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TUNA AGGREGATION PROJECT - NORTHERN MARIANAS
FISCAL YEAR 1979

ADMINISTRATIVE REPORT
AUGUST 1980

by

DIVISION OF MARINE RESOURCES
DEPARTMENT OF NATURAL RESOURCES
COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS

INTRODUCTION

1. The Tuna Aggregation Project* was funded by the National Marine Fisheries Service (U.S. Department of Commerce) through the Pacific Tuna Development Foundation to help stimulate the development of domestic fishery in the Northern Marianas. The $28,250 project was aimed in demonstrating the feasibility of using tuna aggregation devices or tuna bouys to enhance the pelagic fishery conditions and to increase the harvest yields of the local fishermen as well as decrease their fuel expenses.

2. Experiments in the Philippines and Hawaii proved that aggregation devices such as bamboo or 3-drum bouys will attract pelagic fishes such as tunas, marlins, mahimahi, wahoo, etc and will increase the fishery potentials of these areas. Fish catches of these areas had substantially increased since the introduction of these devices.

3. The project involved various activities during Fiscal Years 1979 and 1980.

RECONNAISANCE

4. Preliminary reconnaisances were made by the Division of Marine Resources to select sites around Saipan and Tinian. The Island Girl, a 30 footer Bertram sport fishing boat, was chartered during May 1979 to survey these areas with an echo sounder. Coordinates were made with a hand-bearing compass. The site in Rota was made thru discussion with local fishermen and by using data in the hydrographic chart of Rota. The coordinates were then plotted on a hydrographic map of each area and the latitudes and longitudes were noted on the permit proposal.

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* The project was funded by the National Marine Fisheries Service, U.S. Department of Commerce, through the Pacific Tuna Development Foundation under agreement with the Commonwealth of the Northern Mariana Islands.

PERMIT

5. A permit request was submitted by the Department of Natural Resources to the U.S. Army Corps of Engineer and the U.S. Coast Guard for the installation of the five (5) bouys at selected sites in Saipan, Tinian, and Rota. These sites are:

(i) Saipan

Bouy #1:	145°	40.6'E
	15°	16.8'N
	2.9	miles from Managaha Island
Bouy #2:	145°	33.6'E
	15°	11.5'N
	8.2	miles from Puntan Susupe

(ii) Tinian

Bouy #3:	145°	32.7'E
	15°	05.1'N
	3.5	miles from Faibus Pt.
Bouy #4:	145°	33.5'E
	14°	57.1'N
	2.9	miles to point south of Gurguan Pt.

(iii) Rota

Bouy #5:	145°	10.4'E
	14°	12.5'N
	2.5	miles to closest land

The review process took four(4) months which delayed the project.

PROCUREMENT OF SUPPLIES

6. Preparations were made to acquire all the necessary supplies and materials for the project. Materials that were available locally were purchased. Orders were made from overseas vendors which took time and further delayed the project. Trips were also made to Guam to obtain the necessary materials.

CONSTRUCTION

7. The Northern Marianas Public Work Office (Central Repair Shop) was contracted to fabricate the five (5) tuna bouys in June 1979. Due to tight schedule of the Central Repair Shop, the finished works on these bouys were done by the Marine Resources staff. The four (4) anchors were constructed by a local person. The extra anchor was acquired free of charge from the Northern Marianas Public Works. Each bouy consists of three (3) 55-gallon drums filled with foam and reinforced by angle iron frame and has a radar reflector and night light. It is attached to a 5/8 inches polypropylene rope and is anchored to a 3-ton weight. The design of the bouy was done by the National Marine Fisheries Service in Honolulu. (See Appendix A and pictures).

INSTALLATION

8. The Rota Government "M-boat" was chartered during March-April 1980 to install the tuna bouys around Saipan, Tinian, and Rota. Due to rough seas, it took longer to install these bouys. Bouy #2 damaged during the installation and was repaired. The purse seine nets were not placed until a month later when the water was calmer. Two 3-feet telephone poles which were covered with algal growths were tied to Bouy #1 and #2 as temporary aggregation structures. No echo sounder was used during the installation phase.

FISHING/MONITORING

9. Public information was put out to make the public aware of the project. Articles appeared in the local newspapers, Pacific Daily News, Coastal Zone Newsletter, and the Commonwealth Government newsletter informing the public of the program.

Local fishermen were requested to report their fish catches to the Division of Marine Resources. Letters were also sent out to several fishermen requesting them to submit their fish catch reports. Several monitoring and fishing activities were conducted by the Marine Resources staff around these bouys. The following were the activities conducted around these bouys by the Marine Resources staff and the public.

1. April 3, 1980 Saipan Sportfishing boat. 1 bull mahimahi (20 lbs) caught 100 feet from bouy #1 (Saipan). 6 mahimahi seen near the bouy.

2. April 2, 1980 Mr. Decimo Atalig's boat. 60 pieces of skipjack tunas (5 lbs ea.) caught around bouy #5 (Rota).

3. April 26, 1980 Mr. Decimo Atalig's boat. 40 pieces of skipjack tunas (5 lbs ea.) caught around bouy #5 (Rota).

4. April 26, 1980 Island Girl. 1 mahimahi (12 lbs) caught 300 yards from bouy #1 (Saipan). Several mahimahi strikes but all lost. Mahimahi, trigger fish, rudderfish, and wahoo were seen under the bouy. 1 mahimahi (13 lbs) caught near bouy #4 (Tinian). Tropic birds, fairy terns, sooty terns and brown boobies were seen flying around bouy #1 and #4.

5. April 27, 1980 Mr. Decimo Atalig's boat. 20 pieces of skipjack tunas (5 lbs ea.) caught around bouy #5 (Rota).

6. April 29, 1980 Maria J. 1 mahimahi (20 lbs) caught around bouy #2. (Saipan).

7. April 30, 1980 Maria J. 6 mahimahi observed near bouy #2. No strikes.

8. April 1980 Mr. Alejo Mendiola's boat. 4 fishing trips around bouy #5 (Rota) resulted in a total catch of 700 pounds of skipjack tuna (5 lbs ea.) One trip yield 101 pieces of tunas after one hour of trolling.

9. May 4, 1980 Mr. Rick Rasa's boat. 1 wahoo (63 lbs) caught around bouy #2. (Saipan). 1 wahoo (67 lbs) caught around bouy #3 (Tinian). 4 pieces of yellowfin tunas (55 lbs ea.) around bouy #3.

10. May 8, 1980 Saipan Sportfishing boat. 3 mahimahi (12 lbs ea.) caught around bouy #1 (Saipan). 1 shark (5 footer) seen under bouy #1. Pempherid-like fish observed under bouy #1. 3 mahimahi (12 lbs ea.) caught around bouy #3 (Tinian). 1 wahoo (20 lbs) caught around bouy #3. 1 blue marlin (20 lbs) caught near bouy #3. Rudderlike fish seen under bouy #3.

11. May 15, 1980 Mr. Vicente Camacho's boat. 1 wahoo (20 lbs) caught around bouy #2 (Saipan).

12. May 23, 1980 Saipan Sportfishing boat. Schools of rainbow runner seen under bouy #2 (Saipan). Pilotfish and rudderlike fish seen under same bouy. A whole pod of porpoise seen near bouy #2.

13. May 1980 Mr. Daniel Agulto's boat. Vertical line fishing at bouy #3 (Tinian). 15 pieces of rainbow runner (10 lbs ea.) and 5 pieces of skipjack tuna (5 lbs ea.) caught around bouy #3. Many fishes lost to shark attack.

14. June 6, 1980 Saipan Sportfishing boat. 2 mahimahi (10 lbs ea.) caught bouy #1 (Saipan). Pilotfish and rudderlike fish seen under bouy #1. 3 skipjack tunas (5 lbs ea.) caught near bouy #3 (Tinian).

15. June 6, 1980 Mr. Felix Cepeda's boat. 1 blue marlin (94 lbs) and 1 wahoo (32 lbs) caught near bouy #2 (Saipan).

16. June 7, 1980 Mr. Felix Cepeda's boat. 2 wahoos (20 lbs ea.) caught near bouy #2 (Saipan).

17. June 17, 1980 Mr. Felix Cepeda's boat. Fished near bouy #1 but no catch.

18. June 19, 1980. Mr. Felix Cepeda's boat. Fished near bouy #2 (Saipan) but no catch.

19. June 25, 1980 Saipan Sportfishing boat. 3 skipjack tunas (10 lbs ea.) caught near bouy #4 (Tinian). 1 barracuda (15 lbs) caught near bouy #4 area. 1 blue marlin strike but lost near bouy #4 area. Bouy #4 not seen.

20. June 26, 1980 Mr. Vicente Camacho's boat. 1 blue marlin strike near bouy #2 (Saipan) but lost.

21. July 20, 1980 Mr. Frank Aldan's boat. 1 wahoo (50 lbs) caught near bouy #1 (Saipan). 3 yellowfin tunas (1 - 35 lbs 2 - 7 lbs) caught near same bouy.

22. August 9, 1980. Saipan Sportfishing boat. 1 yellowfin tuna (50 lbs) caught near bouy #1 (Saipan). 40 pieces of skipjack tunas (15 lbs ea.) caught near same area.

23. August 10, 1980 Mr. Frank Aldan's boat. 12 pieces of skipjack tunas (15 lbs ea.) caught near bouy #1 (Saipan).

24. August 11, 1980 Mr. Frank Aldan's boat. 1 blue marlin (60 lbs) caught near bouy #1 area. No sign of bouy #1.

These were the reported activities around the bouys in Saipan, Tinian, and Rota. Several fishermen fished these areas but they did not report their catches.

ONE-DRUM BOUY SYSTEM

10. The Division of Marine Resources decided to experiment with a one-drum bouy system. Most of the bouy parts were procured locally and the night light was provided by the Guam Division of Aquatic and Wildlife Resources. The bouy was fabricated by the Marine Resources staff. The anchor was provided free of charge by the Northern Marianas Public Work Office. A description of the bouy is shown on Appendix B. The bouy was transferred to Rota via the Marianas Queen. The Marine Resources staff went to Rota on August 7-8, 1980 to install the bouy at the same site as the lost bouy in Rota. The Rota Government "M-boat" was chartered to install the bouy. During the deployment process, the "M-boat" had to move away from the area in order to avoid the ropes from getting tangled on the propeller. As soon as the anchor was dropped, the bouy sank and was not seen again. The bouy line was designed for 250 fathoms with extra line to 500 fathoms. The hydrographic chart of Rota indicated that the deepest spot near the target zone is about 300 fathoms. Unfortunately, there must be some deep area with depth greater than 500 fathoms. There was no echo-sounder used during the installation process and no fund is available to charter a vessel with an echo sounder that can read to 1000 fathoms.

PROBLEMS

11. Some of the problems encountered during the entire bouy project were:

1. It took longer than expected to fabricate the bouys due to delays in procurement of supplies and construction of the bouys.

2. Materials for the bouys had to be purchased from Guam and other overseas vendors which took time. These were not available in the local markets.

3. No vessel was available in the Northern Marianas with an echo sounder that can read to 1000 fathoms.

4. All the tuna bouys (#1, 2, 3, 4, and #5) were gone. Bouy #5 (Rota) and #2 (Saipan) showed signs of being hit by passing vessels before they disappeared.

5. Some of the bouys had problems with lights.

6. The purse seine nets that were placed on these bouys tend to wrap around the chain and ropes. The nets need to be double to be more effective.

7. The Rota Government "M-boat" which was chartered to install the bouys was inadequate for the project. It is small and dangerous during rough seas. No other vessel is available in Saipan for the project.

8. During the installation process, the weather was bad and the project had to be delayed.

SUMMARY/RECOMMENDATION

12. The objectives of the project were achieved in proving that aggregation devices or tuna bouys could enhance the pelagic fishery conditions in the Northern Marianas and would enable local fishermen to save fuel expenses. Although all of the tuna bouys are now lost, the project was successful especially in Rota. One fisherman caught 101 pieces of skipjack tunas (5 lbs ea) around bouy #5 in Rota. The people there were very enthused of the project and want more bouys to be placed there.

13. Some of the problems faced during the project could be avoided in future projects. Equipment and supplies for the bouys need to be purchased far in advance from overseas vendors. A vessel with an echo sounder that could read to 1000 fathoms must be chartered during the entire reconnaisance and installation activities. Perhaps the U.S. Coast Guard and the U.S. Navy in Guam will be requested to assist in the project.

14. It will be more convenient and economical if the tuna bouys are constructed in Rota and Tinian. The Marine Resources Division will just coordinate the programs there.

15. The angle iron frame of the bouy could be reduced to cut down costs. The ropes need to increase to one(1) inch in order to handle the rough weather in the Northern Marianas. The nets need to be double in order to be a more effective habitat and need to be connected to the bouy by using swivels to avoid getting tangled on the chain or cable.

16. Funds must be set aside for regular maintenance and monitoring activities around the bouys perhaps every two weeks. Extra bouys must be fabricated to replace any lost ones.

ACKNOWLEDGEMENT

17. Special acknowledgements are given to the Pacific Tuna Development Foundation and the National Marine Fisheries Service for funding the project. The Living Marine Resources Inc., Guam Division of Aquatic and Wildlife Resources, and the Northern Marianas Public Work Department deserve special thanks for their support in the program.

APPENDIX A

6 drawings which will be distributed later.