

GOAL: Readily Accessible & Appreciated (2/3) **SUBGROUP: SUBGROUP: SUBGROUP: SUBGROUP: Vessel Traffic Education & Awareness Vessel Access Public Access ISSUES: ISSUES: ISSUES: ISSUES:** 1. Lack of interest (1) 1. Lack of Biscayne Bay boater license (1) 1. Lack of data on vessel (all types) access to 1. Availability of low-income access (1, 2, 3) 2. Lack of appreciation (2) 2. Vessel impacts to natural resources (2) the Bay and perceived shortage of dry stack 2. Lack of physical access to the Bay (1, 2, 3, 4) 3. Lack of visual access (1, 2, 3, 4) 3. Lack of education (3) 3. Lack of enforcement (3, 4) marina or boat storage (1) 4. Lack of coordination (4) 4. Lack of management and regulation of vessel 2. Appropriate sitting for vessel access, storage, 4. Lack of enforcement of public access 5. Lack of funding (5) traffic (5) and anchorage (2) requirements by municipalities (1, 4) 3. Cost of storage and access (3) 5. Lack of public transportation to the Bay and barrier islands (2.3) **OBJECTIVES: OBJECTIVES: OBJECTIVES: OBJECTIVES:** 1. Expose x% of elected officials and agency 1. Establish boat licensing for Biscayne Bay 1. Conduct a current and historical vessel wet issuance of variances and 1. Reduce representatives and x% of general population and dry slips inventory and analysis within x exceptions to public access requirements for within x years. (1) to how Biscayne Bay is aesthetically, 2. Implement boater education campaign about new shoreline developments. (1, 2, 3, 4) vears. (1) environmentally, and economically valuable impacts to natural resources from boating 2. Fully implement rules and guidelines for 2. Improve Bay (physical and visual) access for within the next x years. (1) and consequences to the violator within x facility sitting while deleting allowances for 5 target audiences by utilizing the BB 2. Develop an appreciation campaign to reach years. (2) variances. (2) Strategic Access Plan. (1, 2, 3, 5) 3. Establish a dedicated and consistent funding 3. Utilize Biscayne Bay economic survey to 3. Establish a dedicated and consistent funding x% of direct users of the Bay and x % of tourists / tourist industry within x years. (2) source to increase enforcement by assess cost of storage and access. (3) source to increase access by \$xx,xxx,xxx 3. Develop educational activities and outreach \$xx,xxx,xxx within x years in order to within x years. (1, 2, 3, 5) 4. Ensure existing regulation designed to protect methods for x% of tourists/tourist industry and decrease the number of violators within x physical, visual, and public access to the x% of teachers / educators / students within x years. (3) years. (3) 4. Develop a Biscayne Bay enforcement shoreline are fully utilized. (2, 3, 4) 4. Coordinate existing education and outreach strategy for all agencies with existing to leverage resources for x% of agency jurisdiction to achieve regulatory coordination

educators within x years. (4)

\$xx,xxx,xxx within x years. (5)

representatives and x% of teachers /

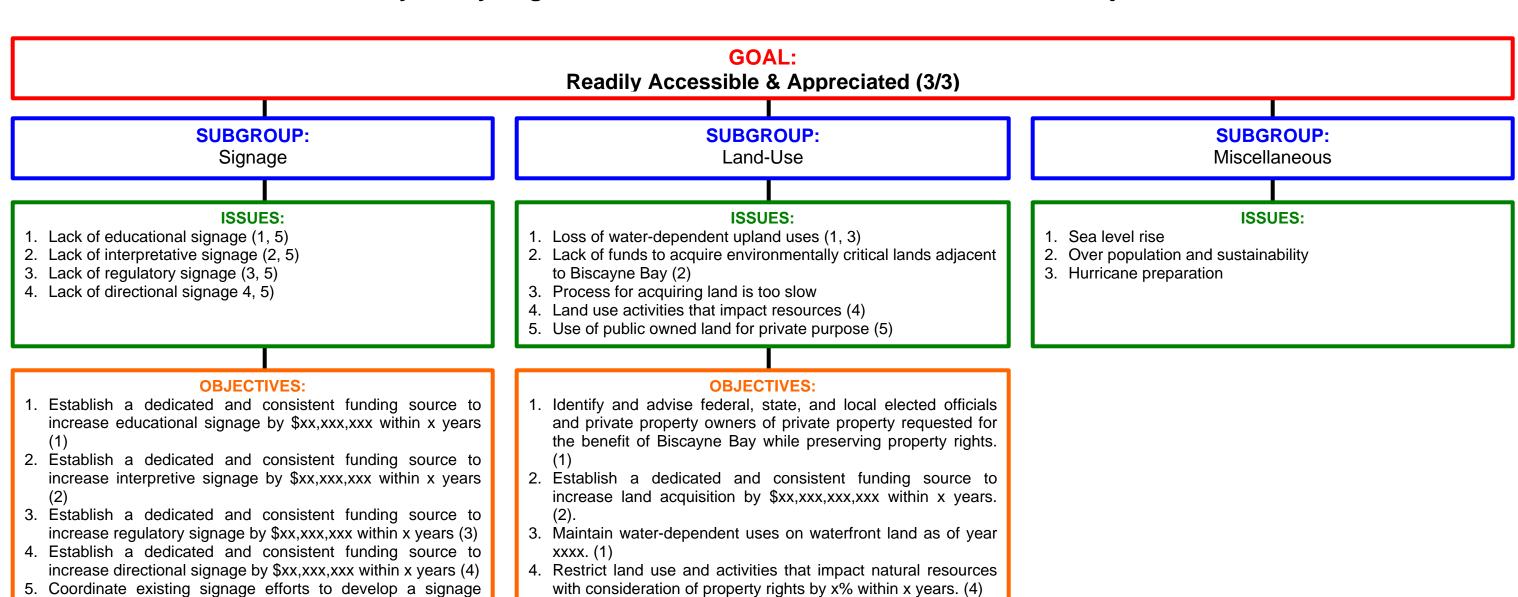
5. Establish a dedicated and consistent funding source for education outreach / access for

within x years. (3)

5. Review BBPI regulation inventory to develop a management plan for different Bay uses to

and/or zones within x years. (5)

provide recommendations for new rules



ACTION STEP:

5. Reducing leases and special uses on public lands to preserve

public access by x% within x years. (5)

- 1. Timely move the passage of a bond issue for the purchase of private property.
- 2. Use the analysis of water quality impacts of varying land uses that will be generated by the South Miami Dade Watershed Plan to guide decisions made by the BBRRCT for future project recommendations.

plan within x years. (1, 2, 3, 4)



GOAL:

Supports Uses & Economic Activity (2/3)

SUBGROUP:

Fishing

SUBGROUP:

Boating (uses)

SUBGROUP:

Sustainable Uses

SUBGROUP:

Marine Industries (Infrastructure)

ISSUES:

- 1. Sustainability and quality of recreational fishing in North and South Bay (1,2,3,4,6,8)
- 2. Commercial and recreational fishing impacts including damage to hard bottom communities and other habitats, and fish communities and population (1,2,3,4,5,6,7,8)
- 3. Viability and sustainability of commercial fishing (1,2,3,4,5,6,8)
- 4. Allocation of fisheries resources commercial vs. recreational (1,2,3,4)
- 5. Lack of current information on issues 1 4

ISSUES:

- Boating safety (accidents, fatalities) (1, 2, 3, 4)
- 2. Impacts of recreational vessels (traffic, ecological impacts) (1, 2, 3, 4, 5)
- 3. Impacts of commercial vessels (traffic, ecological impacts) (2, 3, 4, 5)
- 4. Conflicts between recreational and commercial vessels (3, 4, 9)
- 5. Boat maintenance facilities (unmet needs, environmental impacts) (4, 5, 6)
- 6. Restrictions due to port security (7, 8)
- 7. Boating debris and waste (including bilge pumping) (1, 4, 5)
- 8. Increasing number of vessels on the water in Miami-Dade County (1, 2, 3, 4, 5, 6, 7, 8, 9)
- Inappropriate and environmentally damaging boat anchorages (1, 4, 10)

ISSUES:

- 1. Adequacy of national, state and local parks (including facilities and maintenance) (1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15)
- 2. Inadequate Eco-tourism (1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15)
- 3. Environmentally responsible recreational uses (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15)
- Need to optimize socio-economic value of historical resources of the Bay (displaying, marketing) (4, 6, 8, 12, 13, 14)
- 5. Loss of historic preservation (1, 2, 7, 10, 12, 13, 14)
- 6. Need for coordinated marketing like "Discover Tampa Bay" (9, 11, 12, 13, 14, 16)

ISSUES:

- 1. Gentrification of the working waterfront (1, 2, 4)
- Impacts of ports and waterways projects (including blasting, dredging and expansion) (5)
- 3. Use of waterfront land for non-water dependent activities (1, 2, 3, 4)
- 4. Impact of marine facilities (3, 6, 7)
- 5. Inadequate port security (3, 8, 9)
- 6. Loss of employment in boating and marine industries (2, 4)

OBJECTIVES:

- 1. Restore sustainable native fish populations (1,2,3,4)
- 2. Restore native fish population diversity (1,2,3,4)
- 3. Increase size of fish to historical size frequencies (1,2,3,4)
- 4. Reduce incidental by-catch (1,2,3,4)
- 5. Optimize commercial harvest (2,3)
- 6. Increase use of sustainable fishing techniques and practices (1,2,3)
- 7. Increase environmentally knowledgeable employment in commercial / recreational fishing and related industries (2)
- 8. Increase environmental awareness in fishing and related industries (1.2.3)
- 9. Improve fishing harvest and effort information. (5)

OBJECTIVES:

- Increase adherence to boating laws and regulation (1, 2, 7)
- 2. Decrease groundings and propeller scars (1, 2, 3)
- 3. Decrease boating casualties (human & manatees) (1, 2, 3, 4)
- 4. Increase level of boater education (1, 2, 3, 4, 5, 7)
- Decrease debris from boaters including derelict boats (2, 3, 5, 7)
- 6. Increase number of boating facilities (5)
- 7. Balance security and impact on boater experience (6)
- 8. Minimize commercial delays (6)
- 9. Decrease conflicts between recreational and commercial use (4)
- 10. Decrease damage from boat anchorages (9)

OBJECTIVES:

- 1. Increase size and number of parks (1, 2, 3, 5)
- 2. Increase number of visitors to parks (1, 2, 3, 5)
- 3. Reduce negative impacts of park visitors (1, 3)
- 4. Increase number of scuba/snorkel activities (1, 2, 3, 4)
- 5. Increase value of eco-tourism (1, 2, 3)
- 6. Increase employment in eco_rtourism (1, 2, 3, 4)
- 7. Increase eco-tourism facilities (1, 2, 3, 5)
- 3. Increase number of trips via water-taxi in appropriate locations (2, 3, 4)
- 9. Increase kayak/canoe sales/rentals (1, 2, 3, 6)
- 10. Increase opportunities for observing wildlife (1, 2, 3, 5)
- 11. Increase number of environmentally friendly food/drink establishments near the water (1, 2, 3, 6)
- 12. Increase opportunities for cultural/historical experiences (1, 2, 3, 4, 5, 6)
- 13. Increase number of visitors to cultural/historical sites (1, 2, 4, 5, 6)
- 14. Increase historical signage (1, 2, 4, 5, 6)
- 15. Increase boating opportunities (1, 2, 3)
- 16. Assure Biscayne Bay activities are included in convention and visitors bureau promotional material (6)

OBJECTIVES:

- 1. Increase, or no net loss of, waterfront land for marine industry (1, 3)
- 2. Increase employment opportunities in marine and boating industry (1, 3, 6)
- 3. Increase efficiency and contiguity of deep and shallow water port areas (2, 3, 4, 5)
- 4. Decrease non-water dependent uses on waterfront land (1, 3, 6)
- 5. Decrease negative impacts from dredging (2, 4)
- 6. Increase use of environmentally protective boat maintenance techniques (4)
- 7. Improve sewer infrastructure for ports and marine facilities (4)
- 8. Increase ability to monitor (5)
- 9. Increase enforcement resources (5

ACTION STEPS:

- Quantify recreational catch and effort throughout the Bay. (9)
- Review commercial catch and effort data collection methods and if necessary, make recommendations to improve database for evaluating status of stocks, trends overtime, etc., specifically for Biscayne Bay.

ACTION STEPS:

- 1. Create process and identify funding to remove derelict vessels (5)
- 2. Create guidelines for suitable boat anchorage. (10)
- 3. Provide mooring buoys for boat anchorage in appropriate locations. (10)
- Enact and enforce guidelines and regulations for anchoring (10)

ACTION STEP:

1. Create comprehensive guidebook/sourcebook for user groups (5, 6, 9, 10, 12, 13, 16)

ACTION STEP:

1

GOAL: Supports Uses & Economic Activities (3/3)

SUBGROUP:

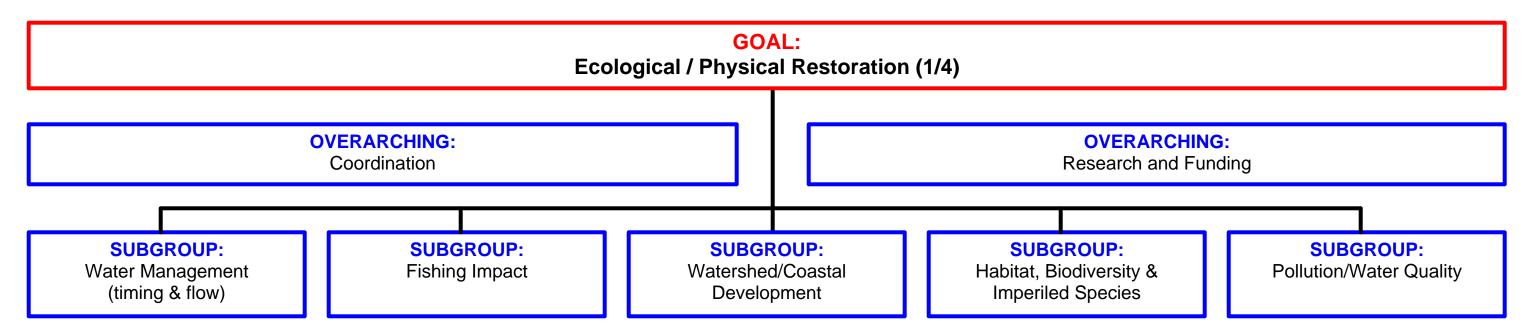
Overarching

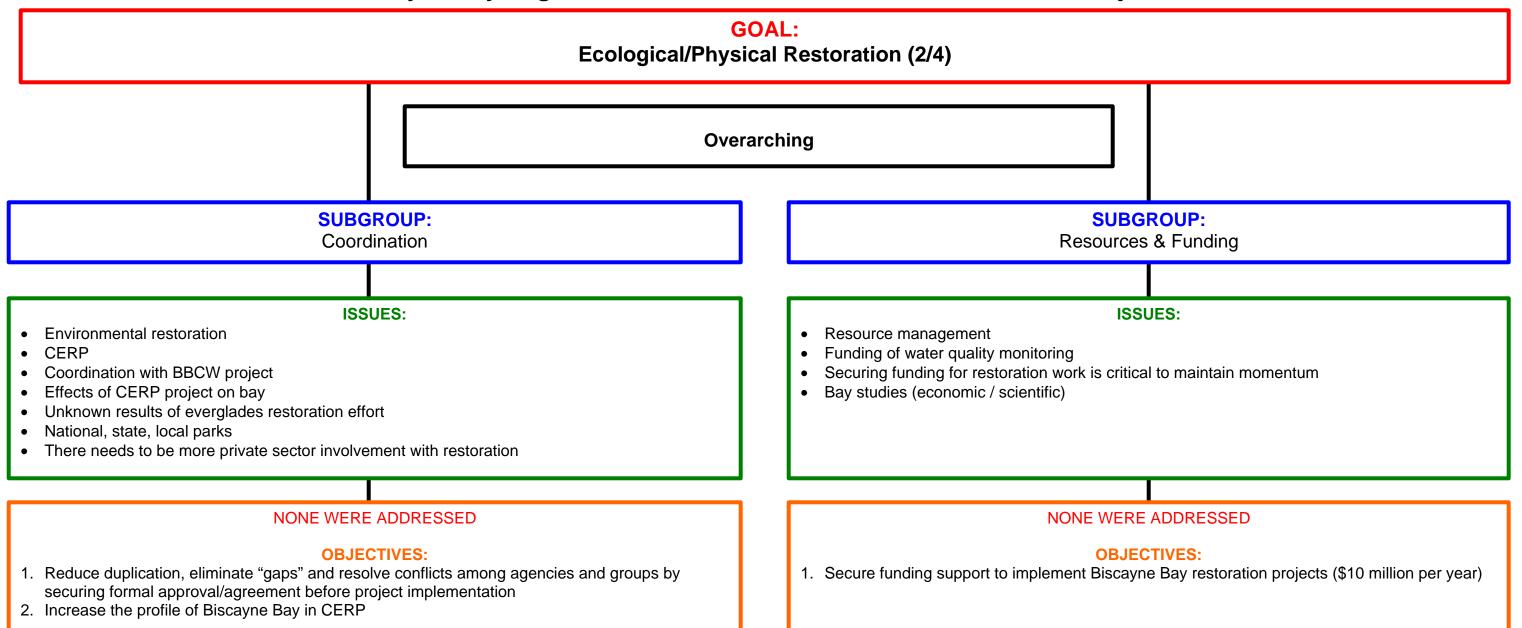
ISSUES:

- 1. Regulatory constraints and ensuring compliance
- 2. Adequacy of enforcement (1, 2, 3, 5)
- 3. Hurricane preparation (bridge closures, safety) (5, 8)
- 4. Land use conflicts (1, 4, 7, 9)
- 5. Impacts of watershed development (1, 4, 7, 9)
- 6. Balance between economic benefits and environmental quality (9)
- 7. Impacts of population growth (1, 4)
- 8. Pollution (1, 2, 4, 5)
- 9. Storm water and associated debris (1, 4, 5)
- 10. Water clarity (1, 2, 4)
- 11. Sewage spills and discharges (1, 2, 4)
- 12. Study user group impacts on Bay (boating, fisheries, marine infrastructure, etc.)

OBJECTIVES:

- 1. Decrease debris from land sources (1, 4, 5, 7, 8, 9, 10, 11)
- 2. Decrease beach closures (1, 8, 10, 11)
- 3. Increase dedicated funding from marine law enforcement returned to Bay and users (1, 2)
- 4. Improve sewage infrastructure (4, 5, 7, 8, 9, 10, 11)
- 5. Increase knowledge of rules and regulations (1, 3, 7, 8, 9)
- 6. Increase enforcement (2)
- 7. Acquire coastal and watershed lands (4, 5)
- 8. Increase environmentally friendly mooring facilities (3)
- 9. Ecologically and economically balanced coastal and watershed zoning/development (4, 5, 6)
- 10. Phase out economic activities with negative Bay impacts that can't be mitigated or minimized. (6)





GOAL:

Ecological/Physical Restoration (3/4)

SUBGROUP:

Pollution/Water Quality

LAND BASED ISSUES:

- 1. Contaminated sediments in canals
- 2. Presence and inputs of toxics, EPOCs, and contaminants to the Bay
- 3. Quality of groundwater inputs to the Bay
- 4. Nutrient loads to the Bay
- 5. Effects of canal discharge on Bay health
- 6. Lack of water quality standards
- 7. Effects of waste water reuse (CERP, WRPP) on ecology and health of the Bay ecosystem
- 8. Impacts from landfills
- 9. Effects of air pollution on water quality
- 10. Bacteriological contamination
- 11. Run-off from land-based sources; non-point source pollution
- 12. Point-source pollution
- 13. Impacts from degraded infrastructure
- 14. Turbidity
- 15. Effects of canal and river dredging
- 16. Effect of TMDLs on water quality
- 17. Lack of applicable/appropriate methodologies and indicators to address tropical and subtropical water and sediment qualities

MARINE BASED ISSUES:

- 1. Cruise ship pollution (debris/oil/fuel discharges)
- 2. Pollution from users/boats (debris/oil/fuel discharges)
- 3. Clean marinas
- 4. Potential for damaging anchorages if approved are too costly (?)
- 5. Marine debris in the Bay
- 6. Trash on shoreline
- 7. There is no organized effort to continuously keep the Bay clean
- 8. Effects of bay and ocean dredging
- 9. Port expansion / ocean blasting

SUBGROUP:

Water Management (timing & flow)

ISSUES:

- Timing, distribution, quality, and quantity of freshwater inputs into Biscayne Bay and how that affects biological communities
- 2. Salinity fluctuations/changes
- . CERP effects
- 1. Impact of sea-level rise on Bay ecology
- 5. Effects of increasing flood control
- 6. Groundwater movement and inputs to the Bay

LAND BASED OBJECTIVES:

- 1. Assess and evaluate the applicable/appropriate methodologies and indicators to address tropical & subtropical water and sediment qualities and adjust methodology accordingly (predecessor to Objective #3) (1, 2, 4, 5, 6, 10, 12, 15, 16, 17)
- 2. Develop and adopt water quality standards toxics, EPOCs, heavy metals, nutrients, bacteriological and other contaminants for the restoration of Biscayne Bay by Dec. 31, 2005
- 3. Reduce inputs of toxics, EPOCs, heavy metals, nutrients, bacteriological and other contaminants from groundwater and surface water to the Bay by 10% per year until water quality standards are met (1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 15, 17)
- 4. Reduce contaminated sediments in canals by 80% by the year 2020 (1, 2, 5, 12, 15, 17)
- 5. Develop and implement a comprehensive BMP program to minimize stormwater runoff, point and non-point source pollution by Dec. 31, 2005 (1, 2, 3, 4, 5, 8, 10, 11, 12, 13, 14, 16)
- 6. Develop a regulatory program to implement and enforce the above (1, 2, 4, 5, 8, 10, 11, 12, 13, 14, 15, 16, 17)
- 7. Evaluate impact of wastewater reuse on wetlands of Biscayne Bay by Dec. 31, 2004. (2, 4, 7, 10)
- 8. Evaluate the potential impacts of air pollution and air deposition by 2005 (9)
- 9. Evaluate impacts from degraded infrastructure and address necessary upgrades by 2010 (2, 4, 10, 12, 13)
- 10. Minimize impacts from canal and river dredging to water quality via implementation of a BMP program (1, 5, 14, 15)

MARINE BASED OBJECTIVES:

- (Note: issue #4 not addressed/understood)
- Eliminate 100% of trash and marine debris from natural environment and surrounding shoreline by Dec. 31, 2010 (1, 5, 6, 7)
- 2. Determine existence and level of cruise ship pollution from discharges (bilge water, debris, oil/gas, anti-fouling agents, wastewater) and eliminate 100% of pollution by Dec. 31, 2010 (1,5,7)
- 3. Determine the level of pollution from users/boats and eliminate by 90% by Dec. 31, 2010. (2, 5, 6)
- 4. Minimize impacts from Bay and ocean dredging to water quality via implementation of a BMP program (8)
- Minimize impacts from Bay and ocean blasting (i.e. port expansion) to water quality via implementation of a BMP program (9)

OBJECTIVES:

- 1. Timing, distribution, quality, and quantity of freshwater inputs into Biscayne Bay restored to at least 25% of predrainage estuarine conditions by 2020, and 50% by 2050 (1, 2, 6)
- 2. CERP to include Biscayne Bay restoration as an equal objective to Everglades restoration with regard to water resources as soon as possible, but no later than 2005 (3)
- Sea level rise effects to be determined as soon as possible, but no later than 2008, and considered in Biscayne Bay restoration, and other relevant studies and projects (4)
- 4. Increase water storage capability to address 80% of 100 year flood by 2016 to reduce the ecologically damaging pulse discharges to the Bay (1, 2, 5)

POLLUTION (LAND BASED) PROPOSED ACTION STEPS:

1. Establish a baseline water quality (*Objective 2*)

Ecological/Physical Restoration (4/4)

SUBGROUP:

Watershed/Coastal Development

ISSUES:

- Land-use conflicts
- 2. Permitting regulations (e.g. longevity, changes in use, increases in intensity, mitigation)
- 3. Lack of permit enforcement
- Coastal construction (i.e. setbacks, practices...)
- Effects of increased amounts of impervious surfaces from coastal development on Bay ecosystem
- Coastal armoring (seawalls, groins)
- Impact of sea-level rise on Bay ecology
- 8. Loss of natural habitat due to development

OBJECTIVES:

- 1. Ensure conservation of 100% of land necessary for Biscayne Bay restoration by 2006. (1)
- 2. Achieve 100% compliance with permitting for coastal development (2, 3)
- Eliminate coastal development permits issued with variances to regulations (2)
- permits issued should be consistent with Biscayne Bay Aquatic Preserve Act and rules (2)
- Reduce negative impacts of coastal construction (4)
- 6. Minimize net increase in impervious surfaces of development and redevelopment in Biscayne Bay watershed (5)
- 7. No net increase in coastal armoring (6, 8)
- 8. Increase the acreage of natural shoreline (6, 7, 8)
- 9. Increased acreage of natural habitat landward of shoreline to maintain optimal estuarine productivity
- 10. No net loss of natural habitat due to development

SUBGROUP:

Fishing Impact

ISSUES:

- Over-fishing/Species Stock Declines
- Fisheries conservation
- Changes in species demographics
- Changes in community structures
- New target species
- 6. By-catch

OBJECTIVES:

- population dynamics for target species.
- 2. Define sustainable take for all species (see chart)
- Complete Fisheries Management Plan for BNP by December 31, 2004. (1, 2, 5)
- Complete Fisheries Management Plan for the rest of Biscayne Bay (including _____ Sound) by December 2008. (1, 2, 5)
- 5. Develop and implement commercial and recreational fisheries regulations to protect habitat and reduce by December 31, 2009. (1, 2, 3, 5, 6)

Obtain reasonable understanding of ecology and

1. Boating impacts to imperiled species.

(including water control structures)

by December 2006.

degradation

2. Engineered system impacts to imperiled species

3. Dredging and blasting effects on imperiled species

5. Loss of species diversity due to habitat loss and/or

4. Loss of natural environment (flora and fauna)

1. Reduce human-related mortality of endangered species by 10% per year

OBJECTIVES:

- 2. Increase the acreage of suitable endangered and threatened habitat by 5% per year
- 3. Identify effects of dredging and blasting on imperiled species by December 2006.
- BMPs for dredge and blast by December 2008.
- Reduce habitat loss effects on species diversity.

SUBGROUP:

Habitat, Biodiversity, Imperiled Species

BIODIVERSITY. IMPERILED SPECIES ISSUES: HABITAT ISSUES:

- 1. Sea grass degradation
- 2. Destruction of bay bottom and corals (grounded boats)
- Hurricane preparation
- Loss of marine habitat
- 5. Exotics in mangroves; DOT causeway
- 6. Affects of exotic fish on Bay fish communities
- 7. Loss of habitat protection (mitigation, take and permitting)
- Juvenile fish habitat destruction
- 9. Industry versus habitat
- 10. Loss of estuarine habitat and associated species assemblages
- 11. Concerns over artificial reefs
- 12. Impact of sea-level rise on Bay ecology
- 13. Effects of dredging
- 14. Effects of exotic species management
- 15. User impacts from boating/fishing to benthic habitats
- 16. Effects of commercial and recreational fishing on flora and fauna

NONE WERE ADDRESSED **OBJECTIVES:**

- 1. Increase acreage of sea grass and coastal wetlands by 5% per year
- Reduce areas infested by exotics by 5% per year
- Enhance 5% of degraded benthic communities and wetlands every year (measure: apply method similar to WRAP)

COASTAL DEVELOPMENT SUGGESTED ACTION STEPS:

- 1. Moratoria (Objective 1)
- Move UDB (Objective 1)
- Increase enforcement effectiveness (Objective 2)
- 4. Incentives to perform best management practices

FISHING IMPACT ACTION STEPS:

- Continual (time series) of temporal comparison of species population (monitoring plan)
- Identify and evaluate new target species by December 2006 and update every 3 years.