

Essential Fish Habitat (EFH) Generic Amendment
To The
Fishery Management Plans (FMPs)
Of The
U.S. Caribbean
Including a Draft Environmental Assessment

VOLUME I

EXECUTIVE SUMMARY

1.0 INTRODUCTION

2.0 IDENTIFICATION AND DESCRIPTION OF ESSENTIAL FISH HABITAT

2.1 HABITAT TYPES AND DISTRIBUTION: ESTUARINE

- A. Tidal Wetlands
- B. Salt Marshes
- C. Mangroves

2.2 HABITAT TYPES AND DISTRIBUTION: MARINE

- A. Water: Natural characteristics
- B. Sea Grasses
 - 1. Seagrasses and Their Function as Essential Fish Habitat
 - 2. Specific Examples of Seagrass As Essential Fish Habitat
- C. Non-vegetated bottom
 - 1. Rocky Shores and Sandy Beaches
 - 2. Sand/Mud
 - 3. Sand
- D. Algal Plains
- E. Coral Reefs
 - 1. Geologic Features
 - (a). Pinnacle Features
 - (b). Shelf Features
 - 2. Live Bottom
 - (a) Puerto Rico - Large Scale Characteristics
 - (b) U.S. Virgin Islands - Large Scale Characteristics

3.0 FISHERY MANAGEMENT UNIT (FMUs)

4.0 ESSENTIAL FISH HABITAT FOR MANAGED SPECIES

- A. Habitat Areas of Particular Concern

4.1 AMENDMENT TO THE REEF FISH FMP

- A. List of Actions of Amendment

- B. Summary of Habitats Used by Reef Fishes
 - 1. Distribution and Habitat Usage by Life Stage
 - (a). Eggs
 - (b). Larvae
 - (c). Juveniles
 - (d). Adults
 - 2. Habitat Condition
- C. Prey Dependence
- D. Review and Update of Amendment

4.2 AMENDMENT TO THE SPINY LOBSTER FMP

- A. List of Actions of Amendment
- B. Summary of Habitats Used by Spiny Lobster
 - 1. Distribution and Habitat Usage by Life Stage
 - (a). Eggs
 - (b). Larvae
 - (c). Juveniles
 - (d). Adults
 - 2. Habitat Condition
- C. Prey Dependence
- D. Review and Update of Amendment

4.3 AMENDMENT TO THE QUEEN CONCH FMP

- A. List of Actions of Amendment
- B. Summary of Habitats Used by Queen Conch
 - 1. Distribution and Habitat Usage by Life Stage
 - (a). Eggs
 - (b). Larvae
 - (c). Juveniles
 - (d). Adults
 - 2. Habitat Condition
- C. Prey Dependence
- D. Review and Update of Amendment

4.4 AMENDMENT TO THE CORAL FMP

- A. List of Actions of Amendment
- B. Summary of Habitats Used by Coral
 - 1. Distribution and Habitat Usage by Life Stage
 - (a). Eggs
 - (b). Larvae
 - (c). Juveniles
 - (d). Adults
 - 2. Habitat Condition
- C. Prey Dependence
- D. Review and Update of Amendment

5.0 THREATS TO ESSENTIAL FISH HABITATS

Background

Puerto Rico

U.S. Virgin Islands

5.1 ADVERSE IMPACTS OF FISHING ACTIVITIES ON ESSENTIAL FISH HABITAT

- A. Threats to Essential Fish Habitat
- B. Fishing Activities that May Adversely Affect EFH
- C. Fishing Gear Assessment on EFH
 - 1. Caribbean Spiny Lobster FMP
 - A. The trap/pot fishery
 - B. The dip net fishery
 - C. The entangling net fishery
 - D. The recreational fishery
 - 2. Caribbean Reef Fish FMP
 - A. The longline/hook and line fishery
 - B. The trap/pot fishery
 - C. The entangling net fishery
 - D. The recreational fishery
 - 3. Coral and Reef Resources FMP
 - A/B. The commercial and recreational fisheries
 - 4. Queen Conch FMP
 - A/B. The commercial and recreational fisheries for queen conch
- D. Previous Council Actions Taken That Protect Habitat
- E. Further Considerations For Gear Impact Research

5.2 ADVERSE IMPACTS OF NON-FISHING ACTIVITIES ON ESSENTIAL FISH HABITAT

Convention for Threats Identification

- A. Natural Factors
 - 1. Tropical Disturbances
 - 2. Hypersalinity
 - 3. Reef Diseases
 - 4. Bioerosion
- B. Human-related Factors - Ecosystem-level Threats
 - 1. Anthropogenic Stressors on Coral Reefs
 - 2. Eutrophication
 - 3. Sedimentation
 - 4. Pollution
 - 5. Physical Damage
 - 6. Oil Pollution
 - 7. Channelization
 - 8. Global Warming

- C. Development and Related Threats
 - 1. Barriers and Impoundments
 - 2. Beach Nourishment Projects
 - 3. Bridges, Roads, and Causeways
 - 4. Docks, Piers, and Other Structures
 - 5. Housing Developments
 - 6. Commercial and Industrial Developments
 - 7. Navigation Projects, Ports, Marinas, and Maintenance Dredging
 - 8. Irrigation, Flood Control, and Drainage Related to Agriculture, Forestry, and Urban Development
 - 9. Mariculture/Aquaculture
 - 10. Pipelines
 - 11. Bulkheads, Small Fills, Groins, etc.
 - 12. Power Generating Facilities
 - 13. Transmission Lines
 - 14. Mining Activities
 - 15. Oil and Gas Development

5.3 CUMULATIVE IMPACT ASSESSMENT

6.0 CONSERVATION RECOMMENDATIONS

- A. Ecosystem Level
- B. Project-Specific Level
 - 1. Docks and Piers
 - 2. Boat Ramps
 - 3. Marinas
 - 4. Bulkheads and Seawalls
 - 5. Cables, Pipelines, and Transmission Lines
 - 6. Transportation
 - 7. Navigation Channels and Boat Access Canals
 - 8. Disposal of Dredged Material
 - 9. Impoundments and Other Water-Level Controls
 - A. Wetland impoundments
 - B. Watershed Impoundments
 - 10. Drainage Canals and Ditches
 - 11. Oil and Gas Explorations and Production
 - A. In coastal wetlands
 - B. In open estuarine waters
 - C. On the continental shelf
 - 12. Other Mineral Mining/Extraction
 - 13. Sewage Treatment and Disposal
 - 14. Steam-Electric Plants and Other Facilities Requiring Water for Cooling and Heating
 - 15. Mariculture/Aquaculture
- C. Mitigation
- D. Habitat Conservation Programs

- E. Recommendations for Improving Habitat Information
 - 1. Research Needs
 - 2. CFMC's Information Research Needs

7.0 REFERENCES

Note: Each Section contains its own set of Figures and Tables.

APPENDIX I: PRODUCT OVERVIEW (NOAA/NOS)

APPENDIX II: PUBLIC HEARINGS -- SUMMARY MINUTES

APPENDIX III: WRITTEN COMMENTS

APPENDIX IV: DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

VOLUME II

EFH Tables

Appendices for:

Section 3

Appendix A

Section 4

Appendix A

Appendix B

Appendix C

Appendix D

Appendix E

Appendix F

Section 5

Appendix A

Appendix B