to FY11 would ensure all objectives are met.

9. List any publications or in-house reports resulting from this work.

Name, title, phone number, and e-mail address of person compiling this report: This report was prepared by Thomas Flores, Jr., Acting Fisheries Supervisor, (671) 735-4033, thomaspfloresjr@yahoo.com.

**Annual Project Performance Report
Guam Division of Aquatic and Wildlife Resources (GDAWR)
FY 2010**

1. State: Territory of Guam

Grant number: F-8-D-5

Grant name: Guam Sport Fish Investigations

Project number and name: F-8-D-5 Maintenance and Repair of Fishing Platforms

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam: Ylig #1 (13°23'29.1" N 144°46'30.7" E) and Togcha Bay
Togcha #1 (13°21'55.8" N 144°46'20.0" E) Togcha #2 (13°21'55.5" N 144°46'21.9" E)

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budgeted	Actual ___or Estimated_X_
Federal : Sport Fish Restoration	\$57,496.00	\$447.64
State	-0-	-0-
Other: _____	-0-	-0-

Total Federal	57,496.00	\$447.64
Total match	-0-	-0-
Total project:	57,496.00	\$447.64

5. Objectives:

1. To upkeep, maintain, and repair the three (3) fishing platforms located on the reef flats of Ylig and Togcha Bays, over a one year period. This will include but not be limited to removal of accumulated trash in the vicinity of the platforms, inspecting, maintaining, and repairing fishing platforms. The type of repair will depend on the type of damage encountered and will be provided as needed.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Objective 5A, the department had completed the scope of work (attached document #1) needed in order to secure a contract for the repairs and maintenance for three platforms on April 19, 2010.

8. Discuss differences between work anticipated in grant proposal and grant agreement and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

On September 18, 2009, the department had submitted a request for review and approval application to extend the grant (F-8-D-5 amendment #1) from 10/01/2008 to 09/30/2010. The department received notice of federal assistance award for F-8-D-5 amendment #1 on June 21, 2010 expiring on September 30, 2010. Another request for grant extension application of F-8-D-5 was issued on July 12, 2010. On September 16, 2010 the department was informed to submit another grant proposal, F-8-D-6 application, grant agreement and narrative, with the SF425 completed forms and did so on the September 24, 2010 in order to continue the much needed maintenance and repairs to the three fishing platforms and to continue to enhance sport fish opportunities.

Plans to proceed with this project will be based on available funding.

9. List any publications or in-house reports resulting from this work.

Name, title, phone number, and e-mail address of person compiling this report

Shawn Wusstig, Fisheries Technician II (671) 735-4037, shawnwusstig@yahoo.com

Document # 1

Scope of Work
Fishing Platform Repair and Maintenance
Scope of Work

**From: Shawn Wusstig Department of Agriculture Division of Aquatic & Wildlife
Resources Fisheries Section Tel: 735-4037 Fax: 734-6570**

Subject: Request for Quotation

Project Site:

Ylig #1 GPS: 13°23'29.1" N / 144°46'30.7" E

Ipan Togcha #1 GPS: 13°21'55.8" / 144°46'20.0" E

Ipan Togcha #2 13°21'55.5" N / 144°46'21.9" E

Note: Vendor will coordinate with the person of contact 24hrs prior to maintenance and repairs of the fishing platforms.

Job Description:

- 1. Inspection, Maintenance and Repairs for (3) Fishing platforms 2 X per month.**
 - A. Inspect *footing foundation* of platforms, tighten nuts and bolts if needed and epoxy when needed and replace bolts and nuts if missing.
 - B. Inspect and tighten bolts, nuts and screws on the *rails surrounding the platforms, ladder, benches, and signs.*
 - C. Apply *non skid coat paint on ladders*, 1X per month
 - D. Apply marine coat (yellow) *paint by brush for fiberglass parts* 3 feet above water line to (3) platforms. Only on parts above waterline to minimize any spillage.

- 2. Removal of fishing debris (trash) from the three (3) platforms 2 X per month.**
 - A. Remove all trash to include paper, monofilament (fishing line) plastic wastes, aluminum cans, batteries and metal debris located *on the platforms.*
 - B. Removal of all lines tied *to platforms*, rope, monofilament (fishing lines), strings, and tuna cords and chains etc.
 - C. Removal of debris *below platforms decks, and surrounding areas 10 feet surrounding the platforms and including channel in front of the platforms* for

small debris weighing 50lbs or less. Includes, drift nets, tuna cords, metal debris, trash, batteries and cans.

3. **Removal of trash, debris, metal items, batteries, plastics, lines from shore access to (3) Platforms 2 X per month**
 - A. Removal of all trash, debris, *floating objects between shore and platforms, shores in front of platforms (3)*
 - B. Removal of *non biodegradable items* such as batteries, monofilament lines, tuna cords, chains, rope, aluminum cans, metal items on shore accessing platforms
- (3).
4. **Quantifying debris and items collected above, below platforms (3) including 10 feet surrounding platforms, and shore access to platforms using NOAA forms 2 X per month**
 - A. Debris collected at the platforms *is to be sorted* in a manner to quantify such items; Plastics, batteries, Metals, Aluminum cans, Fishing Sinkers, Glass, bottles, Monofilament lines, tuna cords, etc. The debris is to be separated and indicated on the NOAA coastal form provided by DAWR.
 - B. Debris collected *prior to disposal* should be separated and all recyclable items such as aluminum and car batteries are to be recycled. *Metal, glass and other non biodegradable items are to be disposed of properly to EPA specifications at solid waste sites.* Upon task completion, a copy of the solid wastes and or EPA receipts is to be given to DAWR accompanying the NOAA data sheets.
5. **Handling of debris and Quality control of debris collected 2 X per month to fishing platforms (3)**
 - A. All items collected during assigned job tasks, are to be brought to DAWR Fisheries office accompanying the NOAA data sheet indicating amount of items such as metal items, plastics, glass etc. Site of each platform to be indicated on each sheet (separate) to each platform site.
 - B. Tools utilized by contractor are supplied by the contractor. This includes trash bags, and vehicles used to transport materials from platform sites to DAWR and to dumpsite.
 - C. Dumpsite disposal of debris is paid by the contractor and a copy of receipt to be provided to DAWR fisheries office as proof of proper disposal.
 - D. The use of heavy equipment such as back hoes, jackhammers and diggers are not allowed on the shore without proper permits.
 - E. Contractor is liable for any damage to marine life.

- F. DAWR reserves the right to inspect sites at any time to ensure compliance with contract specifications.

IPAN TOGCHA FISHING PLATFORMS #1 & 2

GPS: #1 13°21'55.8" N / 144°46'20.0" E **#2** 13°21'55.5" N / 144°46'21.9" E



YDIG FISHING PLATFORM
GPS: 13°23'29.1" N / 144°46'30.7" E



Annual Project Performance Report
 Guam Division of Aquatics and Wildlife Resources
 FY 2010

1. State: Guam

Grant number: F-9-D-7

Grant name: Guam Sport Fish Investigations

Project number and name: F-9-D-7. Maintenance and Redeployment of DAWR FADs and SWMs.

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam: Islandwide

4. Costs:

Source	Budgeted	Actual <u>X</u> or Estimated <u>__</u>
Federal : _____	348,313	\$248,067.98
State	-0-	
Other: _____	-0-	

Total Federal		\$248,067.98
Total match	-0-	-0-
Total project:	643,826.00	\$248,067.98

5. Objectives:

- a. To maintain, preserve, and replace the 14 fish aggregating devices located between 3.5 and 12 miles off the island of Guam, in a one year period.
- b. To maintain, preserve, and replace the 34 shallow water mooring buoys located in 30-40 ft. of water off the coast of Guam, in a one year period.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met.

5a: In FY'09 reporting period eight FAD's were redeployed and one errant buoy recovery was attempted and FAD light maintenance was conducted. Initial contracts and awards to Cabras Marine to transport and deploy the FAD's were amended to reflect \$124,000.00 to increase \$106,191.50 for the eight FAD maintenance and deployment contract. On March 30, 2010 FAD's Haputo (#2) and Ledge were redeployed, April 7, 2010, 9 Mile and Agat, April 29, 2010 NOAA and Uruno (#3) were redeployed and on April 30, 2010 FAD's Umatac and Cocos were redeployed.

On May 14, 2010, 14 days after the Cocos FAD was deployed, a report from a credible local fisherman was received that the Cocos FAD was not on station and several miles southwest of its coordinate's midway to Galvez Banks situated approximately 13 miles Southwest of Guam and 16 miles from the Cocos FAD mooring coordinates. On May 19, 2010 the earliest possible date to secure a vessel with Cabras Marine and weather permitted, an attempt to recover the Cocos FAD was conducted. Upon inspection of its last known coordinates, we discovered the 7/8" Polypropylene line which is used for the bottom half of the FAD mooring system floating at the surface but could not locate the buoy which we suspect was cut due to chafing on the shallow Galvez Banks. We subsequently started to retrieve the remainder of the Polypropylene line estimated to be most of 1500' length up to the point Division of Aquatic and Wildlife staff and Cabras Marine crew could no longer safely retrieve line. Based on the weight and length of the line and depth we were in, we concluded that we had reached the lower 50' section of Galvanized 3/4" chain used to secure the FAD line system to its anchor and decided to sever the line at that point. Considering the circumstances and physical evidence, we believe that the cause of this FAD breaking free from its mooring, is anchor failure, but an isolated case since all other FAD's deployed prior to the Cocos FAD are still on line.

FAD light maintenance was conducted on Facpi #1, Facpi #2, 9-Mile and Umatac Buoys, which involved cleaning solar panels of salt build up and bird excrement. Facpi #1 required light replacement on October 25, 2010. Maintenance schedules are dependant on sea conditions. Plans to purchase new systems are pending and all 14 FAD locations are expected to be online in FY' 11.

5b: The Division of Aquatic and Wildlife Resources (GDAWR) is currently responsible for the maintenance and redeployment of 34 Shallow Water Moorings (SWM) sites located on the northern and leeward sides of Guam. Although GDAWR is responsible for all aspects of the SWM program, GDAWR established an agreement with the Guam Marine Awareness Foundation (GMAF) during FY05 to reinstall offline SWMs with components that would be obtained from GDAWR. There were no new SWM redeployments in this reporting period. Talks are on going with GMAF to confirm intentions and timelines for redeployments. In addition, plans to replace old galvanized materials on SWM buoy to increase resilience to elements and sturdiness are being researched. Current inventory of online SWM's have not been confirmed due to unfavorable sea conditions.

8. Discuss differences between work anticipated in grant proposal and grant agreement and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

Though GDAWR had planned to deploy 11 FADs in this reporting period, 8 deployments were made. Initial contracts and awards to Cabras Marine to transport and deploy the FAD's were amended to reflect \$124,000.00 for 8 deployments that exceeded the previous estimate of \$106,191.50.

9. List any publications or in-house reports resulting from this work.

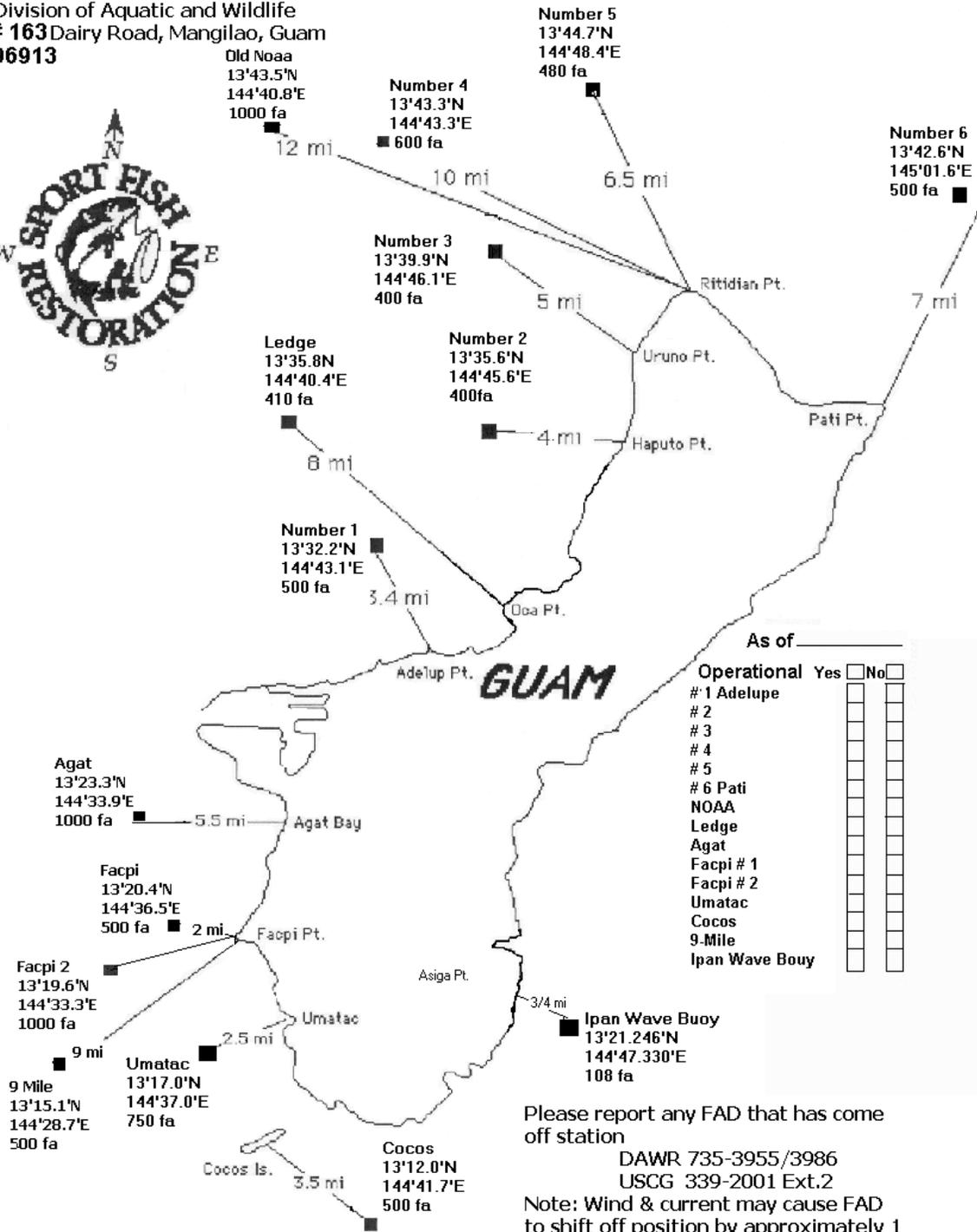
Please refer to the DAWR Website at ([http—www.guamdawr.org](http://www.guamdawr.org)) and Fisheries section annual reports (2008)

Name, title, phone number, and e-mail address of person compiling this report:

Thomas Flores, Jr., Acting Fisheries Supervisor, (671) 735-4033,
thomaspfloresjr@yahoo.com

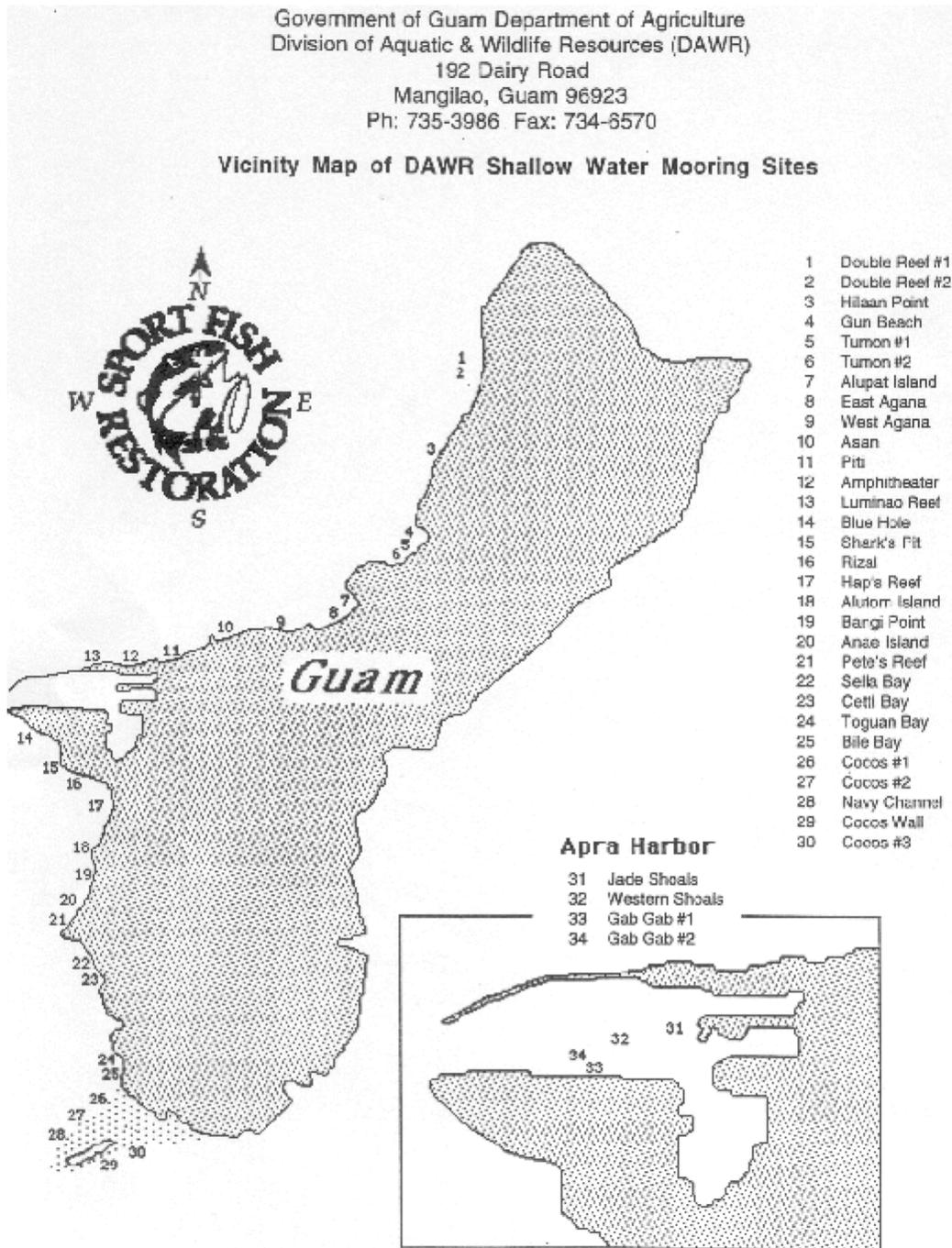
Jamie D. Bass, Fisheries Technician II (671) 735-3958, jddbass@hotmail.com.

Department of Agriculture
 Division of Aquatic and Wildlife
 # 163 Dairy Road, Mangilao, Guam
 96913



Please report any FAD that has come off station
 DAWR 735-3955/3986
 USCG 339-2001 Ext.2
 Note: Wind & current may cause FAD to shift off position by approximately 1 mile.
DO NOT TIE TO FAD BUOY

Figure – FAD sites around the island of Guam.



Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources
 FY 2010

1. State: Territory of Guam

Grant number: F-11-D-3

Grant name: Guam Sport Fish Investigations

Project number and name: F-11-D-3. Masso Reservoir Restoration

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Masso Reservoir

4. Costs:

Source	Budgeted	Actual _X or Estimated__
Federal : _____	\$531,043.00	\$1998.00
State		
Other: _____		

Total Federal	\$531,043.00	\$1998.00
Total match		
Total project:	\$531,043.00	\$1998.00

5. Objectives:

- a. Establish a Memorandum of Understanding (MOU) with the Ancestral Lands Commission by December, 2005.
- b. Have a contract in place to conduct a wetland delineation study by March 2006.
- c. Obtain permits and approvals from the U.S. Army Corps of Engineers and the Guam Environmental Protection Agency, which is dependant on the wetland delineation study, by June 2006.
- d. Dredge the Masso Reservoir.
- e. Install two sediment traps in the Masso River feeding in to the reservoir.

f. Install a fishing platform in the Masso Reservoir.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met.

The MOU with Ancestral Lands is no longer necessary, as the land was transferred to Department of Agriculture in June, 2006. Duenas, Bordallo, and Associates completed the wetland delineation work in January 2007. The 401 Water Quality Permit was obtained from EPA in January 2008. A waiver for wetland clearing was obtained from Department of Land Management in February 2008. A contractor was selected in March 2009. Grant was amended in May 2009. Additional funds were needed due to high bids from contractors. Final permits and building permit were obtained, and work began in December 2009. The estimated date of completion, September 30, 2010. Dredging of the Masso Reservoir, installation of the sediment traps, and installation of the fishing platform were all substantially completed by September 30, 2010. However, the floating dock remains to be delivered. Extension of the grant is required.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

10. List any publications or in-house reports resulting from this work. None

Name, title, phone number, and e-mail address of person compiling this report: This report was prepared by R. Brent Tibbatts. Fisheries Biologist II, Telephone number 735-3987. E-mail- brent.tibbatts@gmail.com

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources (GDAWR)
 FY 2010

1. State: Territory of Guam

Grant number: F-15-E-1

Grant name: Guam Sport Fish Investigations

Project number and name: F-15-E-1. Installation and Maintenance of Cultural Educational Signs along Guam’s shores

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budgeted	Actual <u>X</u> or Estimated <u>_</u>
Federal : Sport Fish Restoration	\$ 23,822	\$ 8,267.65
State	-0-	-0-
Other: _____	-0-	-0-

Total Federal	23,822	\$ 8,267.65
Total match	-0-	
Total project:	23,822	\$ 8,267.65

5. Objectives:

- A. To design artworks, frames, footings and text needed in order to fabricate cultural educational signs (10) ten total. **(Completed, pending installation)**

- B. Identify sites along Guam’s coast for the installation of the signs to promote cultural fishing practices. **(State Historical Preservation Office and Guam Coastal Zone Management Office–request to review proposed site locations for installation letters sent)**

- C. To adequately trim vegetation to ensure the signs are visible to members of the public and to conduct routine maintenance and inspections to the footings, bolts,

nuts, frames and replace parts on as needed basis to the cultural educational signs (10) ten.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Objective 5a. The Department staff completed the scope of work and obtained a contract with Guampedia Foundation to design the artwork and text needed in order to fabricate and install the cultural educational signs (10) ten total promoting cultural fishing practices on Guam. The Department had secured a contract through Guam Services Agency (GSA) and Purchase order number P106A06221 was issued on August 9, 2010 for the sum of \$5,070.00.

The completed signs comprised of five individual aluminum plates printed back to back on anti graffiti film in full color. The number of signs for this project is fifty individual back to back signs in order to complete a total of ten complete signs for installation. The scope entitles the contractor to design the layout, text and images for approval and review, and to print **ten** large signs back to back full color at two feet height by four feet width, and **forty** individual two feet by two feet individual aluminum sheets, image and text will be back to back in full color on anti graffiti film and placed on the aluminum sheets. The text and images are different in the front from the back of the signs (attachment 1 & 2).

The layout with the text information and artwork design was reviewed by Dr. Lawrence J. Cunningham author of Ancient Chamorro Society and Mr. Anthony Ramirez of the Guam Museum. The project layout included the collected images with their permission researched and scholarly reviewed text. Guampedia Foundation as part of the scope of work details awarded had provided the department copyrights of the layout for future use on September 13, 2010. The signs were delivered to the department on October 10, 2010.

The department had completed the scope of work for the footing design (attachment #3) and received quotations on June 15, 2010. The frame will be fabricated with galvanize pipes and weld, to include rust proof paint over the frame to protect the frame from the elements. The footing for the sign frames will consist of a one-foot rod through the two inch galvanize frame at a depth of two feet. The foundation will be poured with marine grade concrete cement and the nuts and bolts used to secure the signs will be stainless steel and is provided by the contractor.

Objective 5b. This objective was accomplished as requests to the Guam Historical Preservation Office, and Guam Coastal Zone Management Office to review the proposed sites for installation on July 16, 2010. The locations for the installation of all (10) ten educational cultural signs will be placed above the high tide water line, above the

vegetation in parks and hotel property areas along Guam's coast. Proposed sites locations for the installation of the cultural educational are as follows;

- 1) Asan Beach Park -prior to war in the pacific by pavilions GPS N 13.28.309 / E 144.42.709,
- 2) East Hagatna bay – GPS N13.28.748 / E144.45.020,
- 3) Adelupe, GPS N13.28.660 / E144.43.599,
- 4) Tanguisson beach park GPS N13.32.530 / E 144.48.424,
- 5) Tagachan beach park GPS N13.24.183 / E144.46.685,
- 6) Ipan public beach GPS N13.21.531 / E144.46.122,
- 7) Talofofu bay GPS N13.20.426 /E144.45.589,
- 8) Inarajan bay GPS N13.16.426 /E 144.44.782,
- 9) Merizo Pier GPS N13.15.984 / E 144.39.730 , and,
- 10) Nimitz beach Agat GPS N13.21.818 / E144.38.858.

8. Discuss differences between work anticipated in grant proposal and grant agreement and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

Objective 5b installation portion of the objective was not completed for the grant period. Though the department had sent out letters to review proposed site locations for the installation of the cultural educational signs on July 16, 2010 to the Government of Guam's Department of Parks and Recreation, State Historic Preservation Officer and Guam Coastal Zone Management Program the department was unable to secure a contract needed to fabricate the frames due to lack of funding needed for the installations, vegetation trimming and maintenance of the signs.

The request to extend for this program to be completed was issued on September 17, 2009 was needed for the installations, and to complete the remaining objectives in the grant narrative and agreement. The Department had requested to revise the title and scope of the project in September 17, 2009 (F-15-E-1 amendment #1) and received the Notice of Federal Assistance Award on June 21, 2010 expiring on September 30, 2010. In addition, based on our lowest bid for the installation of the frames and signs in objectives 5b and 5c, we had requested an additional (\$4,000.00) four thousand dollars. A separate application to extend was completed on July 16, 2010 (F-15-E-1 amendment 2) and submitted for review and approval.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report

Shawn Wusstig, Fisheries Technician II (671)735-4037, shawnwusstig@yahoo.com



Guam Fishery Science Center
U.S. Department of Commerce

Guam Cultural Fishing Practices



Director Paul C. Seiler
Deputy Director Joseph G. Torres



Courtesy of the Guam Public Library System

Fishing was the main source of sustenance for Chamorros for centuries. It was a communal activity performed by both men and women.

Men typically fished off shore and women within the reef. Salt-water fishing was reserved for upper caste clans, the chamorri. The lower caste, manachang, were limited to fresh water fishing in streams and ponds.



Funding provided by Sport Fish Restoration

For more information visit 



Lagua' Net Fishing

There are several nets used for fishing depending on the type of catch and the area being fished.

The lagua' pula, similar to a seine or dragnet, consisted of three connected nets with wooden poles woven into the ends. This net was used to trap fish and bring them closer to shore where they could then be collected or scooped up.



Talaya Throw Net

A familiar sight along Guam's shores is that of the fisherman waiting patiently for a school of fish to get close enough for him to cast his talaya (a cast net or throw net). The talaya is used to catch smaller fish such as mañahak (juvenile rabbitfish) or ti'ao (goatfish).

It takes a skilled fisherman to spin and throw the almost perfectly circular net. The Japanese or the Spanish possibly introduced this net-throwing technique. The word "talaya" is of Spanish origin.



Village Fishing

In the annual "atulai run" in Inarajan, fishing was a communal event that manifested the Chamorro value of *inafa' maolek* (making it good for everyone) and reliance on each other.

The night before, men set out their fishnet. The next morning, it was pulled to shore where men, women and children collected fish and prepared the catch for distribution.

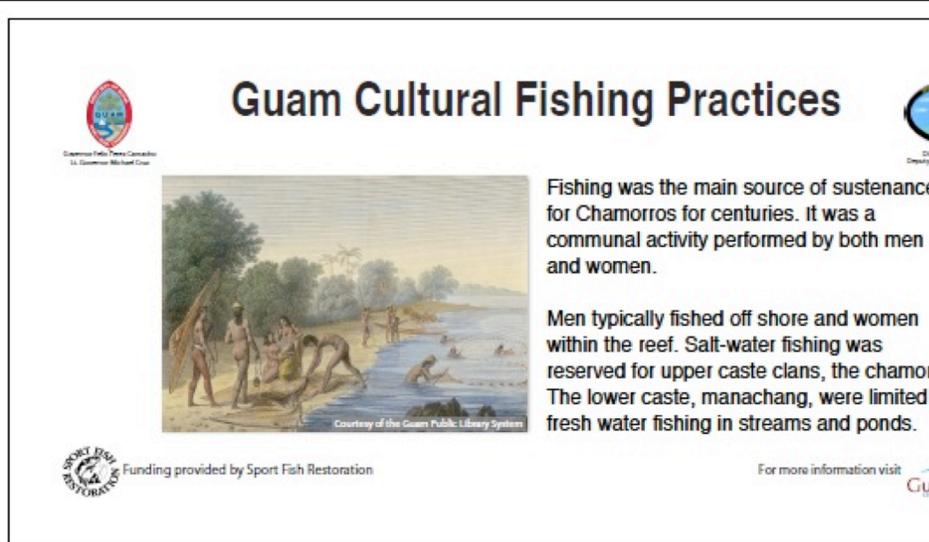
Inafa' maolek Making good for all



In village fishing, once the catch is pulled towards the shore the fish is collected and laid out to properly distribute to families and individuals. If a family was not there to participate in the catch, someone was responsible for ensuring that the family received a share. Fish was also given to people who were just watching and not part of the actual activity.

This practice is in the spirit of *inafa' maolek*, which is a central tenet of Chamorro culture. *Inafa' maolek* considers the importance of the well-being and benefit of the entire community over individual needs.

Attachment 2



Guam Cultural Fishing Practices

Fishing was the main source of sustenance for Chamorros for centuries. It was a communal activity performed by both men and women.

Men typically fished off shore and women within the reef. Salt-water fishing was reserved for upper caste clans, the chamorro. The lower caste, manachang, were limited to fresh water fishing in streams and ponds.

Funding provided by Sport Fish Restoration

For more information visit



**Sakman
Flying Proa**

The flying proa was an essential fishing tool for Chamorros. Western visitors were in awe of the speed and agility of the sea craft and at the skill of Chamorro sailors.

There were... used for... proa... used for... aide'

Attachment #3



**Poi
Chumming**

The poi or achuman was a device used by Chamorros until as late as the 19th century to catch a type of mackerel. It was a "fish training" device unique to the region. Successful use required patience and timing.

The top half was a hollow coconut shell and the bottom half was a half stone. The two parts were held together by a cord. The poi was filled with mashed coconut and thrown into the ocean. For several weeks fishermen would return daily to the site, pulling the poi a little closer to the surface. Eventually the fish, trained to come to the surface for food, were easily caught at the surface with a net.



**Haguet
Fishhook**

Chamorros traditionally used fishhooks common to the Micronesian area. The J-shaped fish hooks and V-shaped or L-shaped gorges were made of natural resources including turtle shell, seashell, fish bone and human bone. Fishhooks were later made of metal.

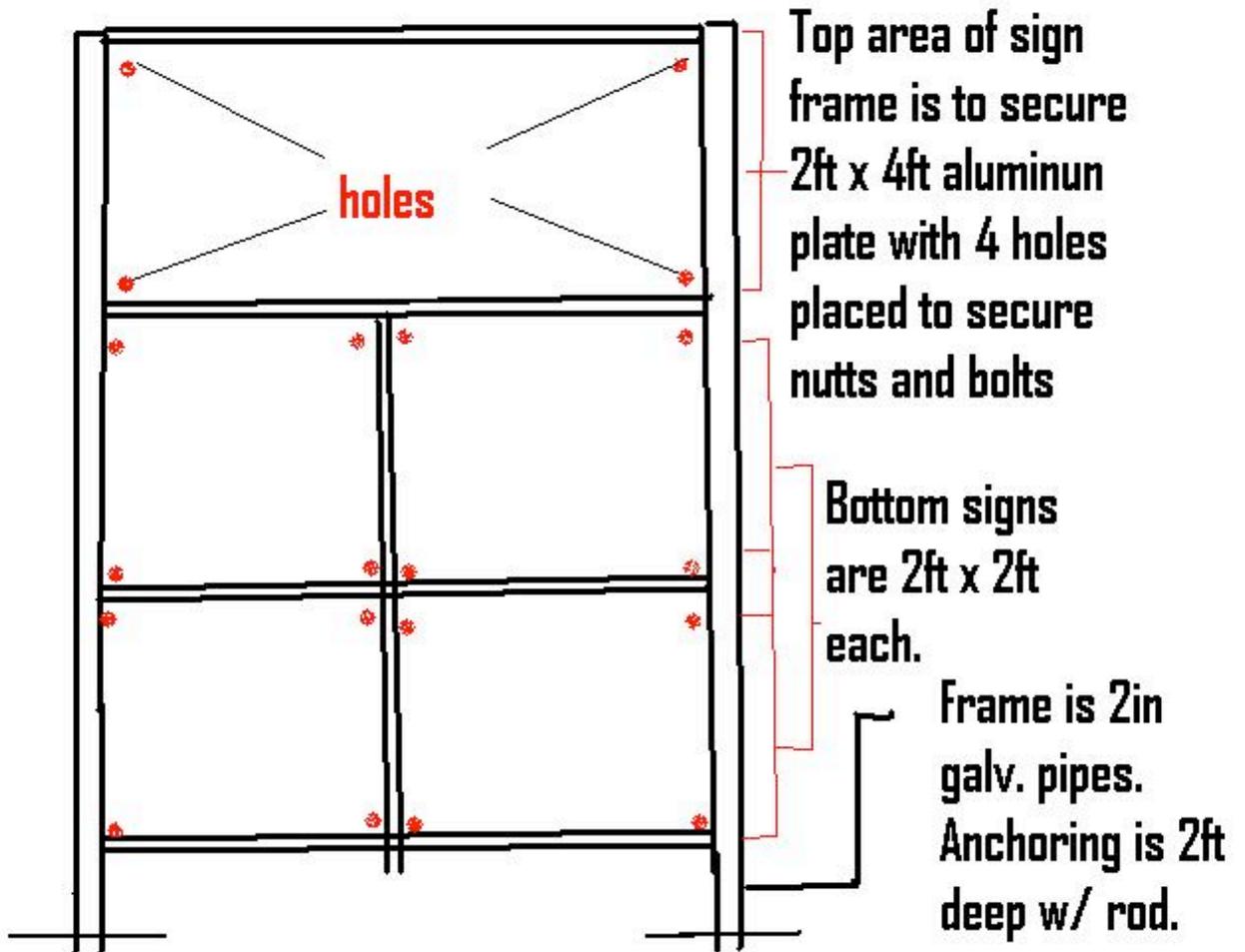
Chamorros were skilled fishermen and caught reef fish, sharks, mahi mahi, stingrays, flying fish, moray eels, marlin, tuna and barracuda.



**Ka'tok
Spear Fishing**

Another technique used by Chamorros was spear fishing. This technique, known as 'ka'tokcha', was used in shallow water where the fisherman would stand in the water or on rocks and spear fish; etok was used for an underwater spear fish without the aid of masks or fins; a peskan sumulo was used for spear fishing where the fisherman used a torch to guide the spear and also to attract fish. Fishermen would use two or more prongs called fisga.

Specs for Cultural education signs Department of Agriculture



	PURCHASE ORDER GENERAL SERVICES AGENCY DEPARTMENT OF ADMINISTRATION GOVERNMENT OF GUAM 148 Route 1 Marine Drive Piti, Guam 96925		TRAN CODE 6221 THIS PURCHASE ORDER NUMBER No. P106A06221 MUST APPEAR ON ALL INVOICES, PACKING SLIPS, PACKAGES, B/L, CORRESPONDENCE ETC.
	F.O.B.	*AIR FREIGHT TEL. CONTACT	SHIP VIA:
PREPAID-SHOW SHIPPING CHARGES AS SEPARATE ITEM ON INVOICE.			

VENDOR	TO: GUAMPEDIA FOUNDATION INC. GUAMPEDIA UOG STATION MANGILAO, GU 96923 Telephone: 671 734-0217 Fax: 671 734-0217	VENDOR G0097822	SHIP TO	CONSIGNEE, DESTINATION & MARKING DEPARTMENT OF AGRICULTURE 192 DAIRY ROAD MANGILAO, GU 96913-0000 MARINE PRESERVE AREAS EDUC SIGN
	AUTHORITY 3111(c) ** INVITATION NO. ** CONTRACT NO. TIME FOR DELIVERY SEE BELOW EXPIRING DISCOUNT TERMS:			

ITEM	ARTICLES OF SERVICES	QTY.	UNIT	UNIT PRICE	AMOUNT	DOCUMENT NUMBER	FAC
1	TO COVER COSTS FOR DIGITAL LAYOUTS, DESIGN, IMAGES, TEXT, PRINTING AND PLACING ON ALUMINUM SHEETS 10 EA. 2 FT. HIGH X 4 FT. WIDE AND 40 EA. 2 FT. HIGH X 2 FT. WIDE SIGNS IN FULL COLOR WITH ANTI GRAFFITI FILM AND PLACED BACK TO BACK. SEE ATTACH SCOPE OF WORK. POC:ALAN VAN AKEN 735-3983 NOTE: THE GOVERNMENT OF GUAM WILL NOT BE RESPONSIBLE FOR 'UNAUTHORIZED' PURCHASES OR SERVICES. Note: Amounts due this Purchase Order may be off set for monies due the Government of Guam inclusive of but not limited to taxes, fees, and returned checks other damages, penalties, and Attorney's fees, after failure to pay accordingly. To be coordinated between the requesting agency and vendor. ALL LATE DELIVERIES AND ACCEPTANCES ARE SUBJECT TO THE LIQUIDATED DAMAGES CLAUSE IN SECTION 6101(9)(a) OF THE GAR.	1	LOT	5070.00	5070.00	Q101623059	

SPECIAL INSTRUCTIONS TO VENDOR: B. SEND CERTIFIED ORIGINAL AND THREE (3) COPIES OF INVOICE TO DIVISION OF ACCOUNTS, DEPARTMENT OF ADMINISTRATION; GOVERNMENT OF GUAM, P.O. BOX 884, AGANA, GUAM 96910. C. PAYMENT UPON RECEIPT OF MERCHANDISE IN GUAM IN GOOD CONDITION. D. THIS ORDER SUBJECT TO CONDITIONS ON REVERSE SIDE. E. ** THIS ORDER IS SUBJECT TO THE SPECIAL PROVISIONS, AND BID GENERAL TERMS AND CONDITIONS SPECIFIED ON THIS BID. F. * ON ALL AIR SHIPMENTS HAVE AIR FREIGHT COMPANY CALL THIS NUMBER UPON ARRIVAL OF GOODS IN GUAM.	5070.00 TOTAL	A. DO NOT FILL THIS ORDER IF YOUR TOTAL COST EXCEEDS THIS TOTAL. INSERT CHANGES AND RETURN THIS ORDER FOR AMENDMENT.
CONTRACTOR: PLEASE SUPPLY PROMPTLY THE ABOVE ARTICLES OR SERVICES. ALL CORRESPONDENCE PERTAINING TO THIS ORDER INCLUDING INVOICES, SHIPPING DOCUMENTS AND PACKAGES MUST BEAR THE PURCHASE ORDER NUMBER SHOWN ABOVE. SEE REVERSE SIDE FOR PURCHASE ORDER TERMS AND CONDITIONS. PAGE	ADVANCE PAYMENT AUTHORIZATION PAYMENT ENCLOSED <input checked="" type="checkbox"/>	SIGNATURE:  Claudia S. Acfalle Chief Procurement Officer NAME TITLE

Control No. ORIGINAL/VENDOR'S COPY

Attachment –Payment Receipt to Guampedia, Inc., Guam Services Agency

VENDOR EFT STATEMENT

VENDOR: 00887822 GUAMPEDIA FOUNDATION INC.
CHECK DATE: 10/07/10 RUN ID: 04

PAGE: 1
TOTAL AMT: *****5070.00

Dept. of Agriculture

GUAMPEDIA FOUNDATION INC.
JOG STATION
MANGILAC, GU 96923-0000

REFERENCE	INV NO	INV DATE	ACCOUNT NO	AMOUNT
P106A06221	092010001	09/13/2010	5101HC91623ET131230	5,070.00
REMARKS: <u>EDUCATIONAL BEACH SIGNS</u>				

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Territory of Guam

Grant number: F-16-D-1

Grant name: Guam Sport Fish Investigations

Project number and name: F-16-D-1. Guam Fisheries Development Boathouse Repairs and Improvements

Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam:

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budgeted	Actual X_or Estimated__
Federal : Sport Fish Restoration	\$30,000.00	\$16,098.74
State	-0-	
Other: _____	-0-	

Total Federal	\$30,000.00	\$16,098.74
Total match	-0-	
Total project:	\$30,000.00	\$16,098.74

5. Objectives:

- a. To repair or replace severely eroded Department of Agriculture Division of Aquatics and Wildlife Resources boathouse sliding doors and its beams to ensure proper security of valuable equipment and inventory (i.e. important and confidential documents, two boats with trailers, three outboard motors, FADs and SWMs with ropes and hardware, and miscellaneous boating and survey equipment) and the safety of personnel.

b. Purchase and install a climate control or air conditioning unit to properly preserve important fisheries development and investigation archival documents.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Objective 5a. The Guam General Services Agency identified a vendor based on its lowest bid submittal and all work described in the scope of work has been completed. GDAWR’s boathouse doors and all it’s frame work has been replaced and in good working order. The boathouse facility and equipment are now secure and the safety of GDAWR staff and visitors that frequent the facility are intact.

Objective 5b. A vendor was identified and awarded the contract to install air conditioning units to climate control GDAWR storage facility. This section of the grant agreement was completed in the reporting period FY08 prior to the grant extension request. Valuable archival documents can now be properly stored in the Fisheries Warehouse.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. **List any publications or in-house reports resulting from this work.**
N/A

Name, title, phone number, and e-mail address of person(s) compiling this report:
Jamie Bass, Fisheries Technician II, (671) 735-3958, jddbass@hotmail.com

|

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources (GDAWR)
 FY 2010

1. State: Territory of Guam

Grant number: F-14-R-1

Grant name: Guam Sport Fish Investigations

Project number and name: F-14-R-1. Project 1. Management of Guam's Marine Fisheries Resources. Job 2: Assessing patterns of movement and life history traits of the orangespine unicornfish (*Naso lituratus*) and bluespine unicornfish (*N. unicornis*) in relation to marine preserves on Guam

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budgeted	Actual <u>X</u> or Estimated <u> </u>
Federal : Sport Fish Restoration	\$184 502	\$126 661
State	-0-	- 0 -
Other: _____	-0-	- 0 -

Total Federal	\$184 502	\$126 661
Total match	-0-	-0-
Total project:	\$184 502	\$126 661

5. Objectives:

1. To quantify movement patterns and residency times and home range size of individually tagged *N. unicornis* over a 1 yr period by using a remote acoustic tagging method which includes deploying an array of receivers along the marine preserve boundary (April 2008 – May 2009).

2. To establish if there are any spatial differences in the age structure of populations of *N. lituratus* and *N. unicornis* around Guam, and to estimate sex-specific growth curves (March 2008-April 2009) by otolith analysis.
3. To determine a gonadosomatic index for gonad samples collected on a monthly basis (in conjunction with the otolith study) over a 1 year period (March 2008-April 2009). Establishing the frequency and timing of spawning is often the first step in a population assessment of an exploited reef fish species.
4. To determine whether *N. unicornis* and *N. lituratus* are gonochoristic (separate sexes) or hermaphroditic (sex-change) (January 2009 – July 2009).
5. Develop a multi-dimensional simulation model based on a physical hydrographic model to track the dispersal potential of larval *Naso* cohorts. This model will incorporate both larval characteristics and adult spawning strategies, such that propagules are released at the time of spawning and from locations where spawning is known to take place (September 2009-January 2010)
6. Track the fate of larval cohorts released from the various marine preserves around Guam during peaks in spawning to determine if any export to non-fished sites is taking place (February – March 2010)
7. Based on the outcomes of the model, make recommendations to the local fisheries agency as to how “connected” the Guam stocks of *Naso* are, both at a local and regional scale and provide the agency with various management options (e.g. ban capture of target species during peak spawning season if adult stock from Guam are providing a large proportion of new recruits to the island) (May – August 2010).

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met.

Objective 1:

The acoustic array was deployed in 2008, with the results reported in an MSc thesis completed by Alyssa Marshall in March 2010. A manuscript has been prepared and submitted to Coral Reefs. A copy of the thesis is available on request.

Objective 2:

All otoliths of both species have been ground and read. This was done by Alyssa Marshall in July 2010 during a visit to the UOG Marine Lab. It was not possible to differentiate spatial differences as most of the samples were purchased from retail fish shops unable to provide detailed information on catch location. However the sex-specific size at age plots show for *Naso lituratus* large differences between males and females which suggest males reach a large body size for any given age compared to females (Figure 1). No such differences were evident for *N. unicornis* however it is worth noting that this species is relatively fast growing in the first year (mean size of 180 mm) but that growth slows considerably taking until 10 years before they reach 400 mm (Figure 2).

Objective 3:

The size and age at maturity for *N. unicornis* occurred before the first year and at less than 130 mm. This was very different to recent results from Hawaii, where this species reaches a size and age at maturity between 280 and 340 mm for females and males respectively (Bowen and Eble 2009).

For *N. lituratus* size and age at maturity was similar and occurred very small and young (~100 mm and <1 year respectively).

The frequency and timing of spawning has been summarised and for *N. lituratus* there is no apparent seasonality as mature stage individuals were found in 7 of the 11 months sampled. No apparent seasonality in spawning is evident for *N. unicornis*.

Objective 4:

The question of whether *N. unicornis* and *N. lituratus* are separate sexes has been answered using detailed histological techniques. For all fish examined to date, there is no evidence of hermaphroditism where male tissue is present in the gonads of females.

Objective 5:

The multi-dimensional simulation model has been completed during a visit to the UOG Marine Lab by Prof Eric Wolanski in May 2010.

Objective 6,7:

With the building of the simulation model completed, simulations are currently being run to determine the fate of larval dispersed from various sites around Guam. Objective 7 will be included in the final report due in October 2011.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

Alyssa Marshall, Justin S. Mills, Jennifer McIlwain, Kevin L. Rhodes (in review) *Passive acoustic tracking reveals highly variable home range and movement patterns among unicornfish in a marine reserve*. Submitted to Coral Reefs in October 2010.

Alyssa Marshall, Jennifer McIlwain and Kevin L Rhodes (2010) *The implications of heavy fishing on two herbivorous Naso species from Guam*. Oral presentation by Alyssa Marshall at the Australian Coral Reef Symposium held in Coffs Harbour, Australia (September 2010).

Name, title, phone number, and e-mail address of person compiling this report:

Dr Jennifer McIlwain
Associate Professor, University of Guam Marine Laboratory
Work: 671-735-2188 Mobile: 671-689-1852
jmcilwain@uguam.uog.edu

Figure 1: Size at age plots for *Naso lituratus* collected from numerous sites around Guam. Closed circles denote males and open triangles females.

Sex-specific mean size-at-age (\pm S.E.)

* indicates significant difference between males and females

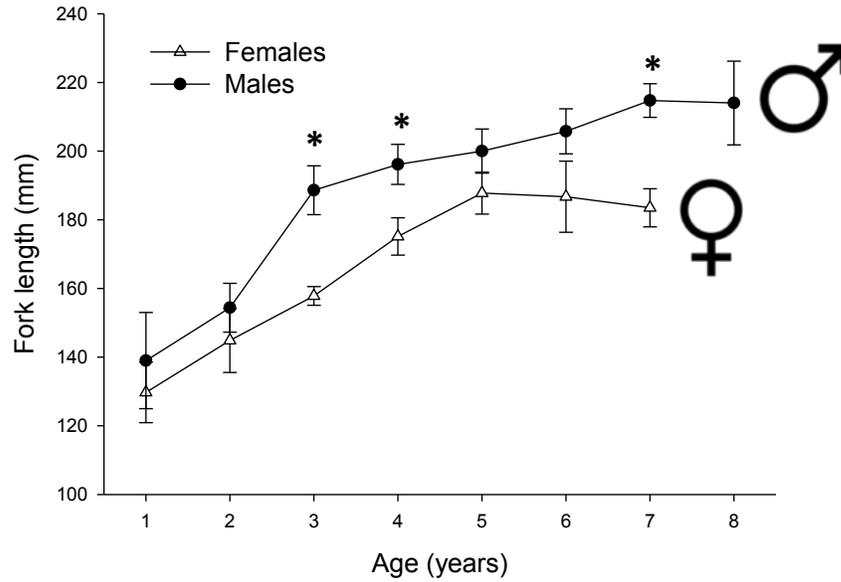
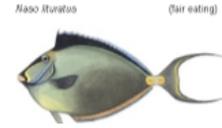


Figure 2: Figure 1: Size at age plots for *Naso unicornis* collected from numerous sites around Guam. Closed circles denote males and open triangles females.

Sex-specific mean size-at-age (\pm S.E.)

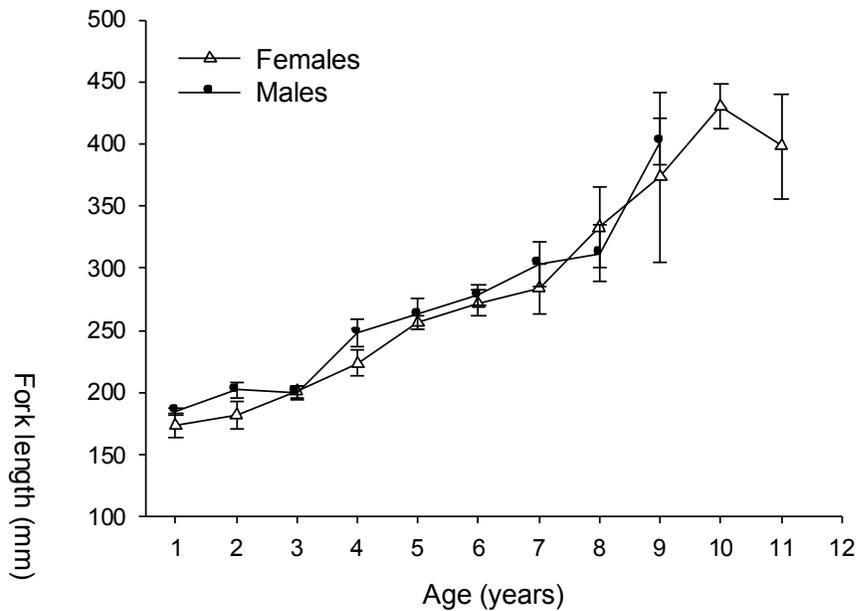


Figure 3: Size and age at maturity for *N. unicornis* adults collected from numerous sites around Guam during 2008. Red arrows show size and age at maturity for male and female *N. unicornis* sampled from Hawaii (Bowen and Eble 2009).

Naso unicornis - SIZE and AGE at maturity

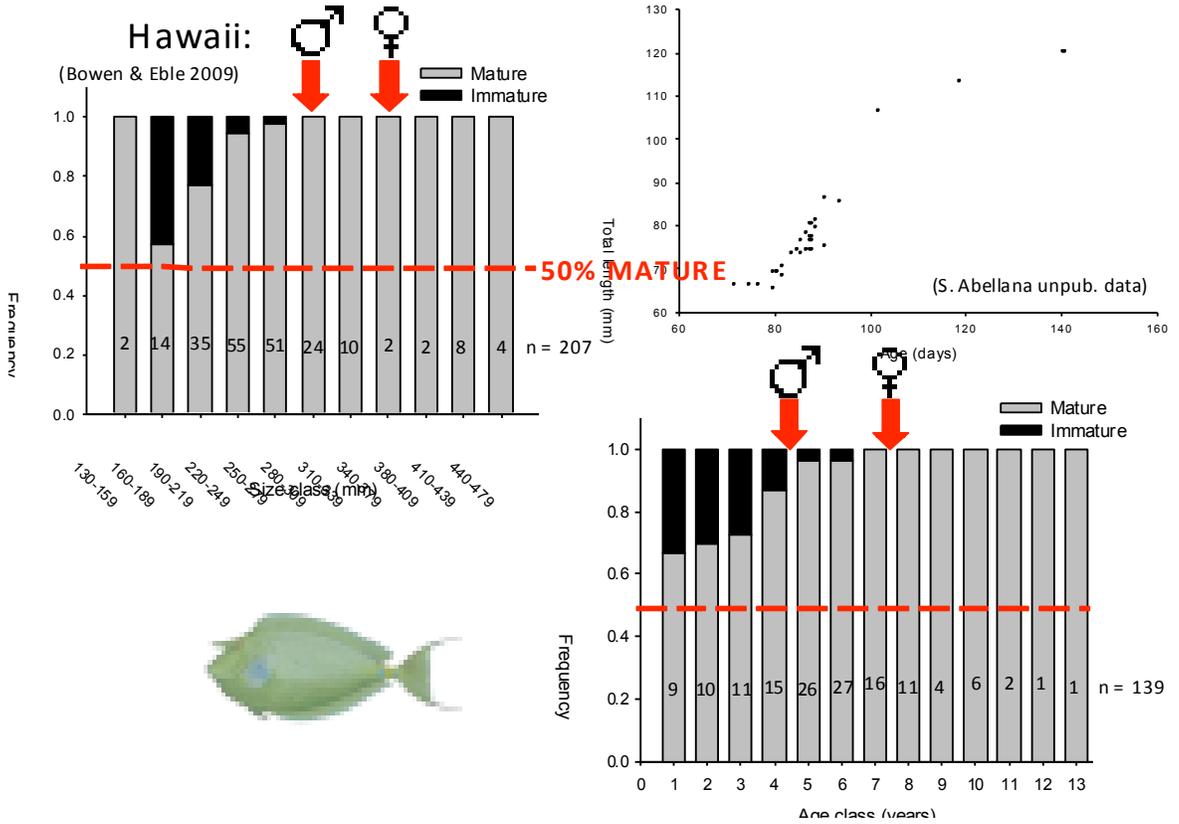
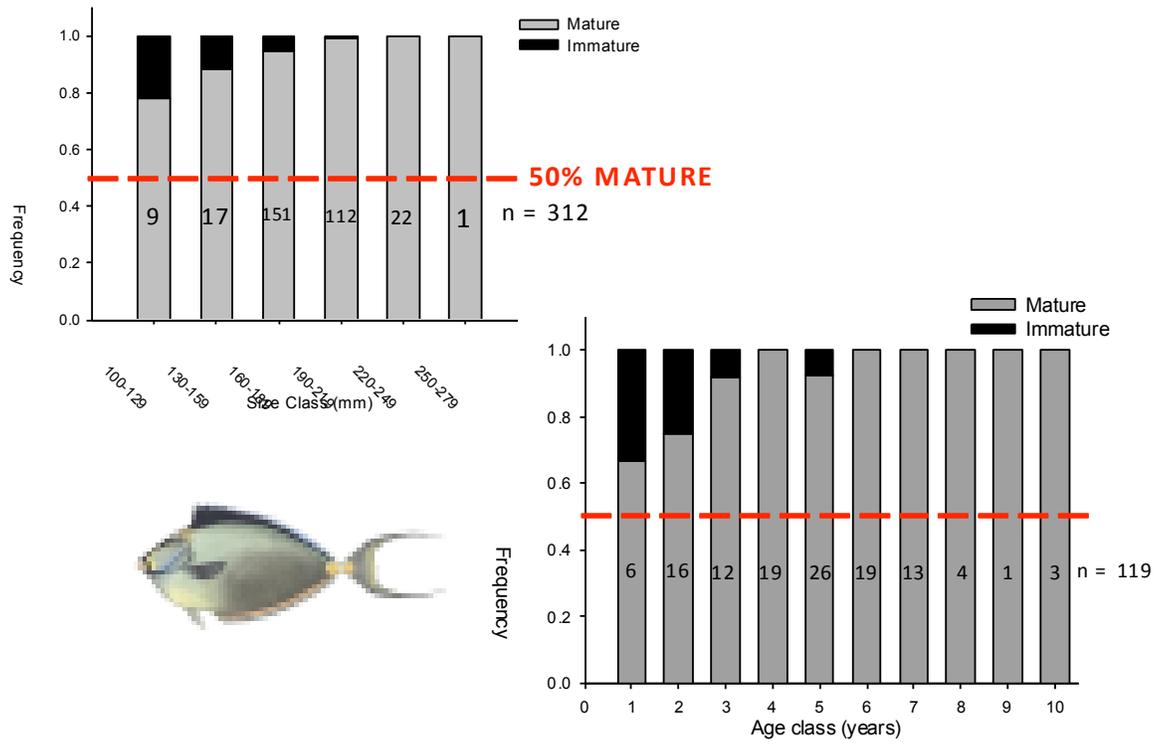


Figure 4: Size and age at maturity for *N. lituratus* adults collected from numerous sites around Guam during 2008.

Naso lituratus - SIZE and AGE at maturity



Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources (GDAWR)
 FY 2010

1. State: Territory of Guam

Grant Number: F-14-R-1

Grant Name: Guam Cooperative Sport Fish Investigations

Project number and name: F-14-R-1. Project 2. Guam Sport Fish Aquatic Education Job 1. Professional, Interactive, Portable Educational Displays.

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam Island-wide

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budgeted	Actual <u>X</u> or Estimated__
Federal :_____	\$70,000	-0-
State		
Other:_____		

Total Federal	\$70,000	-0-
Total match		
Total project:	\$70,000	-0-

5. Objectives:

1. Establish a Memorandum of Understanding with the Department of Agriculture and the Bureau of Statistics and Plans (BSAP) to sub-grant the project to BSAP by December 2008.
2. Contract a services to a professional by February 2009 to:
 - a. Create a variety of displays including a 3-dimensional model of Guam’s coral reef ecosystem.
 - b. Create crafted messages pertaining to the importance of Guam’s cultural fishing traditions, and the relationship with the island’s coral reefs as habitats.

3. Consolidate all resource information in an accessible location that can easily be obtained by everyone by September 2009.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

During FY10, the work request between the Bureau of Statistics and Plans (BSAP) and the Department of Agriculture was updated around the middle of FY10.

The original intent of the educational displays was to be housed in the U'Zeum. The U'Zeum is a new local children's science discovery center. The children's center is having a difficult time finding a facility to be housed and does not have the ability to accommodate these educational displays. Several attempts have been made to inquire about the current status of U'Zeum but, to date, we have not received any additional information about progress of building or housing a children's center.

During the past few months, DAWR personnel and GCMP staff met to conceptualize the design of the exhibit displays and discuss the current status of the project.

Despite the lack of information from U'Zeum, the project will continue forward and aim to produce two different types of displays. The first type of display will be static and feature an overview of the history of fishing on Guam describing traditional practices and methods. The second display will be interactive and will reinforce the information from the static display. This interactive display will include something similar to a video game for children to play and learn about Guam's traditional fishing methods. A gaming developer will be sought to provide services through a contract or a requisition.

There has not been any invoices or any cost incurred through this MOU. Invoices will be submitted and reported in the next reporting period.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

See #7 above.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Evangelina Lujan, Administrator, Guam Coastal Management Program, Tel.: (671) 475-9672, Email: vangeluja@yahoo.com

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources (GDAWR)
 FY 2010 with no-cost extension requested

1. State: Territory of Guam

Grant number: F-14-R-2 [54-R-720586-R-5]

Grant name: Guam Sport Fish Investigations

Project number and name: F-14-R-2: Characterization of Mangrove Snapper Spawning Aggregations and Sites in Selected Outer Estuarine Bays of Guam, Phase II

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 28, 2010 [no-cost extension requested]

3. Location of work: Island of Guam

4. Costs: (To be completed by UOGML Administrative Officer and submitted separately)

Source	Budgeted	Actual <u>X</u> or Estimated <u> </u>
Federal : _____	\$38,781	\$16,460.39
State	- 0 -	- 0 -
Other: _____	- 0 -	- 0 -

Total Federal	\$38,781	\$16,460.39
Total match	- 0 -	- 0 -
Total project:	\$38,781	\$16,460.39

5. Objectives:

- a. Tag, release, and attempt to observe adult mangrove snappers from three different river systems on a single spawning aggregation site or on multiple sites.
- b. Quantify the temporal and spatial distribution of fishes on one or more spawning aggregation sites relative to the location of the respective rivers and estuaries that adults may utilize; determine the relative abundance of fishes in spawning aggregations determine the estimated density of fishes in aggregations.
- c. Determine and quantify the reproductive behavior of this species on spawning aggregation sites.

- d. This objective will be met after the site(s) has (have) been identified. We will utilize the ArcGIS program to incorporate GPS data on the location of the site estimated from the modified protocol.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Note: This project was terminated under the old system of project awards and replaced with a stand-alone award that applied through 2009; a no-cost extension request for this second phase was requested for 2010. This request was approved late in FY2010.

Objective A: As reported previously (FY2009), in addition to collecting mangrove snappers in the Pago, Ylig, and Talofofu rivers, we identified adult habitats along the western coast of southern Guam, between Cetti Bay and Cocos Island and began to attempt tagging in this area. I shifted the focus from capturing and tagging (Floy tags) fishes to capturing and tagging large adults with bioacoustic tags and Floy tags. The acoustic tags are 13mm in size and were originally intended for use with groupers; because large groupers are difficult to find consistently I have opted to use a subset of these tags on mangrove snappers instead. Unfortunately, fishes collected to date have still been too small to allow for the use of these tags. Nevertheless, to detect mangrove snappers and other species on both southwestern (Orote Point to Cocos Lagoon) and southeastern (Cocos Lagoon to Pago Bay) I added additional hydrophone/receivers to the existing array. Receivers installed on the southwestern coast have been doing double duty as they have already been recording data from groupers tagged in this area (see F-14-R-1 report; this project continues as Phase III as a stand-alone project). The new phase III is the consolidation of III and IV. III was meant to be the second year of phase I, repackaged as phase III initially before the conversion. the statement ‘continues’ is meant to refer to the first year of the consolidation. The receivers installed on the southeastern coast are also doing double duty by tracking mangrove snappers but also additional species (groupers and large trevallies) that will be tagged between Cocos Lagoon and Pago Bay. Aside from the late arrival of funds and inclement sea states, boat use limitations continued to be a problem when trying to collect and tag fishes on the east coast. The Marine Laboratory continued to suffer a shortage of available boats and so kayaks were employed also in attempts to collect sizeable fishes for tagging. I continue to expect that mangrove snappers will migrate to one or more spawning aggregation sites between June-September. The one or more sites remain to be identified. it may be that there is a single site for the entire island or one + on the east coast and the same for the southwest coast. We are now deploying traps to help speed up collections. A collection of fish-specific signatures detected by the acoustic array should allow me to track movement patterns to one or more of these sites. I am awaiting data-downloads. If

signatures are detected, active tracking with a hydrophone should allow me to pinpoint the location of a spawning aggregation site. Once located, I can begin to characterize the site by direct visual measurements that will be enhanced by the use of a GPS-linked fathometer.

Objective B: No spawning aggregation sites have been identified yet but data collection continues.

Objective C: No spawning aggregation sites have been identified yet and so no reproductive behavior has been observed.

Objective D: No spawning aggregation sites have been identified yet. Results should include GIS bathymetric mapping of the spawning aggregation site(s).

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. As stated above, this phase of the study includes the use of bioacoustic telemetry and a wider range of tagging sites in an attempt to solve the problem of poor returns for fish tagged with conventional Floy tags alone. The use of bioacoustic telemetry is fortuitous and done at no additional cost to the project. Additional species have been added to the list and the objectives have been modified to reflect this in FY2011.

9. List any publications or in-house reports resulting from this work. N/A

Name, title, phone number, and e-mail address of person compiling this report:

Dr. Terry Donaldson, University of Guam Marine Laboratory, (671) 735-2175,
donaldsn@ugam.uog.edu and terryjdonaldson@gmail.com

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources (GDAWR)
 FY 2010

1. State: Territory of Guam

Grant number: F-14-R-3

Grant name: Guam Sport Fish Investigations

Project number and name: F-14-R-3 Analyzing and Assessing Recreational Impacts on Coral Reef Habitat and Determining a Carrying Capacity Within Marine Preserves.

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Piti Bomb Holes Marine Preserve and Tumon Bay Marine Preserve

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budgeted	Actual <u>X</u> or Estimated <u> </u>
Federal :	\$100,000	\$97,626.25
State		
Other: _____		

Total Federal	\$100,000	\$97,626.25
Total match		
Total project:	\$100,000	\$97,626.25

5. Objectives:

- a. To obtain a contract to conduct a Limits of Acceptable (LAC) process by March 31, 2009 and complete the process within a year.
- b. To create awareness to the public about the impacts to the coral reef fisheries and habitat so responsible attitudes can be developed towards these resources.
- c. To conserve and manage fisheries and recreational activities within the preserves by developing an implementation and monitoring plan for the Tumon Bay and Piti Bomb Holes marine preserves to prevent impacts and depletion of the coral reef fisheries and habitat.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

During FY2010, the Department continued with the Limits of Acceptable Change process. The 3rd step of the LAC process was held on November 3, 2009 at the Tamuning Senior Citizens Center for the Tumon Bay Marine Preserve and on November 5, 2009 at the Hagåtña Community Center for the Piti Bomb Holes Marine Preserve. Step 3 focused on selecting indicators of desired social and environmental conditions.

Prior to the planning sessions, the Department sent a news release, which described the purpose of the project and invited the public to continue to participate in the community planning sessions, to various local news organizations including KUAM, Pacific News Center, Guam Pacific Daily News and the Marianas Variety. An article was also written in the Marianas Variety. Notices were given to the Mayors of Tamuning, Piti and Hagåtña and were published in their weekly bulletin. Invitation letters were both faxed and emailed to various stakeholders, including fishermen, tour operators, paddling clubs, jet ski operators, dive and snorkel shops and instructors, representatives of local resource agencies, and members of the general public, as well as to the participants who attended the first round of meetings in September 2009.

Forty-two community members attended the Tumon Bay working session while twenty community members attended the Piti Bomb Holes working session. PCR Environmental, the contractor for the project, provided a brief review of the LAC process and presented the results from the September 2009 sessions. They then gave an overview of Step 3 of the LAC process. They explained that the indicators will be used to guide the inventory process in Step 4 and will ultimately provide the basis for identifying where and what management actions are needed. They explained that after selecting the indicators, a comprehensive sampling plan would be developed to inventory the existing resource, social and managerial conditions in Tumon Bay and Piti Bomb Hole Marine Preserves. The purpose of this inventory will be to collect baseline data that will be used to develop realistic and attainable standards later in the LAC process.

The participants worked to develop a list of indicators pertaining to these issues. A list of example indicators was provided to help guide their indicator selection. Attached are the indicators that the groups selected during the working sessions (3.3 Indicators and 4.3 Indicators).

During step 4 of the LAC process, an inventory of the existing range of resource, social, commercial, and managerial conditions within Tumon Bay Marine Preserve and Piti Bomb Holes Marine Preserves were conducted by PCR Environmental between November 2009 and March 2010 to complete Step 4 of the process. Results of the indicator inventory for the Tumon Bay and Piti Bomb Holes are included in the Tumon

Bay Marine Preserve Indicator and Standards sheet and the Piti Bomb Holes Marine Preserve Indicators and Standards sheet as an attachment.

Steps 5 and 6 of the LAC process was completed on April 27, 2010 at the Hagåtña Community Center for the Piti Bomb Holes Marine Preserve and on April 29, 2010 at the Tamuning Senior Citizens Center for the Tumon Bay Marine Preserve. During this working session, standards were assigned to the indicators (Step 5) and opportunity zones were identified within the management areas (Step 6). Participants also provided input on the type of activities that would and would not be allowed for the different zones. Results of the standards selected for the two preserves are included in the Tumon Bay Marine Preserve Indicator and Standards sheet and the Piti Bomb Holes Marine Preserve Indicators and Standards sheet as an attachment.

During step 7 of the LAC process, which was held on June 1, 2010 at the Tamuning Senior Citizen Center for the Tumon Bay Marine Preserve and June 3, 2010 at the Hagåtña Community Center for the Piti Bomb Holes Marine Preserve, participants were asked to evaluate various zoning and management options. Participants were asked to evaluate four options (Options A, B, C and D) for Tumon Bay Marine Preserve and three options (Options A, B, and C) for Piti Bomb Holes Marine Preserve. Participants also filled out a questionnaire about the zone options.

In Step 8, a standardized set of evaluation criteria was developed, and the four management options for Tumon Bay and three for Piti Bay as well as the final Recommended Options were evaluated using the evaluation criteria. The recommended option for Tumon Bay and Piti Bay are shown in Figures 2-1. In Tumon Bay, all activities (except swimming and snorkeling) will be prohibited during negative tides while in Piti Bay, Discovery Dives will be contained to the sandy area adjacent to main bomb hole and all users will be prohibited from walking through seagrass beds. PCR Environmental met with Agriculture to discuss their recommended option. Agriculture's recommended option for the two preserve areas will be included in the final report or management plan, which is near complete and the final step of the process.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. NA

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Jay T. Gutierrez, Assistant Chief, (671) 735-3980, jaytgutierrez@yahoo.com

3.3 INDICATORS

A number of indicators were selected in response to each issue (Table 3-2). These indicators will be used to measure the resource, social and managerial conditions within Tumon Bay Marine Preserve.

Table 3-2 Identified Indicators for Issues Concerning Tumon Bay Marine Preserve. RC= Resource Conditions; SC= Social Conditions; MC= Managerial Conditions

ISSUE	INDICATOR	RC	SC	MC
Too much trash	* Amount of trash	X		
	* Level of satisfaction with amount of trash present		X	
Damage from recreational activities	* % Coral cover	X		
	* Coral diversity	X		
	* Fish abundance/diversity	X		
	* Fish size/biomass	X		
	* Macroinvertebrate abundance/diversity	X		
	* % Algal cover	X		
	* # of broken coral	X		
Protecting and preserving cultural resources	* # of cultural/historical resources	X		
	* Level of satisfaction with preservation efforts		X	
Maintaining user experience in the bay and tourism satisfaction	* User satisfaction		X	
	* # of repeat visitors		X	
	* # of tourists		X	
	* Level of satisfaction with variety of allowable activities available		X	
	* Level of satisfaction with algae		X	
Promote shared use	* Level of perceived conflict with other users		X	
	* Level satisfaction with level of conflict		X	
	* Inventory (what and where) of existing uses			X
Maintaining and increasing public access	* Satisfaction with number of access points		X	
	* Satisfaction with ease of access		X	
	* Number of public access points		X	
Safety	* Perceived level of safety		X	
	* # of search and rescues		X	

ISSUE	INDICATOR	RC	SC	MC
Ensuring proper level of enforcement	* Level of satisfaction with interaction with marine resource managers			X
	* # of law enforcement officers			X
	* # of patrols and interactions with users			X
	* # of reported violations			X
	* # of citations and arrests			X
Managing commercial usage	* # of customers per operator			X
	* Average commercial group size			X
	* # of commercial activities			X
	* Satisfaction with level of commercial activities			X
Inequality of enforcement among user groups	* Perception of inequality			X
Ensuring proper awareness of regulations	* Level of user awareness of Marine Preserve regulations			X
	* # of posted signs			X
	* # of visitors informed of regulations by a commercial operator			X
Evaluating need for regulations	* % Coral cover	X		
	* Coral diversity	X		
	* Fish abundance/diversity	X		
	* # of broken coral	X		
	* # of commercial activities			X
	* User perception of level of regulations			X
Impacts from growth and development	* % Coral cover	X		
	* Coral diversity	X		
	* Fish abundance/diversity	X		
	* # of broken coral	X		
	* Level of satisfaction with level of solitude		X	
	* Level of satisfaction with # of access points		X	
	* # of commercial operators			X

4.3 INDICATORS

A number of indicators were selected in response to each issue (Table 4-2). These indicators will be used to measure the resource, social and managerial conditions within the Piti Bomb Holes Marine Preserve.

Table 4-2 Identified Indicators Concerning Piti Bomb Holes Marine Preserve. RC= Resource Conditions; SC= Social Conditions; MC= Managerial Conditions

ISSUE	INDICATOR	RC	SC	MC
Too much trash	* Amount of trash * Visitor perception of amounts of trash present	X	X	
Impacts from recreational activities	* % Coral cover * Coral diversity * Fish abundance/diversity * Fish size/biomass * Macroinvertebrate abundance/diversity * % Seagrass cover/extent * Seagrass health * # of broken coral	X X X X X X X		
Damage to corals	* % Coral cover * Coral diversity * Fish abundance/diversity * # of broken coral	X X X X		
Impacts due to fish feeding	* Fish abundance/diversity * # of people feeding fish * Type of food fed to fish * Aggressive fish behavior	X X X X		
Loss of public access	* Satisfaction with number of access points * Number of public access points * Satisfaction with ease of access * # of parking spaces * # of pavilions * Total # of people using the bay		X X X X X X	
Commercial use	* # of customers per operators * Average commercial group size * # of commercial activities * Total # users per day * Total # of commercial activities * Location of commercial activities * Seagrass cover/extent * # of commercial operators * # of eco-permits issued	X		X X X X X X X X

Department of Aquatic and Wildlife Resources
LAC November Meetings Summary Report

Section 4
Piti Bomb Holes Working Session

ISSUE	INDICATOR	RC	SC	MC
Lack of enforcement of existing regulations	* # of enforcement agents			X
	* # hrs. per month enforcement agents present at site			X
	* # of reports			X
	* Level of contact with enforcement agents			X
	* # of patrols			X
	* # of enforcement agents observed by preserve users in period of time			X
	* # of reports of illegal activities			X
	* actions (e.g. warnings, citations, arrests) taken in response to reports			X
Need for education for commercial operators	* Level of user awareness of regulations relating to the Marine Preserve			X
	* # posted signs			X
	* # visitors informed of regulations by a commercial operators			X
	* # of operators offering educational programs			X
	* % of operators that know regulations			X
	* Availability of regulations in different languages			X
Equality of enforcement	* Perception of inequality			X
	* # of complaints			X
	* # of citations/violations			X
Loss of tourism dollars	* # of repeat visitors			X
	* # of tourists			X
	* Visitor satisfaction		X	
	* # of complaints from commercial operators			X
	* # of operators			X
Cost of permits	* Perceived satisfaction with permit fees			X
	* Cost of permits			X
Overuse	* # of users		X	
	* User satisfaction with level of crowdedness		X	
	* User satisfaction with level of solitude		X	
	* % Coral cover	X		
	* Coral diversity	X		
	* Fish abundance/diversity	X		
	* # of broken coral	X		
	* % seagrass cover/extent	X		
* Macroinvertebrate diversity/abundance	X			
Concern of an overly restrictive management system	* Perception of restrictions			X
	* # of users		X	
	* # of tourists vs. # of local residents			X
	* # of citations or warnings			X

Tumon Bay Marine Preserve Indicators and Standards

Indicator		Current Level				Standard
		<i>Habitat Stratification</i>				
		<i>Coral</i>	<i>Turf</i>	<i>Macroalgae</i>	<i>Sand</i>	
Resource	1 % Coral cover	25%	5%	10%	1%	Maintain Current
	2 Coral biodiversity (<i>species richness [R] and diversity [H]</i>)	R=3.3 H=0.72	R=2.6 H=0.63	R=3.3 H=0.74	R=1.5 H=0.54	Maintain Current
	3 Fish biodiversity (<i>species richness [R] and diversity [H]</i>)	R=29.5 H=1.92	R=19.8 H=1.87	R=27.0 H=2.18	R=7.7 H=1.34	Maintain Current
	4 Fish abundance (# individuals/100m ²)	424	205	209	29	Maintain Current
	5 Fish biomass (grams/100m ²)	15,541	4,466	3,200	2,846	Maintain Current
	6 Macroinvertebrate abundance (# individuals/25m ²)	28	18	47	15	Maintain Current
	7 # Of fragmented coral (# fragments/25m ²)	3.8	1.29	1.3	0	Maintain Current
Social	1 Overall local resident satisfaction	79%			75%	
	2 Overall tourist satisfaction	95%			85%	
	3 Satisfaction with amount of trash	70%			80%	
	4 Local resident satisfaction with ease of access	55%			Maintain Current	
	5 Satisfaction with safety	79%			Maintain Current	
	6 Local residents awareness of marine preserve regulations	77%			80%	
	7 Tourists awareness of marine preserve regulations	18%			50%	
	8 Satisfaction with level of commercial activities	41%			Future determination	
	9 Local residents perception of current commercial and recreational regulations (% believe current is enough)	79%			75%	
	10 % Of users without conflict	95%			90%	

Piti Bomb Holes Marine Preserves Indicators and Standards

	Indicator	Current Level					Standard
		Habitat Stratification					
		Coral	Turf	Macroalgae	Sand	Seagrass	
Resource	1 % Coral cover	38%	0%	3.78%	0%	0%	Maintain Current
	2 Coral biodiversity (species richness [R] and diversity [H])	R=2 H=0.35	R=0	R=1 H=0.21	R=0	R=0	Maintain Current
	3 Fish biodiversity (species richness [R] and diversity [H])	R=36.5 H=2.42	R=12.7 H=1.49	R=18 H=1.91	R=16 H=1.99	R=5.33 H=0.99	Maintain Current
	4 Fish abundance (# individuals/100m ²)	271	82	91	59	32	Maintain Current
	5 Fish biomass (grams/100m ²)	8,158	5,094	2,197	1,937	1,135	Maintain Current
	6 Macroinvertebrate abundance (# individuals/25m ²)	39	16	2	40	15	Maintain Current
	7 # Of fragmented coral (# fragments/25m ²)	0.81	0	0	0	0	Maintain Current
	8 Extent of seagrass beds	Area= 85,394 m ²					Maintain Current
7 Seagrass blade density	Trends					Maintain Current	
Social	1 Overall local resident satisfaction	75%					75%
	2 Overall tourist satisfaction	95%					85%
	3 Satisfaction with amount of trash	66%					80%
	4 Local residents awareness of marine preserve regulations	94%					90%
	5 Tourists awareness of marine preserve regulations	25%					70%
	6 Satisfaction with level of commercial activities	33%					Future determination
	7 Local residents perception of current commercial and recreational regulations (% believe current is enough)	56%					75%



Limits of Acceptable Change
Management of Tumon Bay Marine Preserve

Figure 2.1

Recommended Option

- Coral Habitat
- Turf Habitat
- Macroalgae Habitat
- Sand Habitat

Source: Benthic Habitat GIS Data, Burdick (2005)





Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources
 FY 2010 with no-cost extension

1. State: Territory of Guam

Grant number: F-14-R-4 [54-S-720594-R-5]

Grant name: Guam Sport Fish Investigations

Project number and name: F-14-R-4: Determination of reef fish spawning aggregation sites on Guam II: northern and eastern coast surveys

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010; (this is a two-year project)

3. Location of work: Island of Guam

4. Costs:

Source	Budgeted	Actual <u> X </u> or Estimated <u> </u>
Federal : _____	\$91,077.00	\$47,982.54
State	- 0 -	- 0 -
Other: _____	- 0 -	- 0 -

Total Federal	\$91,077.00	\$47,982.54
Total match	- 0 -	- 0 -
Total project:	\$91,077.00	\$47,982.54

5. Objectives:

1. To identify resident spawning aggregations sites of parrotfishes and large wrasses along the western coast of Guam by conducting monthly observations during relevant moon phases (new or full) with annual repetition. (Transient spawning aggregation triggerfishes (Balistidae) have been added to this objective because of their ease of detection with manta tows and timed-GPS scuba dive surveys.) Thus, the coastline would be surveyed at least twice over a nearly two-year period.
2. To characterize and map resident spawning aggregation sites in relation to temporal and spatial factors by assessing the species aggregating, determining the

- number of male individuals establishing temporary mating territories, describing the habitat type and water depth, describing the temporal factors (i.e., moon phase, tidal state) that contribute toward aggregation formation, and confirming spawning events.
3. To deploy an array of underwater acoustic receivers along the eastern coast of Guam in order to track the movement of adult spawning fishes bearing coded acoustic tags.
 4. To tag (coded acoustic tags) adult groupers (mainly *Epinephelus merra* but also other species of *Epinephelus* captured opportunistically) and the mangrove snapper (*L. argentimacultus* added to this study at no extra cost) collected by hook and line or nets from the inshore waters of the western coast of Guam in order to transmit movement patterns of spawning adults to specific spawning aggregation sites.
 5. To characterize transient spawning aggregation sites in relation to temporal and spatial factors by assessing the species aggregating, determining the number of males individuals establishing temporary mating territories, describing the habitat types and water depth, describing the temporal factors (i.e., moon phase, tidal state) that contribute toward aggregation formation, and confirming spawning.
 6. To correlate species-specific movement of both kinds of species with season, lunar phase, water depth, and geographic features (i.e. benthic structure) to determine the location of spawning aggregations, and the physical attributes that relate to the spatial and temporal patterns of aggregation formation.
 7. To produce GIS maps of resident and transient spawning aggregation sites along the western coast of Guam that incorporate aggregation parameters for use in developing and implementing management strategies for the management and conservation of spawning aggregations and sites.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

NOTE: A no-cost extension for the first year of funding was requested for fy2010. This extension was not received at the university of guam marine laboratory until well into

july, 2010. No funding was received for the second year of the grant (meant to be received during fy2010). So, activities were constrained by these limitations.

Objective 1 Outcome: We continued to conducted manta tows, when weather permitted, from the southern tip of Cocos Island north to just south of Talafofo Bay. We were unable to discover any additional parrotfish resident spawning aggregations sites along this leg but expect to do so north of Pago Bay because habitats there are not under the influence of rivers and sediment from run-off. These physical factors seem to be correlated negatively with spawning aggregation site locations for parrotfishes, wrasses, and triggers.

Objective 2 Outcome: We are still collecting data to meet this objective.

Objective 3 Outcome: Because of sharply increased costs of acoustic telemetry receivers we are limiting the deployment to southeastern and east central Guam, from Cocos Island north to Pago Bay. Receiver deployment will be concentrated near the mouths of rivers and bays in order to be able to detect mangrove snappers in addition to groupers.

Objective 4 Outcome: Because of the late arrival of acoustic tags, we are just beginning to meet this objective.

Objective 5 Outcome: We are still collecting data to meet this objective.

Objective 6 Outcome: We are still collecting data to meet this objective.

Objective 7 Outcome: We are still collecting data to meet this objective.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. We added the mangrove snapper, *Lutjanus argentimaculatus*, and trevallys (*Caranx* spp., Carangidae) to the acoustic tagging study in order to augment data collection in a related project for the former species, for which returns of fish with standard Floy tags have been poor, and to extend data collection to other important species, such as the latter. The objectives have been modified for FY2011.

9. List any publications or in-house reports resulting from this work.

Manuscript in preparation:

Donaldson, T.J., K.A. Chop and Z.R. Foltz. Distribution and characterization of resident spawning aggregation sites of the parrotfishes *Chlorurus sordidus* and *Scarus schlegeli* (Labridae: Scarinae).

Name, title, phone number, and e-mail address of person compiling this report:

Dr. Terry Donaldson, University of Guam Marine Laboratory, (671) 735-2175,
donaldsn@uguam.uog.edu and terryjdonaldson@gmail.com

Annual Project Performance Report
Guam Division of Aquatic and Wildlife Resources (GDAWR)
FY 2010

1. State: Territory of Guam

Grant number: F-14-R-5

Grant name: Guam Sport Fish Investigations

Project number and name: F-14-R-5. Connectivity of reef fish populations within the Mariana Islands and the Greater Micronesia Region

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam and Micronesia

4. Costs:

Category	Total	**Previous	Current	Budget	Balance
	Billing	Billing	Billing		
Salary (0170)	\$106,376.00	\$0.00	\$106,376.00	\$148,753.00	\$42,377.00
Benefits (0901)	\$8,124.30	\$0.00	\$8,124.30	\$25,591.00	\$17,466.70
Travel	\$44,282.14	\$0.00	\$44,282.14	\$47,645.00	\$3,362.86
Comm (3231)	\$379.80	\$0.00	\$379.80	\$0.00	-\$379.80
Contractual	\$7,000.00	\$0.00	\$7,000.00	\$7,000.00	\$0.00
Printing	\$622.98	\$0.00	\$622.98	\$623.00	\$0.02
Contr Misc (3239)	\$25,390.12	\$0.00	\$25,390.12	\$38,508.85	\$13,118.73
Supplies (4240)	\$4,733.98	\$0.00	\$4,733.98	-\$3,487.40	-\$8,221.38
Misc Supplies (4249)	\$3,151.26	\$0.00	\$3,151.26	\$3,500.00	\$348.74
Equipment (5250)	\$2,905.43	\$0.00	\$2,905.43	\$24,700.00	\$21,794.57
		\$99,617.70			
Total	\$202,966.01	\$99,617.70	\$202,966.01	\$292,833.45	\$89,867.44

5. Objectives:

1. To complete the analysis and interpretation of the genetics component of the project
2. Both PI's to undertake a modeling workshop with the contracted oceanographer Prof. Eric Wolanski to learn how to run and manipulate the bio-physical model.
3. Run simulations through the model
4. Perform a feeding experiment on newly recruited *S. spinus* rabbitfish to identify why fish from Tanguisson grow faster and reach a larger size than fish from other bays.
5. Continue with grinding, reading and interpretation of otoliths from adult fish

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met.

Objective 1.

The genetics component of the project has been completed and will be formally submitted on December 10th by Mr Mark Priest, for his MSc. thesis. This work was a major component of the project and has provided substantial insight into the degree of connectivity between populations of *Siganus spinus* around the West Pacific. The results are to be submitted as a scientific manuscript in the coming year. Results from the draft thesis indicate three genetically homogenous clusters: the Mariana Islands (Guam and Saipan), East Micronesia (Chuuk, Pohnpei and Majuro), and the West Pacific (Philippines, Palau, Yap and PNG); with the Mariana Islands being strongly differentiated from the rest of the region. Analyses of temporal samples from Guam showed no genetic differentiation between life-history stages (adults versus Recruits) or between recruit samples collected across four separate recruitment events. However, when the recruit samples were compared to the adult populations detected in the large-scale spatial analyses they were found to be significantly different from both the East Micronesia and West Pacific groupings but not the Mariana Islands group.

Objective 2.

Professor Eric Wolanski conducted a workshop in Guam during May 2010 during which he instructed the 2 PI's on the project on the details of the bio-physical model he was contracted to build for this project. The workshop was a success and provided the PI's with the necessary knowledge to run and manipulate the model. Professor Wolanski continues to provide guidance as needed.

Objective 3.

The principal investigator Dr Andrew Halford has run numerous modeling scenarios during the past 6 months which will be used to build a picture of spatial and temporal patterns of recruitment and connectivity of the rabbitfish *S. spinus* around Guam. Results from the draft thesis suggest limited connectivity with the rest of the region and highlight the potential role of self-recruitment in regulating population dynamics within the Mariana Islands.

Objective 4.

Unfortunately the feeding experiment was not done during the past 12 months. This was not due to issues with the investigators but rather a complete failure of *S. spinus* to recruit in significant numbers over the past 2 recruitment seasons. We remain on-hold with this experiment until such times as a significant run of 'manahac' occurs.

Objective 5.

The otoliths from our collections of adult *S. spinus* continue to be ground and read. In summary, we are very satisfied with the results of this project so far, with all of our objectives continuing to be met. The result, at the completion of this project, will be an unparalleled understanding of the population dynamics of this socially and culturally important food fish. This information will enable the resource managers to formulate appropriate strategies for ensuring the sustainability of this fish into the future.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work.

A MSc thesis by Mr Mark Priest is to be submitted to UOG on Dec 10th. This thesis contains an analysis and interpretation of the entire genetics component of the rabbitfish connectivity project.

Name, title, phone number, and e-mail address of person compiling this report:

Andrew Halford

Adjunct Research Scientist

Email: andrew.halford@gmail.com

Phone: 671 734 2948 or 671 689 1855

Annual Project Performance Report
Guam Division of Aquatic and Wildlife Resources (GDAWR)
FY 2010

1. State: Territory of Guam

Grant number: F-14-R-6

Grant name: Guam Sport Fish Investigations

Project number and name: F-14-R-6: Field Guide "Marine Plants of Guam"

2. Report Period: July, 2010 to December, 2010

Report due date: December 28, 2010

3. Location of work: Guam, Island-Wide

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are "Actual" or "Estimated"

Source	Budgeted	Spent	Actual or Estimated
<i>Federal: Sport Fish Restoration</i>	<i>\$17,500</i>	<i>\$11,932</i>	<i>Actual</i>
<i>State: Coral Reef Initiative GU</i>	<i>\$18,780</i>	<i>\$18,780</i>	<i>Actual</i>
<i>Other:</i>			
Total Federal	\$17,500	\$11,932	Actual
Total match	\$18,780	\$18,780	Actual
Total project:	\$36,280	\$30,712	Actual

5. Objectives

The goal of this project is to produce a field guide on the marine plants of Guam and the Mariana Islands to assist field workers and local monitoring programs in the identification of marine macroalgae and seagrasses. The guide will include an identification key, concise species descriptions, habit pictures, distribution and species richness maps. Field work (i.e., collecting and photographing marine plants) was an important component of the project. More specifically, the following objectives were set:

- A. Conduct field work: habit, habitat, and ecological observations on marine plants; specimen collection; *in situ* photography; documenting species distributions in Guam.
- B. Database development: entry of morphological and ecological descriptions; adding information on voucher specimens.
- C. Conduct literature study and local inquiries on the traditional use of marine plants in Guam.
- D. Determine morphological-anatomical identification in the laboratory using microscopy, and establish a voucher collection: herbarium sheets, wet samples

preserved in formalin, and dried specimens in silica gel for molecular identification.

- E. Produce global distribution maps for the species covered by the field guide. Prepare global species richness maps for the genera and families included in the field guide.
- F. Take microphotographs of diagnostic features where needed.
- G. Export database report and automate generation of page layout.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

NA

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Most objectives have been completed. Through research surveys and contract work we have increased the number of specimens in the voucher collection and the amount of habit pictures. Research assistant, Joost den Haan, has done a thorough literature review and entered descriptions of about 200 taxa in the database. At the same time have been digitizing label information of all marine plants in the GUAM herbarium. We also georeferenced the herbarium specimens in order to prepare maps of species distributions in Guam. In addition, we have also compiled a database of species distributions in the world to provide global distribution maps of the taxa included in the field guide. The global distribution maps of the 200 species and the species richness maps of the relevant genera and families (Fig. 1) are ready. We are currently working on the local distribution maps for Guam. We have also sent 553 silica-dried samples of 269 species to the global DNA barcode initiative. The sequencing process has been slower than anticipated but we will try to add this barcode data to the field guide.

So far, the conducted work follows the proposed work objectives and goals. The completion date, however, is expected to be postponed to mid 2011 due to the delay in funding of the Sport Fish Restoration Grant. We also plan to take more microphotographs of selected species in 2011.

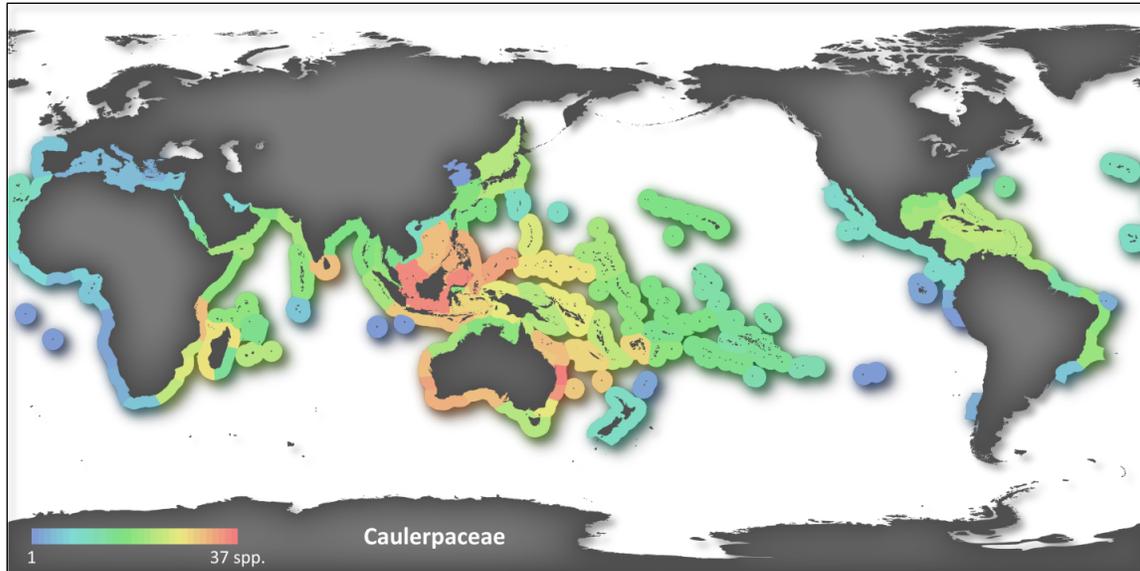


Fig. 1. Example of a global species richness map of the family Caulerpaceae that will be used in the field guide.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

So far, the conducted work follows the proposed work objectives and goals. The completion date, however, is expected to be postponed to mid 2011 because of the delay in funding (see above).

In order to finalize the project, we request an extension of the grant until mid 2011. This will allow us to settle the outstanding expenses and will enable us to continue taking the necessary microphotographs. Thereafter, we will proceed with compiling the text of the field guide.

9. List any publications or in-house reports resulting from this work.

A poster on the field guide project was presented at the Guam Coral Reef Symposium (April 19, 2008).

A second presentation on the status and progress of the field guide project was delivered on March 12, 2009 during an on-island visit of the USFW grantors.

Both documents are added as attachments.

Name, title, phone number, and e-mail address of person compiling this report:

Tom Schils – Assistant Professor UOGML – 735/2185 – tom@schils.be

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources
 FY 2010

1. State: Territory of Guam

Grant number: F-14-R-7 [54-S-720850-R-5]

Grant Name: Guam Sport Fish Restoration

Project number and name: F-14-R-7 Assessing Guam’s reef fish spawning aggregations

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 28, 2010 [a six-month no-cost extension has been requested]

3. Location of work: Island of Guam

4. Costs: To be completed by the UOGML Administrative Assistant for submission as soon as possible.

Source	Budgeted	Actual <u> X </u> or Estimated <u> </u>
Federal : _____	\$28,100	\$9,990.03
State	- 0 -	- 0 -
Other: _____	- 0 -	- 0 -

Total Federal	\$28,100	\$9,990.03
Total match	- 0 -	- 0 -
Total project:	\$28,100	\$9,990.03

5. Objectives:

1. Compile and analyze 20-years of historical creel data, plus local commercial data, to obtain evidence of spatial and temporal patterns of reef fish spawning aggregation formation as inferred from fisheries interactions documented in creel and commercial surveys.

2. Determine the species identity, date and time of capture, tidal state, and moon phase, and relate to geographic point of capture.
3. Correlate results with those of ongoing projects underway at the University of Guam Marine Laboratory that examine the spatial and temporal patterns of reef fish spawning aggregation formation and function.
4. Plot results onto a GIS map of coastal Guam in an attempt to infer probable reef fish spawning aggregation sites of selected species, and report these data to a limited access global data base of reef fish spawning aggregations maintained by the Society for the Conservation of Reef Fish Aggregations (DAWR will have access).
5. Present results at a scientific meeting in a special session on the conservation and fisheries management of reef fish spawning aggregations.
- 6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A**
- 7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.**

Note: a six-month no-cost extension has been requested for the completion of this project during FY2011.

Objective 1 Outcome: Despite difficulties in using the original database program, now no longer supported by the vendor, we have analyzed data, mainly from resident spawning aggregation species such as parrotfishes, and transient spawning aggregation species such as emperors, snappers, barracudas, trevallys and surgeonfish's. Much of the data, including the data expansions, is not usable in this analysis because there are too few records within the multi-year data set.

Objective 2 Outcome: Data analysis is still underway. As reported previously, the data are not useful for determinations of daily spawning aggregation activity by those species that utilize resident spawning aggregation behavior. We will attempt, however, to correlate patterns of harvest of such species (i.e., parrotfishes) with data from known resident spawning aggregation sites obtained from another project in order to determine if some sites were depleted of resident males, thus explaining possibly why spawning aggregation sites are so few along the western coast of Guam. Analysis of transient reef fish spawning aggregation species data continues and graphs have been repaired showing both seasonal and lunar-phase activity. Data are too few to allow for correlations between landings and geographical location, so we will be unable to determine the location of probable spawning aggregation sites. Instead, we will focus on patterns of seasonality and lunar activity.

Objective 3 Outcome: The analysis of data is still being undertaken so comparisons with data obtained from other reef fish spawning aggregation studies have not yet been made.

Objective 4 Outcome: Because of a lack of enough data from each geographical locality, this will not be possible to achieve (see Objective 2 Outcome, above).

Objective 5 Outcome: The analysis is still being undertaken. No results are ready for presentation at a scientific meeting on the conservation and management of spawning aggregations. An outline of a final report has been prepared, however, and report writing will commence soon.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs. N/A

9. List any publications or in-house reports resulting from this work. N/A

Name, title, phone number, and e-mail address of person compiling this report:

Dr. Terry Donaldson, University of Guam Marine Laboratory, (671) 735-2175,
donaldsn@ugam.uog.edu

Annual Project Performance Report
Guam Division of Aquatic and Wildlife Resources (GDAWR)
FY 2010

1. State: Territory of Guam

Grant number: F-14R-9

Grant name: Guam Sport Fish Investigations

Project number and name: F-14R-9: Recruitment sources and dynamics of the unicorn fish *Naso unicornis* on the fringing reefs of Guam

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 28, 2010

3. Location of work: Guam, Saipan, Micronesia and Philippines

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budgeted	Actual <u>X</u> or Estimated <u> </u>
Federal : Sport Fish Restoration	\$44,205	\$37,129
State	-0-	- 0 -
Other: _____	-0-	- 0 -

Total Federal	\$44,205	\$37,129
Total match	-0-	-0-
Total project:	\$44,205	\$37,129

5. Objectives:

- 1) Sample individuals from pulses of recruits in at least three localities for analysis of mitochondrial sequences to determine the pattern of relationships among individuals within and between settling pulses.
- 2) Maintain sampling of settling cohorts over time to determine the pattern of change in different genotypes as the cohort develops and individuals are lost through mortality.

- 3) Sample adult genetic structure to determine the relationship between large settlement pulses of larvae and those of established adults.
- 4) Development of microsatellite markers for individuals sampled from current pulses of settling larvae.
- 5) Sampling of adult *N.unicornis* collected from i) Guam and ii) adjacent reefs and island systems of the Marianas Islands for the development of microsatellite markers to investigate the sources of settling pluses of larvae. The initial objective will be to determine the degree of self recruitment in the Guam populations. This analysis will be sequentially extended to sampling adults from adjacent island systems at increasing distances from Guam.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met.

Objective 1:

Three pulses of recruits were sampled from the reef flat; two in 2008 (June and July) and August 2009. This was done from approximately 6 locations around Guam (Adelup, Tanguisson, Cocos Lagoon, Rios, Ipan Beach and Pago Bay) and from two sites on Saipan (Lau Lau Bay and Coral Ocean Point).

Objective 2:

Sampling of the 2008 cohort continued for four months from August through to November [2008](#).

Objective 3:

The adult collections from Guam were completed in 2009. This was done in conjunction with the *Naso* tagging grant (F14-R-1 Job2) in which monthly samples of *N.unicornis* and *N.lituratus* were taken for reproductive analysis. To date all of the adult and recruit samples have been genotyped. Attached to this report are two figures representing genetic relatedness in multivariate space. Each dot represents an individual and locations or populations are designated by colored rings. The analysis used on this dataset DAPC (Discriminant Analysis of Principle Components) separate these groups, minimizes within population genetic variance and maximizes between population variance so that they can be more clearly seen.

In summary these figures show there is no genetic structure between cohorts, sites or age classes as these groupings largely overlap, even after DAPC. Therefore recruit *N.unicornis* are derived from many different populations when they settle onto the reef. This stands in stark contrast to recent studies of pomacentrids that show significant kin associations among settling individuals.

In Figure 2 there is some separation of Pago 08 and Pago 09 (recruit samples) with little

or no overlap in multivariate space and occupying separate quadrants. This strongly indicates what some call chaotic genetic patchiness.

These results are currently being written up as part of John Horne's PhD thesis dissertation which will be completed by February 2011.

Objective 4:

As reported in the last Performance Report the microsatellite markers have been developed and the results published in an international peer-reviewed journal. This work was performed by John Horne as part of his PhD dissertation at JCU, Australia.

Objective 5:

In November and December 2009 and March 2010, the PI Dr Jenny McIlwain conducted two field trips to the Philippines, Yap and Pohnpei respectively to collect adult *N.unicornis* for the population genetics component of the project. To date the total number of adult *N.unicornis* collected are as follows: Guam = 237, Yap = 33, Philippines = 42, Pohnpei = 135. These samples have been sent to JCU for genotyping.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

Conservation Genetics Resources DOI 10.1007/s12686-009-9129-1

Name, title, phone number, and e-mail address of person compiling this report:

Dr Jennifer McIlwain
Associate Professor, University of Guam Marine Laboratory
Work: 671-735-2188 Mobile: 671-689-1852
jmcilwain@ugam.uog.edu

Annual Project Performance Report
 Guam Division of Aquatic and Wildlife Resources (GDAWR)
 FY 2010

1. State: Territory of Guam

Grant number: F-14-R-10

Grant name: Guam Sport Fish Investigations

Project number and name: F-14-R-10: Assessing Patterns of Movement, Recruitment, and Spawning Frequency of *Lethrinus harak* in Relation to Guam’s Marine Preserves

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam, Island-Wide, Focused in Piti Marine Preserve

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budgeted	Actual <u>X</u> or Estimated <u> </u>
Federal : Sport Fish Restoration	\$132,195.00	\$138,079.00 (includes FY 2011 expenditures; account not overdrawn)
State	-0-	- 0 -
Other: _____	-0-	- 0 -

Total Federal	\$132,195.00	\$138,079.00
Total match	-0-	-0-
Total project:	\$132,195.00	\$138,079.00

5. Objectives:

1. Establish a contract between the University of Guam Marine Laboratory (UOGML) and Department of Agriculture through the signing of a Memorandum of Understanding (by January 2009)
2. To determine movement distances and quantify population estimates of *Lethrinus harak* within the marine preserves we will use a mark-release-resighting

- technique which involves visual census of individuals tagged with elastomer tags within the boundaries of Achang and Piti marine preserves. This will also enable us to identify sex-specific patterns of movement and habitat.
3. We will use a remote acoustic tagging method which includes deploying an array of receivers along the Achang and Piti marine preserve boundaries to quantify movement patterns, residency times and home range size of individually tagged *L. harak* over a 2 year period.
 4. Establishing the frequency and timing of spawning is often the first step in a population assessment of an exploited reef fish species. We will use a non-destructive sampling method to observe changes in gonad stages of female individuals over a twelve month period with sampling intensified (every few days) during suspected times of spawning.
 5. We will determine the timing, frequency, and habitat specificity of recruitment using fortnightly surveys over a twelve month period and back-calculation of otolith daily increments from juvenile specimens collected throughout the project's duration.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met.

Objective 1:

The processing of the Memorandum of Understanding began April 2009 and was completed when signed by Governor Felix Camacho on 12 May 2009.

Objective 2:

Data for movement patterns and distances and home range estimates have been collected using ultrasonic acoustic telemetry in Piti Marine Preserve based on 18 tagged individuals ranging in size from 19 to 32 cm FL. These data are presently being analyzed,

but preliminary results suggest that *Lethrinus harak* individuals have relatively small home ranges within the reef flat at Piti and high site fidelity.

Objective 3:

An array of VEMCO VR2W remote acoustic receivers was successfully deployed in Piti Marine Preserve, covering ~70% of the site. *A priori* and *in situ* range testing ensured that tagged fish within the array were recorded $\geq 95\%$ of the time, with a mean maximum range of 120 m per receiver. Preliminary results from the tagging experiment have successfully identified movement patterns and quantified home ranges of *Lethrinus harak* (see response to objective 2). We have also determined that movement across MPA boundaries is unlikely, which ensures sufficient protection of this population and likely other populations at the other protected sites.

Objective 4:

We have pinpointed the timing, duration, and location of spawning within the Piti Marine Preserve. Mature individuals are leaving their limited home range sites on the reef flat and migrating out of the northernmost channel nightly between full moon and last quarter moon each month. Individuals appear to convene just offshore of receiver 105889 (Figure 1) and remain there throughout the night, returning to their respective home ranges before sunrise. We strongly suspect this migration is for spawning purposes and ongoing efforts are aimed at verifying this. The spawning and reproductive data, coupled with demographic data from previous work, lends itself conveniently for future modeling to predict the relative contribution of marine preserves to island-wide reproductive potential, which we suspect is high.

Objective 5:

The timing and frequency of recruitment is ongoing but much has been inferred from the reproductive timing results derived from the acoustic telemetry component.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

Two peer-review publications are already in preparation; one will be submitted before the end of 2010 and the other will likely be submitted in early to mid-2011. The first paper models the impacts of various management scenarios on *Lethrinus harak* demography in light of the recent legislation which aims to alter the status of the marine preserves. The second paper focuses on movement patterns, home range, and spawning migrations of *Lethrinus harak*.

Name, title, phone number, and e-mail address of person compiling this report:

Brett M. Taylor
Research Associate, University of Guam Marine Laboratory
Work: 671-735-2180 Mobile: 671-688-5961
brettmmtaylor@gmail.com

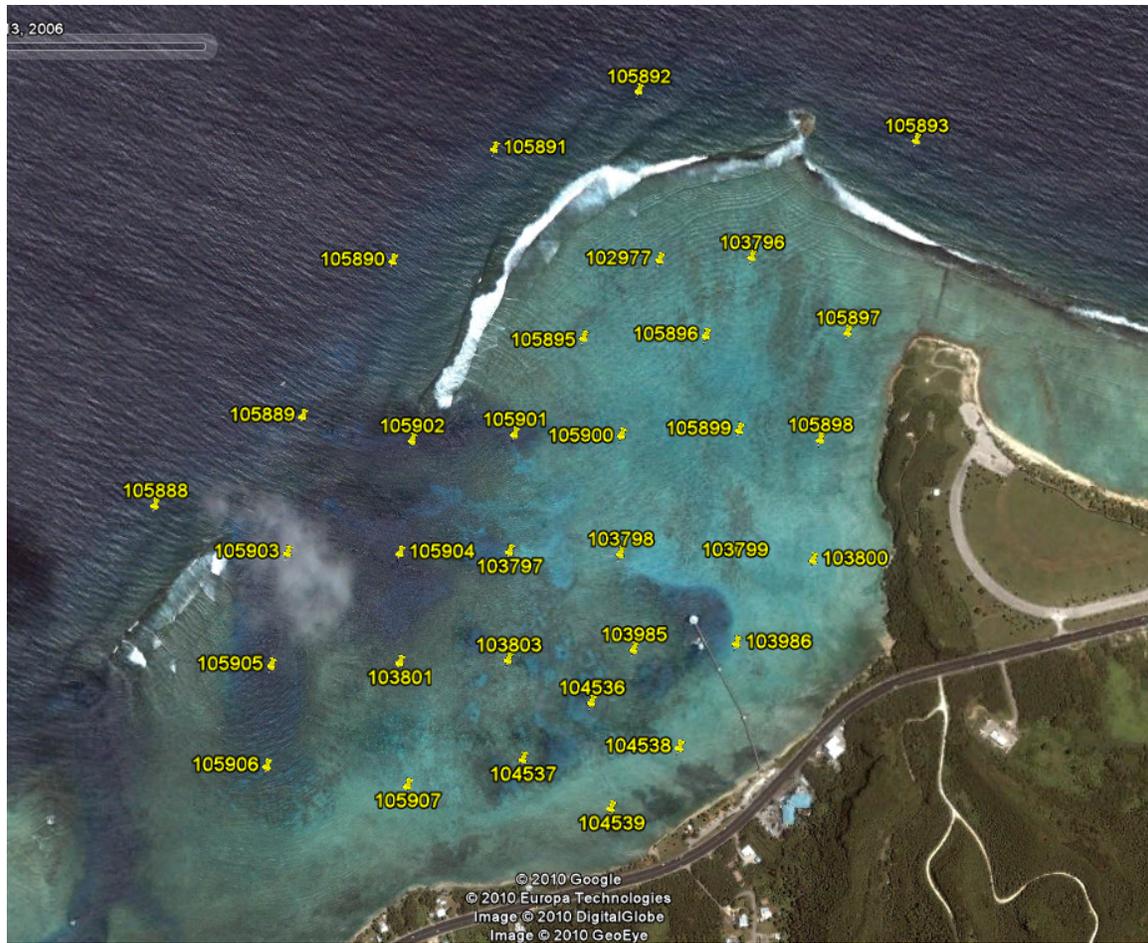


Figure 1. Map of Piti Marine Preserve showing locations of receivers and receiver codes.

Annual Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Territory of Guam

Grant Number: F-14-R-11

Grant Name: Guam Sport Fish Investigations

Project number and name: F-14-R-11: Guam Natural Resource Attorney Services

Report Period: October 1, 2009 to September 30, 2010

Report due date: December 28, 2010

3. Location of work: Guam:

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budgeted	Actual ___ or Estimated_X_
Federal : Sport Fish Restoration	\$4,000	\$439.45
State	-0-	
Other: _____	-0-	

Total Federal	\$4,000	\$439.45
Total match	-0-	
Total project:	\$4,000	\$439.45

5. Objectives:

- a. To establish a Memorandum of Understanding with the Attorney General's office to subgrant funds for an attorney.
- b. To have an attorney provide legal reviews and assistance related to the Department's authority and to the Sport Fish Restoration Program.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project. N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

The natural resource attorney assigned to Agriculture by the Guam Attorney General’s (AG) office resigned from the AG office at the end of February 2010, and another resource attorney was not assigned to Agriculture. Because no work was being conducted, Agriculture decreased the award from \$54,000 to \$4,000. Agriculture intends on meeting with the newly elected AG to discuss the possibility of another resource attorney being assigned to Agriculture or Agriculture hiring a resource attorney directly through the Department.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

9. List any publications or in-house reports resulting from this work. N/A

10. Name, title, phone number, and e-mail address of person(s) compiling this report:

Jay T. Gutierrez, Assistant Chief DAWR, (671) 735-3980, jaytgutierrez@yahoo.com

**FY2010 STATE WILDLIFE GRANT
Annual and Final Performance Reports**

Table of Contents

STATE WILDLIFE GRANT- T-3-R-1 156
Project number and name: W-1: Reestablishing Island Swiftlets to Former Swiftlet Caves 157
Project number and name: W-2: Survey of the Terrestrial Gastropods of the Northern Limestone Plateau in Guam 160
Project number and name: W-3: Implementation of Comprehensive Wildlife Conservation Strategy. 162
Project number and name: W-4: Reproductive Behavior and Parental Care by Captive Guam Micronesian Kingfishers 164
STATE WILDLIFE GRANT-T-4-M 167
Project number and name: W-1: Mariana Fruit Bat Snake Control 168
Project number and name: W-2: Implementation of Guam’s Comprehensive Wildlife Conservation Strategy 170
Project number and name: W-3: Renovation of DAWR Wildlife Lab 172
STATE WILDIFE GRANT- T-5-HM-1 174
Project number and name: W-1: Survey of the Terrestrial Gastropods of the Volcanic Highlands and Limestone Habitats in Southern Guam 175
Project number and name: W-2: Cocos Island Biosecurity Monitoring 177
Project number and name: W-3: Tarague Basin Swiftlet Cave Brown Treesnake Protection 180
Project number and name: W-4: Guam Insect Biodiversity 182
STATE WILDIFE GRANT- T-2-1-R 186
Project number and name: W-1: Recovery of the Guam Micronesian Kingfisher, Job 1: Captive Breeding of Guam Micronesian Kingfishers 187
Project number and name: W-1: Recovery of the Guam Micronesian Kingfisher, Job 2. Releasing Captive Bred Guam Micronesian Kingfishers on Guam and other Suitable Islands.....189
STATE WILDIFE GRANT T-6-R-1 Error! Bookmark not defined.
Project number and name: W-1: Rodent Eradication and Non-target Impacts Monitoring on Cocos Island, Guam 192
Project number and name: W-2: Early Detection, Monitoring and Control of Invasive Species 194
Project number and name: W-3: Monitor Lizard Reduction on Cocos Island 197
Project number and name: W-4: Cocos Island Lizard Survey 199
Project number and name: W-5: Locally Captured Geckos for MK Food Source 201

**STATE WILDLIFE GRANT
T-3-R-1**

Final Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-3-R-1

Grant name: State Wildlife Grant

Project number and name: W-1: Reestablishing Island Swiftlets to Former Swiftlet Caves

2. Report Period: October 1, 2005 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget (revised)	FY08	FY09	FY10	Total Expenditures
Federal:	\$38,000	\$12,738.00	\$2,919.62	\$0	\$15,657.62
State:					
Other:					
Total Federal:	\$38,000	\$12,738.00	\$2,919.62	\$0	\$15,657.62
Total match:					
Total project:	\$38,000	\$12,738.00	\$2,919.62	\$0	\$15,657.62

5. Objectives:

During FY08 the Objectives were modified to include the following:

1. In FY09, complete the required Environmental Assessment documents and MOU's for translocation of swiftlets from Naval Ordnance Annex to northern Guam.
2. Coordinate Amendment of Section 10(a)(1)(A) permit, TE-032209-8, to include swiftlet translocation.

3. Prepare Tarague Cave and other caves in northern Guam for swiftlet translocation by removing 200 brown treesnakes from the caves and surrounding areas. Continue to suppress snake densities after swiftlets have been established.
4. Capture 5% of the swiftlet population or no more than 25 birds from Mahlac Cave and release in northern Guam near historic swiftlet caves. Swiftlets are documented as reproducing year-round, however translocation will take place during off-peak breeding season.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

Currently the Guam swiftlet population, located within the Naval Ordnance, is being protected from brown treesnake predation under a Naval contract with US Department of Agriculture, Wildlife Services. The Guam Division of Aquatic and Wildlife Resources monitors the swiftlet population, in cooperation with Navy biologists. Monitoring provides necessary information on the status of the source population for translocation.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Under Objective 1, initial discussions with Navy personnel indicated that an environmental assessment (EA) would be necessary to begin the project. A modification and extension was completed to include the writing of an EA for the project. Under Objective 3, 146 brown treesnakes were removed from the Tarague Cave area during FY08.

In FY09 discussions were initiated to contract USDA Wildlife Services to complete the EA for the swiftlet translocation. Difficulties with formatting a Memorandum of Understanding (MOU) between Government of Guam and USDA resulted in no forward progress in the completion of the EA.

Trapping in Tarague Basin was funded initially under this project in FY08 and carried over into FY09. There were 160 traps set within Tarague Basin, including 40 in the immediate vicinity of the historic swiftlet cave. However, when it became evident that delays in the translocation would be inevitable, this grant stopped funding the trapping in Tarague Basin. Trapping continued in Tarague Basin under the OIA BTS Technical Assistance Grant. During FY09 202 snakes were removed from Tarague Basin area; 39 of which were removed from directly inside of, or next to, the opening of the cave.

In FY10 initial inquiries regarding the Section 10 permit were made with Jay Nelson at the US Fish and Wildlife Service in Honolulu. It was determined that the Section 6

Cooperative Agreement would not suffice and that a Section 10 permit would be necessary to complete a translocation of swiftlets. Section 10 permit reports were updated to prepare to apply for a permit for the swiftlet translocation. A Cooperative Services Agreement (CSA) between USDA Wildlife Services and Guam Agriculture was developed and routed for signature. However, the purchase order for the work order was not completed prior to September 30, 2010 and the grant was cancelled by USFWS for lack of forward progress. Coordination of project activities was funded under project “W3: Implementation of the Comprehensive Wildlife Conservation Strategy” of this same grant.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

The project was put on hold due to the need for an EA, as well as the lack of staff to produce the EA after the modification was accepted. The need for a new format for an agreement between the Government of Guam and USDA further delayed the project. Documents to amend the cost of the project were submitted in August 2009. The project budget was reduced by \$25,000 and added to W-4: Reproductive Behavior and Parental Care by Captive Guam Micronesian Kingfishers. However, the administrative movement of money to required object classes for spending did not occur.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:
Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com

Final Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-3-R1

Grant name: State Wildlife Grant

Project number and name: W-2: Survey of the Terrestrial Gastropods of the Northern Limestone Plateau in Guam

2. Report Period: October 1, 2005 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget	FY08	FY09	Total Expenditures
Federal:	\$30,003	\$18,138.31	\$11,864.69	\$30,003
State:				
Other:				
Total Federal:	\$30,003	\$18,138.31	\$11,864.69	\$30,003
Total match:				
Total project:	\$30,003	\$18,138.31	\$11,864.69	\$30,003

5. Objectives:

1. Establish an MOU between DAWR and the University of Guam.
2. Establish 48 sampling stations on the northern limestone plateau of Guam.
3. Assess the distribution and status of snail populations on the northern limestone plateau of Guam.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

The MOU was completed with the University of Guam (UOG) in FY06. The principle investigator conducted surveys in northern Guam and was unable to locate many gastropods. He returned to sites repeatedly and theorized that ungulate damage in the forest was impacting gastropod populations. In FY08, he reported that two-thirds of the survey was completed and he expected to be finished in FY09. Through an administrative error the entire contract was paid to the UOG prior to receiving the final report. The principle investigator retired from UOG, however the UOG is currently pressing him to write up the report. Mr. Barry Smith has not responded to any email or telephone inquiries from DAWR.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevic@gmail.com

Final Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-3-R

Grant name: Guam State Wildlife Grant Program

Project number and name: W-3: Implementation of Comprehensive Wildlife Conservation Strategy.

2. Report Period: October 1, 2005 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget	FY08	FY09	FY10	Total Expenditures
Federal:	\$44,997	\$6,000	\$27,719.72	\$8354.29	\$42,074.01
State:					
Other:					
Total Federal:	\$44,997	\$6,000	\$27,719.72	\$8354.29	\$42,074.01
Total match:					
Total project:	\$44,997	\$6,000	\$27,719.72	\$8354.29	\$42,074.01

5. Objectives:

1. Coordinate with research groups and other cooperators to develop projects for obtaining baseline information on biology, distribution, and abundance of species of special concern, including their habitat.
2. Develop Third Party Agreements with cooperators and assist in developing grant and/or project proposals for implementation with State Wildlife Grant funds.
3. Create a Guam Comprehensive Wildlife Conservation Strategy Committee and convene regularly scheduled meetings.
4. Administer Guam's State Wildlife Grant Program.

6. If the work in this grant was part of a larger undertaking with other components and funding, present brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

During FY 10 until July 2010, discussions via phone, email and meetings were conducted with the University of Guam and USDA Wildlife Services regarding current and future State Wildlife Grant (SWG) projects. Proposals for SWG projects were written and received. Agreements were developed between Government of Guam and cooperators to implement projects in support of species of special concern. Budgets and agreements were tracked and purchases made for individual projects. Annual Performance reports for SWGs were written and revised. Quarterly meetings with USFWS grant coordinators were attended (on Guam) and status updates were provided to coordinator.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com

Final Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-3-R

Grant name: Guam State Wildlife Grant Program

Project number and name: W-4: Reproductive Behavior and Parental Care by Captive Guam Micronesian Kingfishers

2. Report Period: October 1, 2005 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget (revised)	FY08	FY09	FY10	Total Expenditures
Federal:	\$40,004	\$0	\$15,336.28	\$0	\$15,336.28
State:					
Other:					
Total Federal:	\$40,004	\$0	\$15,336.28	\$0	\$15,336.28
Total match:					
Total project:	\$40,004	\$0	\$15,336.28	\$0	\$15,336.28

5. Objectives

For FY09 the objectives were amended to read as follows:

1. To increase parent-reared chick survivorship by supplemental feeding at the nest during FY09 and FY10.
2. Purchase local-caught geckos to Micronesian kingfishers and their young in FY10.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

The larger activity is to captive breed Guam Micronesian kingfishers in captivity to prevent the extinction of the species and to eventually reintroduce them back to Guam. Endangered Species Section 6 fund the majority of the species recovery in captivity on Guam. Also, there are 16 zoological facilities participating in the Micronesian Kingfisher Species Survival Plan. Each institution funds the husbandry efforts of maintaining and reproducing kingfishers at their respective facilities.

The Guam Micronesian kingfishers have extremely low reproductive success and a majority of chicks raised are hand-reared. This project will allow GDAWR staff to study the birds in a more natural environment on Guam, as opposed to an artificial zoo setting, to better understand why 66% of chicks disappear from the nest and how to prevent this from happening on both Guam and the US mainland.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

No objectives were met in FY10 due to lack of staff that resulted in lack of breeding.

Three females arrived on island at the start of FY09 that increased the number of females on Guam to four. These four females were paired with males and two of the pairs produced 10 fertile eggs in which nine hatched. Of those nine hatchlings, three were hand-reared, banded and added to the captive population and six were fed at the nest by DAWR staff. Unfortunately, of the six chicks that were supplemental fed at the nest, only one chick fledged, was banded and added to the captive population. Of the remaining five chicks, snakes consumed two, one fell out of the nest, and two disappeared.

No objectives were met during FY08 due to lack of breeding females available on Guam.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

This project was not worked on in FY10 due to lack of staff.

In August 2009 documents were submitted to increase the project costs by \$25,000 to allow the project to continue for the FY10 breeding season. An objective was added to allow for the purchase of locally caught geckos to feed the Micronesian kingfishers.

This project was not worked on in FY08 because of lack of breeding females on Guam. DAWR's one female was paired with two males, the first pairing resulted in infertile eggs, the second pairing resulted in excavating a cavity however no eggs were laid. In September 08, two females arrived from the mainland.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist III, 671-735-3985, medinas@guam.net

**STATE WILDLIFE GRANT
T-4-M**

Final Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-4-M-4

Grant name: State Wildlife Grant

Project number and name: W-1: Mariana Fruit Bat Snake Control

2. Report Period: October 1, 2005 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget	FY08	FY09	FY10	Total Expenditures
Federal:	\$110,000	\$0	\$0	\$0	\$0
State:					
Other:					
Total Federal:	\$110,000	\$0	\$0	\$0	\$0
Total match:					
Total project:	\$110,000	\$0	\$0	\$0	\$0

5. Objective:

To increase fruit bat pup survivorship within the Pati Point Mariana fruit bat colony by at least one pup during FY06 by contracting USDA Wildlife Services to remove 500 brown treesnakes from the area surrounding the Pati Point colony.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

No objectives were met. A Memorandum of Understanding (MOU) was completed between the Government of Guam and the USDA Wildlife Services in FY07, however the MOU expired and USDA will no longer accept the format of the Government of Guam MOUs. Discussions were held throughout FY09 and FY10 to develop a new format for the MOU. In FY10, a Cooperative Services Agreement was routed for signature for future project coordination, however it was too late for this particular project. Requests to reprogram the project money were denied.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

The project was put on hold in FY07 due to the need for an Environmental Assessment (EA). Initially Wildlife Services was going to include the fruit bat colony protection project within their programmatic NEPA review, however due to the delays in that procedure, it was decided that the fruit bat colony protection EA would be done separately. Delays in the EA were attributed to the expiration of the MOU and problems with reformatting the MOU to meet USDA's needs. A Cooperative Services Agreement and a purchase order may be used for future cooperative projects between Government of Guam and USDA Wildlife Services. However, the current status of the fruit bat colony does not lend itself to the original snake control plan for the colony. Requests to reprogram the funds to other projects were denied.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevic@gmail.com

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-4-M-4

Grant name: State Wildlife Grant

Project number and name: W-2: Implementation of Guam's Comprehensive Wildlife Conservation Strategy

2. Report Period: October 1, 2005 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget	FY08	FY09	FY10	Total Expenditures
Federal:	\$20,221	\$987	\$1136.88	\$19,827.49	\$21,951.37
State:					
Other:					
Total Federal:	\$20,221	\$987	\$1136.88	\$19,827.49	\$21,951.37
Total match:					
Total project:	\$20,221	\$987	\$1136.88	\$19,827.49	\$21,951.37

5. Objectives:

1. Coordinate with research groups and other cooperators to develop projects for obtaining baseline information on biology, distribution, and abundance of species of special concern, including their habitats.
2. Develop Third Party Agreements with cooperators and assist in developing grant and/or project proposals for implementation with State Wildlife Grant funds.
3. Continue to coordinate a Guam Comprehensive Wildlife Conservation Strategy Committee and convene regularly scheduled meetings.

4. Administer Guam's State Wildlife Grant Program.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See "Supplemental Information" for additional requirements and "Attachments" for specialized tables.

During August and September of FY10, staff time was spent in discussions via phone and email regarding current and future State Wildlife Grant projects. Agreements were tracked between Government of Guam and cooperators to implement projects in support of species of special concern.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com

Final Project Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-4-M

Grant name: State Wildlife Grant

Project number and name: W-3: Renovation of DAWR Wildlife Lab

2. Report Period: October 1, 2005 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget	FY07	FY08	FY09	FY 10	Total Expenditures
Federal:	\$25,000	\$26,000	\$0	\$7,086.70	\$4,290	\$27,376.70
Federal:	\$25,000	\$16,000	\$0	\$7,086.70	\$4,290	\$27,376.70
State:	\$25,000	\$26,000	\$0	\$7,086.70	\$4,290	\$27,376.70
Other:						
Total Federal:	\$25,000	\$16,000	\$0	\$7,086.70	\$4,290	\$27,376.70
Total match:						
Total project:	\$25,000	\$16,000	\$0	\$7,086.70	\$4,290	\$27,376.70

5. Objectives

1. Increase the number of rooms within the Wildlife Lab from three to six by building walls that will divide the current space into specialized rooms designated for specific aviculture activities.
2. Replace current counter top and add at least 20 square feet of countertop space to increase the workspace for incubators, animal intensive care units, diet preparation, etc.

3. Increase food storage capacity by purchasing a walk-in cooler refrigerator and storage cabinets.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

In FY07, a new incubator room was completed with 24 ft² of countertop added. Also, a walk-in cooler was purchased, installed and is operational. The project was not worked on in FY08.

In FY09, counter space in the Wildlife Lab was refurbished to stainless steel, new cabinets were added, the existing sink and cabinets below were refurbished and the cabinets below the countertops were refurbished. A new paint of coat was added to the main room of the Wildlife Lab.

In FY10, funds were used to secure the Wildlife Lab after a break-in. The broken window was repaired, a metal security door was installed and interior metal grates were secured on three windows.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

The lab renovation project would have been completed within FY09. However, there was a break-in at the Lab and permission was granted to use remaining funds to repair the facility in FY10.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist, 671-735-3985, medinas@guam.net

**STATE WILDIFE GRANT
T-5-HM-1**

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-5-HM1

Grant name: State Wildlife Grant

Project number and name: W-1: Survey of the Terrestrial Gastropods of the Volcanic Highlands and Limestone Habitats in Southern Guam

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget (revised)	FY08	FY09	Total Expenditures
Federal:	\$0	\$0	\$0	\$0
State:				
Other:				
Total Federal:	\$0	\$0	\$0	\$0
Total match:				
Total project:	\$0	\$0	\$0	\$0

5. Objective:

To survey the south island of Guam from Adelup-Pago Fault Zone and south to determine the distribution and current status of native snail populations that remain.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This work is a continuation of a T-3-D State Wildlife Grant project entitled, "Survey of the Terrestrial Gastropods of the Northern Limestone Plateau in Northern Guam".

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

The Memorandum of Understanding for the southern snail survey was completely signed in January 2009. Unfortunately, the Principal Investigator (Barry Smith, UOG) informed the GDAWR that he would be leaving the University of Guam and unable to complete the survey under the current MOU and within the timeframe of the grant.

In August of FY09 permission was requested to move the project funding into other projects within the T-5-HM-1 grant. The project was effectively cancelled and the funding used for additional work within the W2: Cocos Island Biosecurity Monitoring and the W4: Insect Biodiversity projects.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

Please see above.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-5-HM1

Grant name: State Wildlife Grant

Project number and name: W-2: Cocos Island Biosecurity Monitoring

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget (revised)	FY08	FY09	FY10	Total Expenditures
Federal:	\$124,394	\$0	\$45,000	\$60,039.94	\$105,039.94
State:					
Other:					
Total Federal:	\$124,394	\$0	\$45,000	\$60,039.94	\$105,039.94
Total match:					
Total project:	\$124,394	\$0	\$45,000	\$60,039.94	\$105,039.94

5. Objectives:

Initial Objective:

To protect Cocos Island over an eighteen-month period from any incursions of unwanted species including but not limited to, rodents, snakes and cats, by monitoring the island's incoming cargo and vessels.

Amended Objectives:

An amendment to increase funding within the project was submitted in August of FY09 and accepted by Federal Aid. The amendment stated within the approach that in FY10:

1. GDAWR employees will complete surveillance measures as prescribed in the Cocos Island Biosecurity Plan during FY10.

2. A vehicle will be purchased to provide transportation from the Mangilao GDAWR office to Merizo pier and other properties to complete biosecurity measures.
3. GDAWR will coordinate with USDA Wildlife Services to inspect high-risk cargo, such as large equipment and vehicles, destined for CI for target species using detector-dogs and visual inspection.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This work is part of the Cocos Island Restoration Project. The restoration of Cocos is a large undertaking that involves multiple stakeholders, funding and projects that will prepare the island's habitat for the release of federally endangered Guam rails by eradicating rodents, removing monitor lizards, enhancing native forest, and educating the public about the importance of native species.

7. Describe how the objectives were met. See "Supplemental Information" for additional requirements and "Attachments" for specialized tables.

This project was delayed in FY08 due to the paperwork involved with completing a Memorandum of Understanding (MOU) between the USDA Wildlife Services and the Government of Guam. The MOU was lost in the mail and neither party realized that the document was no longer moving forward.

In FY09 the MOU was finalized and the USDA Wildlife Services implemented the recommended biosecurity procedures within the Cocos Island Biosecurity Plan to protect Cocos Island from incursions of snakes and rodents. The USDA report was attached to the FY09 Interim Report.

In FY10 GDAWR employees completed surveillance measures as prescribed in the Cocos Island Biosecurity Plan. Twelve rodent tracking stations were maintained and checked twice weekly. That is, the coconut bait was replaced, the ink was refreshed and the rite-in-the-rain paper was replaced when necessary. There were no signs of rodent activity indicated in the tracking stations. Phone calls and emails, as well as five in-person meetings, were conducted with Cocos Island Resort staff to ensure compliance with the biosecurity protocols to protect native species on Cocos Island. Vendors making daily boat visits to Cocos Island were given bait stations and instructions on how and where to store the stations in their boats. Fifteen snake traps, with live mice as an attractant were checked weekly to remove snakes from areas where boats and cargo destined for Cocos Island are kept. The traps are located around the Cocos Resort Pier parking area and on private household property in Merizo; 77 bts were removed.

A Nissan Frontier truck with a campershell was purchased to provide transportation from the Mangilao GDAWR office to Merizo pier and other properties to complete biosecurity measures. There were no USDA detector-dog inspections conducted during FY10.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

For the activities within the MOU with USDA Wildlife Services, project costs remained the same, although the period of implementation was modified. Project funding was increased to allow biosecurity procedures to continue within FY10.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-5-HM1

Grant name: State Wildlife Grant

Project number and name: W-3: Tarague Basin Swiftlet Cave Brown Treesnake Protection

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget (revised)	FY08	FY09	FY10	Total Expenditures
Federal:	\$0	\$0	\$0	\$0	\$0
State:					
Other:					
Total Federal:	\$0	\$0	\$0	\$0	\$0
Total match:					
Total project:	\$0	\$0	\$0	\$0	\$0

5. Objective:

To reduce snake predation of island swiftlets in Tarague Basin cave on AAFB using snake traps, bait stations and other available snake control tools.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This project was intended to support the T-3-D “Reestablishing Island Swiftlets To Former Swiftlet Caves” project that has not been completed.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

No objectives have been met. This project was to follow the T-3-D “Reestablishing Island Swiftlets To Former Swiftlet Caves” project that has not been completed.

An amendment was submitted in August of FY09 to use the funding from this project for W2: Cocos Island Biosecurity Monitoring. Federal Aid accepted the amendment to have biosecurity monitoring completed by GDAWR employees during FY10.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

The initial translocation of swiftlets project has not occurred. Due to the delays in the initial project, this project has been cancelled until such time as the translocation of swiftlets can occur.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com.

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-5-HM1

Grant name: State Wildlife Grant

Project number and name: W-4: Guam Insect Biodiversity

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget (revised)	FY08	FY09	FY10	Total Expenditures
Federal:	\$38,250	\$10,000	\$8250	\$0	\$18,250
State:					
Other:					
Total Federal:	\$38,250	\$10,000	\$8250	\$0	\$18,250
Total match:					
Total project:	\$38,250	\$10,000	\$8250	\$0	\$18,250

5. Objectives:

1. To support collaboration with an insect taxonomist who can help to clear a backlog of unidentified species in the Guam Territorial Insect Collection. Priority will be given to identifying aquatic insects collected during the ongoing Guam EPA stream survey and unidentified species collected during the recent invasive insects survey of Guam and other Micronesian islands.
2. To complete a cataloguing the Guam Territorial Collection using the BioLink Biodiversity Database Management System.
3. To publish a comprehensive checklist of Guam's insect fauna on the WWW, complete with digital images to aid in identification.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This project is part of an ongoing effort to update the UOG insect library. In FY09 permission was granted to extend the project with an increase in funding of \$20,000.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Objective 1: Dr. Richard Zach, Director of the James Museum of Entomology at Washington State University, was on Guam between May 23 and June 11, 2008 to work as a collaborator on this project. During his stay on Guam, Zach identified specimens collected by the Guam Environmental Protection Agency (GEPA) during a stream survey, identified many insects in the UOG insect collection, advised Dr. Moore on curatorial techniques, met with Government of Guam officials from DOA and GEPA, and he collected and pinned 10,850 insect specimens.

Objective 2: A University of Guam biology student, Laura Barnhart, was hired at the end of June 2008 as a part-time insect collection technician. Her major task is to catalog all specimens in the collection using a biodiversity information management database called BioLink.

Table 1: Number of specimens cataloged to date (December 2009).

Insect Order	Specimens Cataloged
Blattaria	215
Coleoptera	5,562
Diptera	2,578
Hemiptera	1,778
Homoptera	1,184
Hymenoptera	4,416
Lepidoptera	31
Mantodea	2
Odonata	502
Orthoptera	7
TOTAL	16,275

Objective 3: Two free, web based, open source content management systems are being evaluated as a replacement for Biolink our current collection database, namely Scratchpad from the Natural History Museum in London and LifeDesk from the Encyclopedia of Life. These systems are very similar and both are intended to facilitate collaboration among scientists while making collection data readily available to clientele and the general public. Our Scratchpad site is at <http://guaminsects.myspecies.info/>, and our LifeDesk site is at <http://micronesianinsects.lifedesks.org/>.

The following figure is a screen capture of a Scratchpad page for *Leptocoris*, a common plant bug found on Guam. During one week received two queries were received about this bug, one from a wildlife biologist working for the Guam National Wildlife, and one from a curious hiker. Both submitted digital photos. Clients were referred to the displayed web page that provides taxonomic information, images, bibliography of scientific references, and specimen records.

<http://guaminsects.myspecies.info/category/taxonomy/animalia/arthropoda/insecta/hemiptera/rhopalidae/taxon>

The screenshot shows the 'Insects of Guam' website interface. At the top is a green header with the site logo and title. Below the header is a navigation breadcrumb: Home > Animalia > Arthropoda > Insecta > Hemiptera > Rhopalidae. The main content area is titled 'Leptocoris' and features a photo of a nymph with the caption 'Leptocoris sp. photo by Cari Eggleston'. Below the photo is a description: 'Nymph (immature) of a plant bug, Leptocoris sp. (Family Rhopalidae). Photo by Cari Eggleston USFWS, Guam Wildlife Refuge.' To the right of the main content is a 'Taxonomy' sidebar showing a hierarchical list: Animalia (1), Arthropoda (2), Insecta (25), Hemiptera (99), Rhopalidae (1), and Leptocoris (1). Below the taxonomy is a 'Random image' section showing a photo of a plant bug. Further down is a 'Latest image' section with another photo of a plant bug. To the left of the main content is a 'Primary links' sidebar with options like Bibliography, Home, Taxonomy Manager, and Forums. Below the main content is a 'Bibliography' section with a table of references:

Year of Publication	Authors	Title
1946	Uelager, RL	Hemiptera of Guam
2010		RHO PALIDAE Coleoptera: Plant Bugs
2008	Okamoto, CW, Siles RW	Leptocoris rhopaloides (Fabricius) (Hemiptera: Rhopalidae) in Vietnam, with a note on Leptocoris vicinus (Dallas) in Guam
2007	Moore, A	Leptocoris ticks

At the bottom right of the page is a 'Visitor locations' map showing the location of Guam.

A second Memorandum of Understanding for the additional \$20,000 was completed in January 2010.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

Zack, R.S., A. Moore & R.H. Miller 2007. First record of a pigmy backswimmer (Hemiptera: Pleidae) from Micronesia. *Zootaxa* 1617:67-68.

Zack, R.S., A. Moore & R.H. Miller 2008. First record of *Aphanisticus cochinchinae seminulum* Obenberger (Coleoptera: Buprestidae) from Micronesia. *Coleopterist's Bulletin* [in press}.

Schaefer, C. W., R. W. Sites 2010. *Leptocoris rufomarginatus* (Fabricius) (Hemiptera: Rhopalidae) in Vietnam, with a note on *Leptocoris vicinus* (Dallas) in Guam. *Oriental Insects* [in press].

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com based on progress report filed by Dr. Aubrey Moore, amoore@uguam.uog.edu.

**STATE WILDIFE GRANT
T-2-1-R**

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-2-1R-1

Grant name: State Wildlife Grant

Project number and name: W-1: Recovery of the Guam Micronesian Kingfisher, Job 1: Captive Breeding of Guam Micronesian Kingfishers

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	FY09 Budget	FY10 Budget	FY09 Expenditures	FY10 Expenditures
Federal:	\$60,000	\$60,000	\$0	\$29,326.32
State:				
Other:				
Total Federal:	\$60,000	\$60,000	\$0	\$29,326.32
Total match:				
Total project:	\$60,000	\$60,000	\$0	\$29,326.32

5. Objectives :

1. Captive breed sihek. Increase the amount of parent-reared sihek by supplemental feeding at the nest.
2. Feed sihek a diet consisting mainly of locally caught geckos, pinkies, crickets and mealworms.
3. Maintain the existing sihek breeding and holding facility. Increase the number of cages if needed.

4. Prepare sihek for release by maintaining facilities that mimic Guam's environment and have the opportunity to capture live prey.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

The larger activity is to captive breed Guam Micronesian kingfishers in captivity to prevent the extinction of the species and to eventually reintroduce them back to Guam. Endangered Species Section 6 fund the majority of the species recovery in captivity on Guam. Also, there are 11 zoological facilities participating in the Micronesian Kingfisher Species Survival Plan. Each institution funds the husbandry efforts of maintaining and reproducing kingfishers at their respective facilities.

The Guam Micronesian kingfishers have extremely low reproductive success and a majority of chicks raised are hand-reared. This project will allow GDAWR staff to study the birds in a more natural environment on Guam, as opposed to an artificial zoo setting, to better understand why 66% of chicks disappear from the nest and how to prevent this from happening on both Guam and the US mainland, and eventually recover the species.

7. Describe how the objectives were met. See "Supplemental Information" for additional requirements and "Attachments" for specialized tables.

This grant was not worked on in FY09. In FY2010, geckos were purchased for feeding sihek and equipment was purchased for maintaining the sihek facilities (waterblaster, two ladders, chain saw, parts for the tractor, angle grinder, etc.). Also, salaries were paid from this grant for staff working with sihek husbandry.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

No chicks were reared in FY10 due to staff shortages.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist, 671-735-3985, medinas@guam.net

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-2-1R

Grant name: State Wildlife Grant

Project number and name: W-1: Recovery of the Guam Micronesian Kingfisher, Job 2. Releasing Captive Bred Guam Micronesian Kingfishers on Guam and other Suitable Islands

2. Report Period: October 1, 2008 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	FY09 Budget	FY10 Budget	FY09 and FY10 Expenditures
Federal:	\$9,000	\$10,000	\$0
State:			
Other:			
Total Federal:	\$9,000	\$10,000	\$0
Total match:			
Total project:	\$9,000	\$10,000	\$0

5. Objectives

1. Determine potential release sites on Guam and other suitable islands in FY09.
2. Create a release protocol for releasing sihek on Guam and other suitable islands in FY10.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

The larger activity is to captive breed Guam Micronesian kingfishers in captivity to prevent the extinction of the species and to eventually reintroduce them back to Guam.

Endangered Species Section 6 fund the majority of the species recovery in captivity on Guam. Also, there are 11 zoological facilities participating in the Micronesian Kingfisher Species Survival Plan. Each institution funds the husbandry efforts of maintaining and reproducing kingfishers at their respective facilities.

The Guam Micronesian kingfishers have extremely low reproductive success and a majority of chicks raised are hand-reared. This project will allow GDAWR staff to study the birds in a more natural environment on Guam, as opposed to an artificial zoo setting, to better understand why 66% of chicks disappear from the nest and how to prevent this from happening on both Guam and the US mainland, and eventually recover the species.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

Objectives were not met; there was no activity during FY09 or FY10.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

No money was expended; project was not worked on due to lack of staff.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist III, 671-735-3985, medinas@guam.net

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2009

1. State: Guam

Grant number: T-6-R-1

Grant name: State Wildlife Grant

Project number and name: W-1: Rodent Eradication and Non-target Impacts Monitoring on Cocos Island, Guam

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2009

3. Location of work: Guam

4. Costs:

Source	Budget (revised)	FY09	FY10	Total Expenditures
Federal:	\$0	\$0	\$0	\$0
State:				
Other:				
Total Federal:	\$0	\$0	\$0	\$0
Total match:				
Total project:	\$0	\$0	\$0	\$0

5. Objectives:

1. Assist in the establishment of bait-stations and dispersal of rodenticide on Cocos Island for the duration of the baiting cycles (approximately two months).
2. Monitor up to 10 Micronesian starlings on Cocos Island using radio telemetry to determine if rodenticide is impacting survival of the starlings.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This work is part of the Cocos Island Restoration Project. The restoration of Cocos is a large undertaking that involves multiple stakeholders, funding and projects that will prepare the island's habitat for the release of federally endangered Guam rails by eradicating rodents, removing monitor lizards, enhancing native forest, and educating the public about the importance of native species and controlling invasive species.

7. Describe how the objectives were met. See "Supplemental Information" for additional requirements and "Attachments" for specialized tables.

Objectives were not met. The grant was amended in FY09 to cancel this project and increase the monitor lizard control project by \$12,000.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

No funds were spent. The initial monitoring of starlings during the planning stages of the rodenticide application by USDA Wildlife Services indicated that the starlings were at minimal risk and, that impacts to starlings would be detected during the recovery of dead rodents conducted by USDA.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-6-R

Grant name: State Wildlife Grant

Project number and name: W-2: Early Detection, Monitoring and Control of Invasive Species

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget	FY09	FY10	Total Expenditures
Federal:	\$28,000	\$4,144.36	\$11,834.55	\$15,978.91
State:				
Other:				
Total Federal:	\$28,000	\$4,144.36	\$11,834.55	\$15,978.91
Total match:				
Total project:	\$28,000	\$4,144.36	\$11,834.55	\$15,978.91

5. Objectives:

1. Prevent the establishment of coqui frogs and other invasive species on Guam that impact Guam's species of greatest concern.
2. Encourage public reporting of new species found on Guam.
3. Develop and purchase social marketing materials to encourage public to call the hotline and report new species.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This project is in part a continuation of efforts to prevent the coqui frog from establishing on Guam. A public education program, entitled “Listen Up Guam” was initiated in 2005 with \$100K funding from an Office of Insular Affairs Brown Treesnake Grant. The program included nine months of intensive media and outreach, including the promotion of a hotline to call regarding frog sightings. Other efforts to detect coqui frogs and prevent their establishment on Guam have included surveys of high-risk areas (i.e., golf courses, hotels, plant nurseries, and other manicured grounds with imported plants), as well as the changing of live plant importation regulations for Hawaii by the Guam Plant Inspection Facility. This project provides a continuation of surveys of high-risk areas, collection and identification of unknown species from the public, and the production of updated materials to promote the reporting of new species on Guam by the public.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

The biennial surveys for coqui frog, initiated in FY09, were completed on 12 high-risk properties; 2 private and commercial plant nurseries, 7 golf courses, 3 hotels/shops during October 2009. Although no Coqui were found during the survey, contacts with commercial nurseries were re-established and changes in distribution of established frog populations were reported.

Despite the disconnection of the official Coqui Frog Hotline in April 2008, the public continues to call the Guam Department of Agriculture. A total 988 calls were received from the public regarding frogs since the inception of the original “Listen Up Guam” campaign. Seventy-three of those calls were made during FY 2010. Please see attached Final Report of Coqui Frog Survey – September/October 2009 for more details.

Activation of the hotline (475-PEST) was initiated in September 2010; the hotline was not in service for the majority of the report period due to delays in company sponsorship. The new hotline was installed at Guam Agriculture’s Plant Inspection Facility (PIF) and will be answered by PIF staff. Depending on the type of species reported, the caller’s information will be directed to the proper agency or section. All invasive prevention/awareness programs will use the new number within collateral produced; all agencies distributing the same number will clarify reporting procedures to the public and all invasive awareness efforts will support each other. T-shirts were produced to encourage the public to call the new pest hotline.

The Guam Invasive Species Advisory Committee (GISAC) meets quarterly and provides a venue for Guam’s invasive species technical and policy experts to provide input and recommendations on actions to address the many invasive species problems faced by our island.

During FY10 two Guam Invasive Species Advisory Committee meetings were organized and attended, as well, minutes were produced and distributed to other committee member organizations and individuals. The dates of the meetings were February 23, 2010 and June 15, 2010. In addition to sharing of information at the meetings, a letter addressed to the Governor from GISAC was developed to encourage the Governor to support increased inspections at the ports of Guam of high-risk imports (i.e., Christmas trees). A Guam Update/Report was produced for the Regional Invasive Species Council & 13th Micronesian Chief Executives' Summit held in Saipan in July 2010.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com

Cheryl Calauastro, Wildlife Biologist III, 671-735-3957, ccalaastro@gmail.com

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-6-R

Grant name: State Wildlife Grant

Project number and name: W-3: Monitor Lizard Reduction on Cocos Island

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget (revised)	FY09	FY10	Total Expenditures
Federal:	\$47,000	\$11,349	\$34,563.81	\$45,912.81
State:				
Other:				
Total Federal:	\$47,000	\$11,349	\$34,563.81	\$45,912.81
Total match:				
Total project:	\$47,000	\$11,349	\$34,563.81	\$45,912.81

5. Objective:

Reduce the population of monitor lizards on Cocos Island in support of species of greatest concern, in particular the Guam rail.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This work is part of the Cocos Island Restoration Project. The restoration of Cocos is a large undertaking that involves multiple stakeholders, funding and projects that will prepare the island's habitat for the release of federally endangered Guam rails by eradicating rodents, removing monitor lizards, enhancing native forest, and educating the public about the importance of native species and controlling invasive species.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

In FY10 DAWR removed monitor lizards from Cocos Island using raccoon-sized live traps and brown treesnake traps baited with dead mice. A total of 104 monitor lizards were removed from Cocos Island; 20 small, 49 medium and 35 large.

Table 1: FY10 Monitor Lizard Captures on Cocos Island

Removal Method	Small SVL <30 cm	Medium SVL 30-40 cm	Large SVL >40 cm	Total
• BTS trap	15	0	0	15
• Live trap	5	49	35	89
• Pellet gun	0	0	0	0
Total	20	49	35	104

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

The monitor control effort was not as successful as expected for the removal of the larger animals. The remaining large monitor lizards on Cocos Island pose a significant risk for newly released Guam rails. As of the writing of this report documents were submitted to amend the grant to increase the amount of funds to continue monitor lizard control efforts. The total budget does not appear to be expended because there was an outstanding invoice for the remaining amount as of September 30, 2009.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-6-R

Grant name: State Wildlife Grant

Project number and name: W-4: Cocos Island Lizard Survey

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget	FY09	FY10	Total Expenditures
Federal:	\$10,000	\$0	\$9097.55	\$9097.55
State:				
Other:				
Total Federal:	\$10,000	\$0	\$9097.55	\$9097.55
Total match:				
Total project:	\$10,000	\$0	\$9097.55	\$9097.55

5. Objectives:

Document the lizard species on Cocos Island before and after rodent eradication, as well as following Guam rail establishment.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This work is part of the Cocos Island Restoration Project. The restoration of Cocos Island is a large undertaking that involves multiple stakeholders, funding and projects that will prepare the island's habitat for the release of federally endangered Guam rails by eradicating rodents, removing monitor lizards, enhancing native forest, and educating the public about the importance of native species and controlling invasive species. The lizard survey provides important information on the presence or absence of rare lizard species

on Cocos Island that have been extirpated from Guam due to the presence of the brown treesnake (*Boiga irregularis*).

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

In FY09 a small survey of lizards on Cocos Island was conducted from September to December 2008 to document lizard species prior to rodent eradication. The effort was funded under a Brown Treesnake Technical Assistance Grant.

At the end of FY09 and continuing into FY10, a larger lizard survey was conducted during October and November 2009 to document lizard species present following the rodent eradication conducted in April 2008. Fifty glue traps were set in the morning and checked the following morning for a total of eleven nights of trapping. There were 13 transects, spaced 25 meters apart, which ran from the lagoon side of the island to the ocean side; traps were set every 10 meters within each transect.

There were five species of geckos, including *Hemidactylus fernanantus*, *Gehyra oceanica*, *Gehyra mutilata*, *Lepidodactylus lugubrus*, and *Nactus pelagicus*. There were six species of skink, including *Carlia fusca*, *Emoia caeruleocauda*, *Emoia cyanura*, *Emoia atrocostata*, *Cryptoblepharis poecilopleurus*, and *Emoia impar*. One species of Anolis was also trapped, *Anolis carolinensis*.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

Work was not initiated until the beginning of FY10 due to the absence of the staff herpetologist. The GDAWR herpetologist's work visa did not arrive until early September and this delayed his return to Guam. However, the survey was completed in FY10.

Also, the project ended up involving more staff time than expected. Only one survey was completed with the project funds. The final survey will be completed with another grant.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: T-6-R

Grant name: State Wildlife Grant

Project number and name: W-5: Locally Captured Geckos for MK Food Source

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget	FY09	FY10	Total Expenditures
Federal:	\$19,887	\$9750	\$7410	\$17,160
State:				
Other:				
Total Federal:	\$19,887	\$9750	\$7410	\$17,160
Total match:				
Total project:	\$19,887	\$9750	\$7410	\$17,160

5. Objective:

To provide locally caught geckos as the main food source for the captive Micronesian kingfisher population.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

The larger activity is to captive breed Guam Micronesian kingfishers in captivity to prevent the extinction of the species and to eventually reintroduce them back to Guam. Endangered Species Section 6 fund the majority of the species recovery in captivity on Guam. Also, there are 11 zoological facilities participating in the Micronesian Kingfisher Species Survival Plan. Each institution funds the husbandry efforts of maintaining and reproducing kingfishers at their respective facilities.

The Guam Micronesian kingfishers have extremely low reproductive success and a majority of chicks raised are hand-reared. This project will allow GDAWR staff to study the birds in a more natural environment on Guam, as opposed to an artificial zoo setting, to better understand why 66% of chicks disappear from the nest and how to prevent this from happening on both Guam and the US mainland, and eventually recover the species.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

In FY09 one purchase order for local-caught geckos was completed for \$9750. In FY10 another purchase order was completed for \$7410 (19,000 grams).

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

The difference in expected costs is due to the purchasing process and getting a better price per gram than originally expected.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Diane Vice, Wildlife Biologist III, 671-735-3990, dianevice@gmail.com

Suzanne Medina, Wildlife Biologist III, 671-735-3985, medinas@guam.net

**ENDANGERED SPECIES
E-5-TW-1
FY2010**

Final Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: E-5-TW-1

Grant name: Endangered Species Section 6

Project number and name: Segment 9 Guam Endangered Species Recovery

Subproject and job number and name: Establishment of Non-Essential Experimental Population of Ko'ko', *Gallirallus owstoni*, on Rota, CNMI

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are "Actual" or "Estimated"

Source	Budgeted	FY 10 Expenditures
Federal:	\$5,000.00	\$4,483.76
State		
Other:		
Total Federal	\$5,000.00	\$4,483.76
Total match		
Total project:	\$5,000.00	\$4,483.76

5. Objectives:

- a. Release at least 100 captive bred ko'ko' on Rota. The birds released should have low inbreeding coefficients as individuals and high gene diversity as a group.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

A total of 50 rails (25.25 males.females) were released August 11 and 12 on Rota. Releases took place in the Duge area where a small fragile population of rails currently exists.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

The objective of the project was to release 100 rails, however, due to low reproduction in the captive breeding facility, only 50 birds were released. The low reproduction was due to the lack of staff overseeing rail reproduction.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist III, 671-735-3985, medinas@guam.net

ENDANGERED SPECIES
E-4-TW-1
FY2010

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: E-4-TW-1

Grant name: Endangered Species Section 6

Project number and name: Segment 9 Guam Endangered Species Recovery

Subproject and job number and name: Avicultural Management of Ko'ko', Sihek, and Åga

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budgeted	FY10 Expenditures
Federal:	\$262,529.00	\$188,733.64
State:		
Other:		
Total Federal:	\$262,529.00	\$188,733.64
Total match:		
Total project:	\$262,529.00	\$188,733.64

5. Objectives:

1. Increase the number of actively breeding ko'ko' to 22 pairs and sihek to four pairs at the DAWR facility.
2. Produced at least five ko'ko' and two sihek chicks from each pair.
3. Maintain a separate population of ko'ko' and sihek at mainland zoos for captive breeding and maintaining genetic diversity.
4. Equalize founder representation in both the Guam and mainland populations of ko'ko' and sihek and maintain genetic diversity at 90% or higher in all

- populations.
5. Transfer birds within populations when necessary to prevent genetic drift or when genetic diversity of a population is low.
 6. Continue to maintain āga in captivity.
 7. Maintain the Wildlife Lab and outdoor aviaries.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This grant provided all funding for endangered Guam rail captive propagation on Guam. Other funding was provided by 17 US zoological facilities participating in the Guam Rail Species Survival Plan. Each institution funded the husbandry efforts of maintaining and reproducing rails at their respective facility. The overall goal of is to increase the captive Guam rail population to supply Guam rails for release into the wild. As the majority of the captive population is located on Guam, our institution is able to reproduce over 90% of rails produced annually.

This grant also provided the funds to captive breed Guam Micronesian kingfishers on Guam. Other funding was provided by 13 zoological facilities participating in the Micronesian Kingfisher Species Survival Plan (SSP). Each institution funds the husbandry efforts of maintaining and reproducing kingfishers at their respective facility. The overall goal is to increase the captive Micronesian kingfisher population to sufficient numbers to begin reintroductions in snake-controlled areas on Guam.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

In FY10, 11 ko'ko' pairs produced 41 chicks that were banded and added to the captive flock (3.8 chicks per pair). Four deaths occurred: one from to old age, one successful breeding female died shortly after being separated from her mate (cause of death unknown, it was attributed to depression), and three chicks died within ten days of removal from their parents (stress related). Fifty rails were transferred and released on Rota in August. Genetic diversity remained between 88% and 89% during FY10. No rails were transferred between Guam and the US mainland.

Zero sihek reproduced in FY10 as pairs were not introduced due to staff shortage. Two females died, one of egg binding and the other from an impacted stomach (she had consumed vegetation). Due to the low population of sihek on Guam (N=12), genetic diversity is below 90%.

Two åga were maintained at DAWR's facility in FY10.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

The goal of creating 22 ko'ko' pairs was not achieved due to staff shortage. Zero sihek chicks were produced because birds were not introduced. Genetic diversity below the desired goal of 90% in both the sihek and rail population is due to the low population of sihek on Guam and staff shortage for both species. No birds were transferred between Guam and the mainland. The Guam Rail and Micronesian Kingfisher Species Survival Plan Coordinator did not deem transfer necessary this fiscal year.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist III, 671-735-3985, medinas@guam.net

ENDANGERED SPECIES
E-6-TW-1
FY2010

Final Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: E-6-TW-1

Grant name: Endangered Species Section 6

Project number and name: Segment 9 Guam Endangered Species Recovery

Subproject and job number and name: Environmental Education for Guam's Endangered Species

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs:

Source	Budget	FY10 Expenditures
Federal:	\$5,000.00	\$4496.55
State:		
Other:		
Total Federal:	\$5,000.00	\$4496.55
Total match:		
Total project:	\$5,000.00	\$4496.55

5. Objective:

1. To complete two community outreach programs per week which focus on Guam's native wildlife.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

The outreach programs funded under this grant complement existing DAWR outreach efforts. See descriptions of existing programs provided below.

General BTS Control Outreach Activities

DAWR BTS outreach and education efforts aim to provide information to the public regarding BTS control in support of endangered species recovery on Guam. The outreach activities include distribution of BTS brochures; response to BTS inquiries from the public; aid in snake removal from homes and businesses; presentations to primary, secondary, and university classes; and participation in events such as the University of Guam's Charter Day by providing displays (posters, preserved specimens, and live animals) and staff to answer questions. The effort is funded by a federal grant from the Office of Insular Affairs, Brown Treesnake Technical Assistance Grant.

Listen Up Guam Campaign

Greenhouse frogs (*Eleutherodactylus planirostris*) were discovered on Guam in October 2003. Through subsequent delineation surveys and general awareness within the biological community, two individual male coqui frogs (*E. coqui*) were collected on Guam in February and April of 2004. A media campaign entitled "Listen Up Guam!" was launched on 30 March 2005, alerting the public to the problems coqui may cause, and encouraging them to contact DAWR upon seeing or hearing a frog. The centerpiece of the campaign was the 687-FROG hotline, sponsored by GUAMCELL Communications. The campaign included: presentations to civic organizations, port and border personal, and schools; print ads in Marine Drive Magazine and Pacific Daily News; posters distributed to government agencies, businesses, NGOs, and mayors' offices; magnets, t-shirts, and bumper stickers distributed to the public; and, a radio jingle.

The Listen Up Guam Campaign continued during the report period as a small part of the "Go Native" social marketing campaign (see below). Although the sponsored hotline is no longer active, DAWR continues to answer public requests for information regarding frogs and other new or invasive species. As of 31 December 988 calls were received, a total of 73 for the year, on the hotline or at the DAWR office since initiation of public awareness campaign. There Forty-six calls were received from the public during the report period.

State Wildlife Grant funds salary to answer the phone regarding invasive species, visits to investigate public reports, frog surveys, as well as collateral materials in support of Listen Up Guam campaign.

Ko'ko' for Cocos/Go Native Campaign

In order to garner public support for the associated biosecurity protocols included in the Ko'ko' for Cocos Biosecurity Plan, a two-tier public awareness media campaign was initiated in May 2008. The broad over-arching campaign is a "Go Native" Rare Pride program that focuses on instilling local pride in Guam's native natural resources and creating a society that will protect and promote native species through behavior change.

The second campaign, known as “Ko’ko’ for Cocos”, falls within the Go Native campaign and serves as a more direct initiative that promotes Cocos Island as a snake-free haven for Guam rails and the biosecurity protocols necessary to keep the island free of unwanted pest species. Basically both campaigns work on the premise that native species are good and invasive species are bad for Guam.

The campaigns include presentations to schools and civic organizations, media appearances on TV and radio, articles in traditional print and online formats (including two social networking sites), information booths at public events, the production of collateral materials, such as pencils, t-shirts, bumper stickers, key chains, buttons, posters and bookmarks. Much of the Ko’ko’ for Cocos collateral includes “What would Che’lu do?” and follows with the needs to maintain Cocos Island free of pest species (i.e., 1. Che’lu never packs a pest. 2. Che’lu always puts litter in its place. 3. Che’lu loves his island. If you see a cat, rat or snake on Cocos Island please call 488-RAIL (7245). In addition, permanent signs promoting Che’lu’s requests to protect his island are placed in key locations.

DAWR partners with other awareness/outreach programs, such as the Coconut Rhinoceros Beetle Eradication Program, Guam Animals in Need (GAIN), native reforestation programs, and local educators, to increase awareness within the community about the danger of invasive species to Guam’s native species. Other concepts that improve Guam’s habitat for species recovery and are promoted within campaigns include: report unfamiliar species, plant native species, reduce, reuse, recycle, spay and neuter pets, do not release unwanted pets, and prevent wild fires.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

During the report period the ES grant provided funds for salary for the campaign manager to provide presentations and distribute collateral materials at thirty different public schools or summer camps, and eighteen public events or agency presentations including Guam Liberation Day Parade and the Guam Ko’ko’ Road Race. Highlights of the report period included the coordination and execution of a one-day wildlife festival, “Espiritun I Fanihi”, celebrating native Marianas wildlife through song, dance and environmental education.

There were a total of 83 presentations or media events conducted; reaching roughly 11,000 this year, not including those reached via mass media through three radio interviews, nine newspaper articles, four television appearances.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

N/A

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:
Cheryl M. Calastro, Wildlife Biologist, 671-735-3957, ccalastro@gmail.com

ENDANGERED SPECIES
E-2-12
FY2010

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: E-2-12

Grant name: Endangered Species Section 6

Project number and name: Segment 9 Guam Endangered Species Recovery

Subproject and job number and name: Subproject A: Avicultural Management for Rails, Kingfishers and Crows, Job 1: Captive Propagation of Guam Rails

2. Report Period: October 1, 2008 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budget	FY 2009	FY2010	Actual ___ or Estimated ___
Federal:	\$183,241.00	\$170,370.36	\$7,847.28	\$178,217.64
State:				
Other:				
Total Federal:	\$183,241.00	\$170,370.36	\$7,847.28	\$178,217.64
Total match:				
Total project:	\$183,241.00	\$170,370.36	\$7,847.28	\$178,217.64

5. Objectives:

1. Increase the number of actively breeding pairs of Guam rails at the GDAWR facilities until a maximum of 22 pairs is reached.
2. Produce at least five Guam rails from each pair of rails annually. (Full production potential of GDAWR will be an average of 110 rails annually.)
3. Maintain a minimum of 30 individual Guam rails at mainland zoo facilities for captive breeding.

4. Equalize founder representation and maintain the genetic diversity of the captive flock at 90% or higher.
5. Transfer three ko'ko' to mainland zoos, and 25 ko'ko' from zoos to the GDAWR facility every year to maintain genetic diversity within the captive population, as well as support the release program.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This grant provided all funding for endangered Guam rail captive propagation on Guam. Other funding was provided by 17 US zoological facilities participating in the Guam Rail Species Survival Plan. Each institution funded the husbandry efforts of maintaining and reproducing rails at their respective facility.

The overall goal of this effort is to increase the captive Guam rail population to supply Guam rails for release into the wild. As the majority of the captive population is located on Guam, our institution is able to reproduce over 90% of rails produced annually.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

This project was extended in FY10 in order to purchase a new computer for the Wildlife Lab, perform ground maintenance in the rail captive breeding facility and purchase food items to feed the birds. Slated also for purchase with the extension funds was repairs, parts, and general maintenance for the tractor, however this was not accomplished due to problems between the company on Guam and John Deere on the mainland.

In FY09, 14 pairs produced one hundred chicks that were banded and added to the captive flock (average 7.14 chicks per pair). Nine deaths occurred at the facility: one from old age, one eight year old female with diabetes was euthanized as her quality of life had severely deteriorated, one died of necrotic toxicity from a partially formed egg that attached to her uterus and festered, two died of starvation, four unknown deaths. Sixty-five rails were transferred from Guam and hard released on Rota. Over 30 rails are held at mainland zoos for captive breeding. Genetic diversity ranged between 88% and 89% during FY09. No rails were transferred between Guam and the US mainland.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

In FY09, the goal of creating 22 pairs was achieved as pairing was difficult. Genetic diversity below the desired goal of 90% is due to behavior difficulties within genetically compatible pairs as well. Rails were not transferred between Guam and the mainland as the Guam Rail Species Survival Plan Coordinator did not deem this necessary this fiscal year.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist III, 671-735-3985, medinas@guam.net

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: E-2-12

Grant name: Endangered Species Section 6

Project number and name: Segment 9 Guam Endangered Species Recovery

Subproject and job number and name: **Subproject A:** Avicultural Management for Rails, Kingfishers and Crows, Job 2: Mariana Crow Avicultural Support

2. Report Period: October 1, 2008 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are "Actual" or "Estimated"

Source	Budget	Actual <u>X</u> or Estimated <u> </u>
Federal:	\$38,979.00	\$24,853.78
State:		
Other:		
Total Federal:	\$38,979.00	\$24,853.78
Total match:		
Total project:	\$38,979.00	\$24,853.78

5. Objectives

1. Artificially incubate, hatch, hand-rear and release back into the wild up to nine eggs from nests on Guam.
2. Prevent imprinting by rearing a pair with broodmates and mentor birds.
3. Maintain ten outdoor aviaries.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This grant provides all funding for aviculture support for the Mariana crow. This work is part of a larger undertaking to reestablish Mariana crows in northern Guam. Other grants, such as Office of Insular Affairs Brown Treesnake Control Grant and the Department of Defense Civil Engineering Environmental Section grant fund area-wide snake control measures and the installation of brown treesnake barriers on active Mariana crow nesting trees. Guam Wildlife Restoration Grant W-1-R-17 supports search and inventory of released crows.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

This project was not worked on in FY10.

Zero eggs were pulled from the wild in FY09. Intensive crow searches from October to January revealed two males. Breeding attempts with the male and female crows at the DAWR captive breeding facility were unsuccessful. After clinical exams with the project's veterinarian, the DAWR captive female was deemed infertile as an egg had ruptured in her uterus. The ten outdoor aviaries were maintained throughout the year.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

Due to only two males found in the wild, no crow eggs were produced. This resulted in less work hours and funds spent on the project than anticipated.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist III, 671-735-3997, medinas@guam.net

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: E-2-12

Grant name: Endangered Species Section 6

Project number and name: Segment 9 Guam Endangered Species Recovery

Subproject and job number and name: Subproject A: Avicultural Management for Rails, Kingfishers and Crows, Job 3: Captive Propagation of Guam Micronesian Kingfishers

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are "Actual" or "Estimated".

Source	Budget	FY 2009	FY2010	Actual ___ or Estimated ___
Federal:	\$59,470.00	\$26,880.46	\$5,580.00	\$32,460.46
State:				
Other:				
Total Federal:	\$59,470.00	\$26,880.46	\$5,580.00	\$32,460.46
Total match:				
Total project:	\$59,470.00	\$26,880.46	\$5,580.00	\$32,460.46

5. Objectives

1. Transfer 0.3 sihek from mainland zoos to the Guam facility.
2. Limit hand rearing of sihek chicks by assisting parents in supplemental feeding of chicks in the nest.
3. Maintain captive sihek on Guam by feeding locally caught lizards as the main

component of their diet.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

This grant provided the funds to captive breed Guam Micronesian kingfishers on Guam. Other funding was provided by 13 zoological facilities participating in the Micronesian Kingfisher Species Survival Plan (SSP). Each institution funds the husbandry efforts of maintaining and reproducing kingfishers at their respective facility.

The overall goal of this effort is to increase the captive Micronesian kingfisher population to sufficient numbers to begin reintroductions in snake-controlled areas on Guam.

7. Describe how the objectives were met. See “Supplemental Information” for additional requirements and “Attachments” for specialized tables.

During FY10, funds were extended to allow for the purchase of geckos to feed the captive sihek.

In FY09, 1.1 sihek were transferred to Guam in October 2008 from US mainland zoos. Four pairs produced 20 eggs in 10 nesting attempts. Ten eggs were infertile, nine eggs hatched, and one embryo was killed by its sibling. Of those nine hatchings, only four chicks survived to be banded and added to the captive flock. Of the five chicks that did not survive, two were consumed by snakes, one fell out of the nest, and two disappeared. Supplemental feeding at the nest was performed with six of the nine hatchlings (all but one perished), three hatchlings were hand-reared, and one was parent reared. All three hand-reared chicks and the one parent-reared chick survived to fledge. Birds were fed a diet consisting of locally caught geckos and skinks as well as some crickets and mealworms.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs.

When the FY09 Section 6 proposals were written, DAWR requested the transfer of three females from the mainland zoo. Two females arrived in September 2008 and the remaining female arrived October 2009. DAWR also agreed to accept a male, which was shipped with the female in October 2009.

Six hatchlings were supplemental fed at the nest and, unfortunately, only one fledged. Two the six were consumed by snakes, one fell out of the nest, and two disappeared from the nest. The final chick was supplemental fed by DAWR staff for the first few days after hatching but it was apparent that the parents were feeding the chick and DAWR's involvement ceased. Due to the high risk in losing the chick this fiscal year, DAWR staff decided to hand-rear the remaining chicks (three).

Of the ten infertile eggs, six eggs were from one male. In FY08, this male was paired with a different female that also resulted in infertile eggs. This male is 15 years old and is most likely senescent.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist III, 671-735-3997, medinas@guam.net

Interim Performance Report

Guam Division of Aquatic and Wildlife Resources, Department of Agriculture
FY 2010

1. State: Guam

Grant number: E-2-12

Grant name: Guam Endangered Species Recovery

Subproject and job number and name: Sub-Project B: Development of an Experimental Population of Guam Rails on Rota and Other Suitable Islands, Job 1: Establishment of Experimental Population of Guam Rails on Rota and Other Suitable Islands.

2. Report Period: October 1, 2009 to September 30, 2010

Report due date: December 29, 2010

3. Location of work: Guam

4. Costs: Please identify sources of federal funds and match and indicate amounts budgeted and spent for each. Indicate if match is in-kind. Indicate in table whether costs are “Actual” or “Estimated”

Source	Budget	Actual ___or Estimated X_
Federal:	\$2,000.00	\$815.00
State:		
Other:		
Total Federal:	\$2,000.00	\$815.00
Total match:		
Total project:	\$2,000.00	\$815.00

5. Objectives:

1. Release at least 100 captive bred ko'ko' on Rota. The ko'ko' should be genetically unimportant to the maintenance of the captive gene pool and in excess of numbers needed for maintaining the integrity of the captive populations.
2. Monitor survival, dispersal, reproduction and establishment of released rails through radio telemetry and surveys.
3. Identify and eliminate or control factors limiting establishment of rails in the wild on Rota, including trapping and removal of feral cats, monitor lizards, rats and other potential predators.

6. If the work in this grant was part of a larger undertaking with other components and funding, present a brief overview of the larger activity and the role of this project.

N/A

7. Describe how the objectives were met. See "Supplemental Information" for additional requirements and "Attachments" for specialized tables.

This project was not worked on with E-2-12 extension money in FY10.

In FY09, a total of 65 rails were hard released on Rota: January 2009=15 rails, August 2009=50 rails. Fourteen rails were released with transmitters and were monitored for survival, dispersal, reproduction and establishment. The rails were tracked for 19 days, however, due to the resignation of the project biologist, tracking was not resumed until 45 days later. At that time, three birds were found alive, three birds were found dead (COD unknown), and the remaining signals were lost.

Tomahawk live traps and Victor Oneida size 1.5 leg-hold traps were baited with dried fish and shrimp paste to capture 55 cats and one dog in 10,848 traps nights on Rota. Animals were dispatched using a 22-caliber air rifle.

8. Discuss differences between work anticipated in grant proposal and grant agreement, and that actually carried out with Federal Aid grant funds; include differences between expected and actual costs

The objective of releasing 100 rails (95 released) was not met in FY09 because eligible individuals were lacking from our breeding population. Rails harnessed with transmitters were not monitored closely due to the sudden departure of the staff biologist.

9. List any publications or in-house reports resulting from this work.

N/A

Name, title, phone number, and e-mail address of person compiling this report:

Suzanne Medina, Wildlife Biologist III, 671-735-3985, medinas@guam.net