Research and Monitoring Plan for Dolphin and Wahoo along the U.S. Atlantic Coast

1. Introduction

Dolphin (*Coryphaena hippurus*) and wahoo (*Acanthocybium solandri*) are highly migratory species targeted by both commercial and recreational fisheries along the U.S. Atlantic coast. The **Dolphin and Wahoo Fishery Management Plan (FMP)**, developed by the **South Atlantic Fishery Management Council (SAFMC)** and approved in 2003, established regulations to ensure sustainable harvest. Subsequent amendments have refined catch limits, allocations, and data collection methods. This research and monitoring plan aims to enhance data collection efforts, ensure compliance with catch limits, and monitor the overall health of these fisheries.

2. Research Objectives

A. Stock Assessment and Population Dynamics

- Improve data collection on population age structure, age, growth, and reproductive rates.
- Conduct studies to investigate distinct population segments.
- Use advanced modeling techniques to estimate stock abundance and fishing mortality.

B. Fisheries-Dependent Data Collection

- Expand observer coverage on commercial and for-hire vessels.
- Improve electronic reporting systems for recreational and commercial landings.
- Enhance collaboration with state agencies (e.g., FL, NC, SC, GA) to improve accuracy of recreational data.

C. Fisheries-Independent Surveys

- Conduct tagging programs to track migration patterns.
- Utilize acoustic telemetry and satellite tagging for real-time movement data.
- Establish a fishery-independent survey to track abundance of adult dolphin and wahoo.
- Establish long-term monitoring of juvenile recruitment through ichthyoplankton surveys.

D. Environmental and Ecosystem Research

- Investigate the effects of climate change on distribution and spawning patterns.
- Monitor habitat use in relation to oceanographic conditions (e.g., sea surface temperature, upwelling, and eddies).
- Assess predator-prey relationships and trophic interactions.

E. Social and Economic Research

- Conduct surveys to assess economic contributions of recreational and commercial fisheries.
- Evaluate the effects of regulatory measures on fishing communities.
- Assess consumer demand and market trends for dolphin and wahoo.
- Conduct recreational valuation studies for dolphin and wahoo.
- Conduct social-ecological systems studies to improve understanding of interactions and connections between the fishery and marine ecosystem.
- Conduct a situation assessment to gather stakeholder perceptions of the management system for dolphin and wahoo.

3. Monitoring Plan

A. Stock Monitoring & Assessment

- **Management Strategy Evaluation:**
  - Complete management strategy evaluation for dolphin.
  - Conduct regular updates of the management procedure to inform changes to recommended catch levels.
- **Data Limited Approaches:**
  - Develop data limited approaches for estimating sustainable harvest for wahoo.
- **Catch Monitoring:**
  - Commercial: Use Vessel Trip Reports (VTRs), logbooks, trip tickets, and electronic monitoring.

    - Recreational: Continue Marine Recreational Information Program (MRIP) survey, Southeast Region Headboat Survey, and Southeast For-Hire Integrated Electronic Reporting Program.
- **Size and Age Sampling:** Expand age structure collection for age determination and size collection to inform size structure.
- **Bycatch & Discards:** Monitor through observer programs and electronic and logbook reporting.

B. Catch Limits & Compliance Monitoring

- **Annual Catch Limits (ACLs):** Evaluate landings against ACLs set in the FMP and amendments.
- **Accountability Measures:** Make sure that catch limits are not consistently exceeded.
    - Include in Stock Assessment and Fishery Evaluation (SAFE) reports.
- **Quota Tracking:** Improve real-time reporting through electronic logbooks and dealer reports.

C. Habitat & Ecosystem Monitoring

- **Essential Fish Habitat (EFH):** Conduct mapping and habitat use studies to refine EFH designations.
- **Climate Impact Studies:** Track shifts in species distribution relative to ocean temperature changes.
- **Food Web Analysis:** Assess prey availability and diet shifts due to ecosystem changes.

D. Enforcement & Data Validation

- **Electronic Monitoring:** Expand pilot programs for commercial vessels.
- **Observer Coverage:** Increase observer coverage in key fishing areas.
- **Port Sampling:** Conduct dockside validation of self-reported data and collection biological information.

4. Research Priorities

Priority Area	Research Focus	Methods	Lead Agencies
Stock Assessment	Population estimates, stock structure and movement	Management strategy evaluation, tagging, modeling	NOAA, SAFMC
Fisheries Data	Landings, discards, effort	Observers, logbooks, surveys	State Agencies, SEFSC
Environmental Studies	Climate change, habitat use	Oceanographic monitoring, telemetry	NOAA, Universities
Social and Economic Research	Market trends, valuation	Surveys, interviews	SAFMC, NOAA

5. Conclusion

This research and monitoring plan provides a framework for sustainable management of dolphin and wahoo along the U.S. Atlantic coast. By improving data collection, enhancing scientific assessments, and monitoring fishery impacts, stakeholders can ensure long-term sustainability while supporting the economic value of these fisheries.