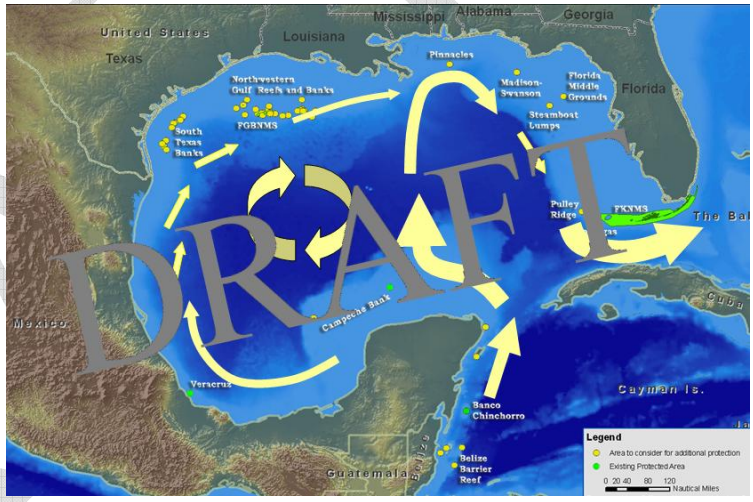
DISCUSSION PAPER- DRAFT *12/12/2007*

LEADING THE WORLD: CREATING AN INTERNATIONAL NETWORK OF MARINE PROTECTED AREAS IN THE GULF OF MEXICO

President Bush could set a new precedent for marine conservation in the United States by establishing a network of special marine areas in the Gulf of Mexico—the largest such network in the Nation and among the first truly internationally connected networks in the World. This action would extend protection to a biologically-connected network of coral reefs and banks and ensure conservation of sensitive habitats and communities critical to the Gulf's most recognizable and threatened living resources. At the same time, it would provide for recreational and ocean uses that are compatible with the primary objective of conservation and lead the Nation and its partners in the Caribbean to a new level of cooperative conservation.

CREATING A NEW PARADIGM



Following on President Bush's leadership by establishing the world's largest marine protected area in July, 2006 – the Papahānaumokuākea Marine National Monument in July 2006 – a new opportunity exists to lead the world through further actions that will help define ocean conservation in the 21st century. Establishing a network in the comparably-complex Gulf of Mexico region will protect a network of sensitive marine areas that are interconnected critical deep water coral banks and hard-bottom communities vital to the health and sustainability of the region's marine resources.

Since 2002, The World Summit on Sustainable Development, the IUCN's World Parks Congress, the Convention on Biological Diversity, and the Group of 8 Nations have all called for establishing MPA networks by the year 2012. This discussion describes the opportunity for the United States to create such a network.

WHY THE GULF OF MEXICO?

Historically considered and managed as isolated environments, recent discoveries have documented important biological linkages between underwater communities on a series of banks ringing the Gulf of Mexico. Conditions on the banks are maintained by the clockwise motion of the Yucatan, Loop and Florida currents. Individual reefs and banks, some of which are connected by bathymetric ridges and scarps, provide a nearly-continuous "corridor" from Belize and Mexico and into the Gulf itself. Though separated by large expanses of ocean water, the fishes, corals, and invertebrates common to these reefs and banks demonstrate that the health and vitality of resources "downstream" are linked closely to those located "upstream". Further, they are dependent on one another for continued biological recruitment and replenishment.

In contrast to the relative isolation of the Northwestern Hawaiian Islands, the Gulf of Mexico region is host to a variety of commercial and recreational human uses, including shipping, hydrocarbon development, fishing, military training, boating and diving. It will be critical to respect ongoing economic

and social activities to the extent possible while meeting conservation goals. Based on prior experience in the Gulf of Mexico, existing uses can co-exist with a highly protected network of marine areas.

THE CONCEPT OF CONNECTING THE "ISLANDS IN THE STREAM"

- ***The "Islands" are those special places in the Gulf of Mexico that are oases of marine biodiversity and abundance.***

- ***The "Stream" is the current system - the loop current complex - that creates conditions favoring the spread and proliferation of life on these features.***

The "Islands in the Stream" in the US include:

- South Texas Banks
- Flower Garden Banks NMS
- NW Gulf Reefs and Banks
- Mississippi-Alabama Shelf Pinnacles
- Madison Swanson
- Florida Middle Grounds
- Steamboat Lumps
- Pulley Ridge
- Florida Keys NMS

A complex and active geologic history has left the periphery of the Gulf of Mexico with a diversity of hard-bottom features rising from a generally muddy or sandy seafloor. To marine creatures, the features act as a series of submerged "islands". Some are along ancient shorelines, others pieces of the seabed thrust up by salt movement; still others originate from ancient coral reef growth. No matter what their origin, they now all serve as outposts for diverse communities of tropical and subtropical plants, invertebrates, and fish. These outposts, when taken together, form a chain of "jewels" encircling the Gulf of Mexico, and comprise a regional reservoir of Caribbean reef animals and plants.

Each jewel in the chain is linked to the others by currents. Currents are the ocean equivalent of the breezes that disperse the seeds of dandelions and maples, the spores of mushrooms, and airborne insects. Currents are the "liquid wind" that provisions and replenishes habitats of every kind in the ocean realm. They carry water from the Caribbean Sea into and around the Gulf of Mexico, distributing nutrients, larvae, and spores among distant, dependent habitats. They carry tropical species north into the Gulf, casting plant spores, animal larvae, and even adult creatures over huge expanses. As such, the continued health of each feature is linked to the connectivity created by the currents - damage to one jewel in the chain reverberates through the rest. The strength of these connections is the basis for establishing a network that will protect not only each feature for its own sake, but the entire network for the sake of the system.

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FOLLOWING ON SUCCESS AT PAPAHĀNAUMOKUĀKEA

The offshore areas of the Gulf of Mexico, and their resources, are currently managed under multiple authorities by several federal agencies. For example, MMS has historically protected topographic features through stipulations in leases that prevent drilling in sensitive areas, called no activity zones. Also, NOAA and the GMFMC have designated several of these same topographic features as Habitat Areas of Particular Concern, which limits the types of fishing allowed in the area, or closes the areas altogether. However, there is currently no unifying framework to comprehensively manage this network of diverse, teeming outposts and the activities affecting them now and in the future.

The Gulf of Mexico provides an excellent opportunity to establish a large network of protected marine areas and unify existing authorities in a way that is comprehensive and coordinated.

Key Federal Partners in the Gulf

- NOAA National Marine Sanctuaries provide comprehensive ecosystem protection to the Flower Garden Banks and Florida Keys national marine sanctuaries through the National Marine Sanctuaries Act and Florida Keys NMS and Protection Act
- NOAA Fisheries and Gulf of Mexico Fishery Management Council manage fisheries through the Magnuson-Stevens Fisheries Management and Conservation Act
- Minerals Management Service manages oil, gas and mineral exploration through the Outer Continental Shelf Lands Act

MAKING THE NETWORK INTERNATIONAL

Like all ecosystems on Earth, the Gulf of Mexico system does not recognize international boundaries. Because of the warm current system that flows northward from the Caribbean along the Yucatan Peninsula into the Gulf of Mexico, hard-bottom habitats downstream from the Caribbean are prime areas for thousands of species of corals, sponges, fish and other tropical species. One of the major sources of life is the Meso-American Barrier Reef System (MBRS), the second longest barrier reef system in the world. It may represent what scientists call a center of diversity for the region, which means that it contains nearly all the reef species present in the region. Other Caribbean reefs may have comparable diversity, but the sheer size of the MBRS and its proximity to the Gulf of Mexico leaves no question about the importance of the biological productivity of the MBRS for points north. It is clearly a connected and interdependent system.

Like the U.S. portion of the Gulf of Mexico, important links in the "island" chain are found in the waters off Mexico and Belize. By forming partnerships with Mexico and Belize, the three nations could simultaneously complete an international Gulf-wide network of marine protected areas and collaborate in new and productive ways on science, education, enforcement, and other critical areas of management.

Whether or not an international network can be established, creating the U.S. network would be an important, indeed critical, first step.

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APPENDIX. Defining the "Islands in the Stream"

Area	Description	Ecosystem	Species	Threats	Existing Protections
South Texas Banks	Banks crest at 56-70 meters, with surrounding depths 60-80 meters. Features high and low relief mid-shelf carbonate banks	Low relief hardbottom invertebrate community; adapted to high turbidity; mix of temperate and tropical species	Grouper, greater amberjack, sharks, cobia, red and vermillion snapper, and numerous species of reef fish.	Trawling, potential overfishing, oil and gas exploration and production	Some banks designated as Minerals Management Service No-Activity Zones
Northwest Gulf Reefs & Banks	Mid-shelf and shelf-edge banks of high relief (4-50 meters) associated with salt domes and outcrops of limestone, sandstone, claystone and siltstone	Coral reefs; deep tropical hard bottom assemblages; isolated sulfur-based chemosynthetic communities	Significant communities of a variety of black corals, solitary corals and branching corals; diverse invertebrate and reef fish communities, vermillion and red snapper, greater amberjack, grouper.	Aquaculture, artificial reefs, coral disease, overfishing, collection, bycatch disposal, lost gear, invasive species, spills, pollution, marine transport, anchoring, visitor use, and treasure hunting	Some banks Habitat Areas of Particular Concern (HAPC); some banks designated as Minerals Management Service No-Activity Zones
Mississippi-Alabama Shelf Pinnacles	Located south of Mobile Bay, these features are drowned reefs in water depths of 70-120 meters and consisting of tall, steep-sided reef structures	Rich outposts of both temperate and tropical marine life, particularly deep tropical hard bottom assemblages; probable locations for spawning by commercially important species	Soft corals, sponges, crinoids, black corals, coralline algae, groupers, snappers, amberjack, and numerous other fish species.	Bottom-tending fishing gear (commercial and recreational), pollution, anchoring	Minerals Management Service requirements for energy producers to avoid injury to high relief areas
Madison Swanson	Approx. 115 square nautical miles composed of "drowned reefs" or "fossil reefs" at water depths of 30-120 meters	Deep coral community; possible fresh water seeps	Oculina coral, soft coral, sponges, crustose coralline algae, arrow crabs, crinoids, basket stars, hermit crabs, numerous fish species	Poaching in the closed areas	HAPC - Closed to all fishing except for highly migratory species
Steamboat Lumps	Area of 104 square nautical miles composed of "drowned reefs" or "fossil reefs" at water depths 50-120 meters	Deep coral community; possible fresh water seeps	Oculina coral, soft coral, sponges, crustose coralline algae, arrow crabs, crinoids, basket stars, hermit crabs, numerous fish species	Poaching in the closed areas	HAPC- Closed to all fishing except for highly migratory species
Florida Middle Grounds	348-square-nautical-mile area composed of "drowned reefs" or "fossil reefs". Water depths 20-120 meters	Tropical coral, gorgonian, sponge dominated community; the northernmost well developed coral community on the North American continental shelf	Coral communities, many commercially important fish species including spanish mackerel, king mackerel, snappers and groupers.	Poaching in the closed areas, physical damage (e.g., anchoring and diving), land-based pollution	HAPC - prohibited activities include coral harvest, longlines, traps, pots and trawlers
Pulley Ridge	1300-square-nautical-mile area on the southwest Florida shelf about 250 km west of Cape Sable; drowned barrier islands ranging 60-100 meters deep	Unusual variety of zooxanthellate scleractinian corals, green, red and brown macroalgae, and tropical fishes typical of shallower depths	Deepest U.S. coral reef. Photosynthetic corals, sponges, fleshy and calcareous algae, soft corals, more than 60 fish species	Long-line and trawl fishing, anchoring, diving	HAPC - prohibited activities include coral harvest, longlines, traps, pots and trawlers

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