

Boundary Expansion Workshop
July 19, 2007
Galveston, Texas

Introduction

- **G.P. Schmahl**

Since most people attended yesterday's workshop on the impacts of fishing activities – just briefly recapped the introductory slides.

Flower Garden Banks (FGB) are just two features of dozens. West of FGB to east – couple of hundred miles. Some banks have enough light penetration to have coral or coral communities like FGB. They are unique and productive in their own right. When priority issues came up prior to scoping – the issue was habitat connectivity of FGB to the other banks in the Gulf of Mexico (GOM). FGB do not exist in isolation, but are connected biologically, ecologically. Connection is importation to the FGB. The second most comments from scoping were about boundary adjustments and expansion. Was more than those areas adjacent to FGB, but in the ecosystem. We therefore changed the terminology of the issue to boundary expansion. No comments on reducing or not to expand the FGBNMS. Boundary expansion subcommittee was formed. The subcommittee has gone a long way into studying the issue; Emma Hickerson and Clint Moore are the leads of the subcommittee.

SAC Boundary Expansion Subcommittee Recommendations

- **Clint Moore – Subcommittee chair, Advisory Council Oil and Gas representative**

It has been about 29 years since Tom Bright conducted the landmark study of the banks and reefs of the GOM. Was a junior geologist at the time. Spent time working for three oil companies sharing the passion for protecting the environment.

Outline of presentation
Working group members

Boundary expansion issue description – there are potentially vulnerable geological and biological habitats outside the sanctuary that could require protection. We want to evaluate the selected features for inclusion in the Sanctuary.

Three problem statements:

Problem 1 - focus on Stetson Bank – include the Stetson bank ring – is structurally and biologically connected to the bank

Problem 2 – include areas adjacent and connected to the FGB

Problem 3 – other unique features in the northwestern GOM

Minerals Management Service (MMS) – No activity Zones (2 slides)

List of banks – James Sinclair, Advisory Council member from MMS

These zones restrict production of oil and gas and minerals.

Bright Bank has no clear defined protections from treasure hunting – and is vulnerable to dynamiting.

- Emma Hickerson – Flower Garden Banks National Marine Sanctuary (FGBNMS) Research Coordinator

Ranking criteria process that the subcommittee went through. The banks listed in the document come from scoping input, subcommittee, and FGBNMS research.

Banks identified for consideration were developed during scoping and SAC discussions.

- Distance from FGB – eliminated some banks due to distance from the sanctuary. One of criteria was distance from FGB to these other features. Realistically the banks on the far east of GOM aren't viable options for expanded FGB.
- Zone priority index or Biological/geological Significance/Uniqueness – look at historical data on biological and geological significance and uniqueness from oil and gas surveys and also from the current research by FGBNMS. Based upon MMA criteria and recent FGBNMS acquisition of data. Tom Bright's work on the early BLM reports – they had looked at whole suite of the region, we did not have to.
 - High = 3
 - Medium = 2
 - Low = 1
- Structural connectivity – what makes some areas more important than others?
Example - Stetson bank structure discovered through multibeam bathymetry. Looked at contiguous, connected physically and in geographic region.
 - Stetson Ring ranked highest in terms of structural connectivity
 - Connectivity: Contiguous = 3
 - Connected = 2
 - In geographic region = 1
- Biological connectivity – larval sink and source and movements by pelagic species.
 - Biological connectivity:
 - 0-10 Km = 3
- Level of threat known or perceived – ranked using current knowledge.
 - Threat index:
 - High = 3
 - Med = 2
 - Low = 1
- Level of interest through public scoping and sanctuary data to incorporate. Such as Sonnier bank – accessible to divers interest. SAC comments and desire from sanctuary.
 - Public and sanctuary priority (same scale, high med low)

Seven sites ranked highest after ranking using the above criteria. Stetson Ring highest, McGrail, Geyer, Bright, Sonnier, Horseshoe reef (b/n banks) and Alderdice. And were put forward for further consideration in this process.

Slide on how the ranking came out – seven areas identified:

1. Stetson ring area

2. McGrail – has unique coral reef is coral HAPC,
3. Geyer – longline and diving,
4. Bright has impact,
5. Sonnier – longline and diving,
6. Horseshoe reef based on FGBNMS surveys and data,
7. Alderdice – geological feature.

There are three different kinds of boundaries – MMS No Activity Zone, Habitat Areas of Particular Concern (HAPC), and sanctuary boundaries.

Four areas within are coral HAPC – these have regulations on activities for fishing. McGrail is coral HAPC. Other kinds of HAPC have no regulations; only undergo special consideration by the FMC.

Mud volcanoes and patch reefs at horseshoe bank – has no protection at all. See slide.

Alderdice has salt spines which Mark Betts will talk about later.

Comment:

Billy Causey –

In January, Jim Connaughton – chair of Council of Environmental Quality. Interest in coral reefs. Took him to the Tortugas to dive with Dan Basta, Director of the National Marine Sanctuary Program. Was instrumental in NWHI. Has expressed an interest from the White House in the GOM – areas like Pulley Ridge (HAPC designation), take designations that are already there and enhancing them with a network. Also interest in Mexico and Belize in a bilateral and trilateral arrangement. Separate from this process, interest in the region has already been expressed by the White House.

Comment:

GP – the South Texas Banks, Alabama Pinnacles, Florida Middle Grounds and Pulley Ridge areas were identified in scoping as areas of interest to the public. The subcommittee discussed this and did not feel that it would be feasible to consider these areas under an expansion of the FGBNMS.

Reefs and Banks of the Northwestern Gulf of Mexico

-Tom Bright – TAMU

Reef and Banks of the Northwestern Gulf of Mexico - Their geological, biological and physical dynamics

By Richard Rezak, Thomas J. Bright and David W. McGrail

History

1936 USGS mapped the pinnacles (banks) in the GOM

1936 Shepard presumes that 26 of these banks at the shelf break in NW Gulf originated from rising salt plugs

1953 Stetson proves presence of corals at Flower Garden Banks (FGB), presumes banks are bioherms built on salt domes and identifies terraces at 10, 30 and 62 fm representing bioherms growth reflecting sea level changes.

1961 Thomas Pulley first substantiates viable growing coral communities in FGB. Stage dive trips to observe and collect

1971 Real research begins

- They began in 1970 when TAMU acquired a vessel that could get to the FG and conduct research (prior to MMS). The FGB Oceans Research Center: Develop a man in the sea program by putting a platform atop the reef at FGB to keep tables on what happened at the FG at all times. Research money from NASA to characterize the biota of the FG. Miss Freeport was the name of the vessel. Part of the reasoning behind the research was to determine if the ocean could provide pharmaceuticals. Another part of the study was concerning coral recruitment. Ended up with hundred of settling plates . . . generated several theses and better understanding of coral recruitment equipment.
- Video became useful at this time for them. Submersibles were a breakthrough for them (2-man). It had 1000 feet capability. During the course of all studies they would begin at the side of the coral cap and work their way downwards to the deepest areas of the bank in the mud. Goal was to look at things on the bottom and record them on video and if possible record them on audio.
- Taxonomy of the reef was recorded in 1974 in the book Biota of the West Flower Garden Banks.
- Around 1973 oil and gas leases off shore began to come about. In 1973 Information transfer meetings were held in Louisiana to design research and lease stipulation to protect the FGB during anticipated offshore oil and gas exploration and production.
- At that time the Oceanography Department had the RV Gyre and acquired the DRV Diaphus which had 1200 ft capability.
- Wanted to engage in a study of the topographic features of the banks. This was a decade long study of the banks with the main thrust being the use of submersibles to study the banks. Reef studies were maintained during this time with photo transects with concern about the population levels of the corals themselves. Used photomosaics. They were successful.
- Holes were drilled in the corals to get stationary coral growth rates. At these stations they studied competitions between corals, encrusting growth. Thus monitoring showed that increased encrusting and growth and competition ensured that the reef was healthy.
- The major new thrust of the topographic feature study was to look at all of the banks along the GOM continental shelf. Submersible went to almost all banks with 3-4 transects created at each bank. With these transect they defined the various biological communities.
- High diversity coral reefs (Only at FG), the more important reef building community was the algal sponge zone as it occupied all of the banks. Lower diversity coral reefs, Millepora, Diploria. Below the 85 m contour the community was marked by anthozoans, ctenophores. Many of the fish species discussed yesterday were found in

this area. Next is the soft bottom community and at the base of the banks would typically be lower temperature turbid water similar to a thermocline with suspended sediments and higher turbidity.

1977 – MMS lease stipulation for biologically sensitive banks.

- MMS started implementing No Activity Zones for most of the banks above 85 meters. At the FGB this was listed at 100 meter depth.
- A 1-mile zone surrounding the NAZ requires shunting of all drill effluents with monitoring.
- A 3-mile zone either shunting or monitoring of all drilling effluents 3 miles out of the 1 mile zone.
- Effluents from drilling could not otherwise affect the bank through water carriage.

1977-79 the concept of environmental polarization came about.

Four stage concept

1. Shelf-edge constructional carbonate banks: WE 18 Fathom and Bright (coral banks) Most others were algal sponge banks
2. Mid-shelf banks (Sonnier, Stetson) Tertiary outcrops of the shelf zone with different reef communities.
3. Pleistocene carbonate reefs – in a turbid environment which minimized the biota on these banks and minimized reef building abilities.

How did we come up with the 85 m boundary?

- Studies on the coralline algae abundance on the banks. Considered to be by primary reef builder above 85 meters.
- Studies were conducted concerning several different coral and algal sponge populations concerning abundance at given depth. Also distribution of biotic zones relative to temperature, salinity, turbidity, and light penetration at selected banks.
- Shelf edge banks and mid shelf banks have differentiated biotic zones due to the directionality of water flow in the Gulf (Temperature, Salinity, Turbidity, Light).
- Requirement for healthy coral reef growth is 18 degrees and above in winter so water temperature o banks with colder inflows may not be receptive. Turbidity from flow also may be an issue.

Geyer Bank ~45m to 150 m – Algal sponge communities is well developed down to 100 meter changing into the nephloid layer to the bottom. Tertiary outcrops at Geyer are similar to those at E or W Flower Garden Banks.

Sackett Bank - closest to Mississippi – is a shelf edge bank without well developed algal sponge communities. Has brown reefs and the top of the bank is typically sandy gravel bottom. Large algal nodules can be pulled from the bank, so it can be assumed that it used to have a good algal sponge community and something has degraded the banks ability to maintain this. (Mississippi) Water is very green, with layers of mucus, top layers with algal layers, high level of plankton and thereby productivity in the water column is high.

Alderdice Bank – As far inshore as you can go and still have algal sponge community. At 45m depth contour but the algal sponge community. Is only at the tip of the bank. Probably due to turbid conditions around the bank limiting the sponge growth to the pinnacles. Proximity to Mississippi River, turbidity, nephloid layer must be considered to understand algal sponge location.

6 groups left prioritized that were subject to the influences of the Mississippi River. FG and surrounding banks have low turbidity, high influx of oceanic waters, reduces productivity, salinity is constant, and the temperature is more consistent.

The south Texas banks are turbidity tolerant without reef development. More of a transition zone. Mid shelf low reef limited communities.

The southern banks - Nephloid layer come up high on the bank limiting reef development. There are communities with fisheries but comm. Are generally turbidity tolerant temperature tolerant communities.

Six different types of groupings of banks are listed in book by Bright, McGrail, and Rezak.

Characterization of selected banks 1

– Greg Boland

Informal Historical Perspective – Bright Bank, Geyer Bank, Sonnier Bank.

He came into the scene in 1974. Tied into a recent project with MMS contract on the impacts of hurricane Rita. MMS does not have a position yet – both James Sinclair and Dave Cooke are here from MMS

Gulf Reef Environmental Action Team (GREAT) – moorings at FGB and Stetson and one at Sonnier. Monitoring program on Sonnier and Stetson 1993-6. These were there places that divers could get to.

Bright Bank

Draw contour diagrams at Bright bathymetry and 3D profile. Images from Bright – before and after from 1970s and 2007. Don't remember large coral head development. Explosive impacts are serious. Coral is there both. Mostly encrusting, not huge head development.

Bright/Rankin Banks – MMS minerals development and stewardship mandate.

- Multibeam bathymetry of these banks and No Activity Zones, one mile, and three miles zones with existing platforms and pipelines. 85 meter contour.
- Campaign to get a change on notice to lessees (NTLS). Potentially sensitive areas that fall off of the existing NTLS for pinnacles, etc– now have potentially sensitive NTLS based on new information. When a plan proposes a pipeline or exploratory or

development drilling comes in, they have to prove that the areas are not significant. Use a dynamic position vessel and ROV ahead of pipeline and ROV after pipeline to determine that there was no damage to the features.

Geyer Bank

- Bathymetry map and 3D profile.
- Is at 115 ft.
- Most striking features are at the pinnacles at the top (at the reef butterfly fish).
- Has lack of impacts from Hurricane Rita.
- Geyer Bank HAPC no platforms or pipelines within the area.
- Pipeline to the west from the bank.

Sonnier Bank

- Old bathymetry did not show very much, but the description of the community was right on.
- Only two diveable features.
- Has seen tremendous impacts from hurricane – a storm between 2002-05 greatly affected. Huge blocks of reef are gone. Layers of algae where there used to be sponges.
- (Question – any interest in doing research into the recovery?)
- Good idea. Sonnier bank HAPC no infrastructure within the HAPC zone – one pipeline on east side. One shallow feature at 50-75 feet – special place.

Deepwater Corals

MMS is interested in deepwater coral. Interested in making first No Activity Zones in deep water. Two different sites with great fish population – barrelfish. Should be a No Activity Zone. Features that they look for chemosynthetic creatures, need to look at shallower.

Platforms?

HIA389 coral heads (inside FGB). If you enclose platforms in sanctuary designation – artificial reefs for stock resources. Have fake cameras to look down and enforcement. Have at 85-100 feet.

Questions and Comments

Question:

Method of laying pipe? Do they bury or lay on top?

Answer (GB):

Still required to bury 3 ft below the lead line in areas up to 300 ft. Anchor lines

Question:

is the information on deepwater corals publicly available?

Answer:

MMS.gov there is a studies web section that goes back to 1976, amongst those are the chemosynthetic reports - I, II, III.

Question:

With all the new multibeam tend to know where more of the hard bottom is located at. Are you inclined to recommend rerouting the pipeline?

Answer:

Have to weigh the potential negative impacts of reroute, millions of dollars. The deep water uses 3D seismic, work to identify the surface anomalies of the seabed, but you loose information to collect info on the shallower areas, have to go back with sidescan sonar – a more inefficient method.

Geological Perspective: Alderdice Bank**- Mark Betts (Devon Energy)****Quaternary Evolution of shelf edge reef system, NW GOM - Title**

Map with bathymetry of the slope. To emphasize how important the movement of the salt off of the shelf off into deeper areas of the GOM. The salt can be seen in bulging on the map and you can see glaciers in the central Gulf and more isolated pockets further south which is indicative of less salt. Dissolution rates lower dramatically in central GOM further offshore. Most of the salt movement is in the central area, lessening to the east and west. The Mississippi delta fan can be seen and sedimentation where the flow used to be can be witnesses as well.

2 classes of shelf bathymetry high exist in GOM

1. Salt Supported Banks
2. Hard Ground Banks

Salt has many unusual properties that make it behave differently than sand, silt and clays

1. **Density** – At about 4000+ feet salt becomes considerably less dense than surrounding sediments and begins to become buoyant. The density contrast increases with depth and can cause large volume of salt to move upward in zones of weakness in the overlying sediments
2. **Strength** – Salt deforms in plastic flow when put under pressure. Salt flows upward along faults and weak zones in the overlying sediments of the GOM. Near the surface, it becomes brittle and is able to rise up above the surrounding surface forming

Slide with North South cross section of the edge from 18 million years ago to current showing river deposits from the Mississippi River.

- Sediments start moving up feeder channels and salt is oozing out along the slope.
- At 8mya we see the first hint of the salt pillows forming. This cycle is.
- The salt is being “squeezed” upward and to the south by heavier sands and shales being deposited on the shelf
- “Salt – the ‘toothpaste’ of the Gulf of Mexico”

Map with 3d seismic data line through West Flower Garden North of coral cap.

- The western high are immediately above the salt pocket (5000 feet). Even with this depth the salt is causing a change in the topography at the western high. In Alderdice the salt comes directly to the surface.

More maps of the FGB from different angled lines showing the salt from different sides of the coral cap.

- Topographic highs such as this help to support biological activity, thus, his opinion is that much of the high relief topography is due to salt movement not biological build up.

Comparing Alderdice to Stetson

Map of the sea level curve from the past 20,000 years the sea level has risen.

- Stetson and Alderdice both have salt at the surface. As salt moves there is a dual dome ridge anticline acting as raised relief topographically. Sometimes the salt dome will cause more of a doming effect for relief.
- Salt at Stetson is at ~ 10-20 meters from surface. 18000 years ago the area around Stetson used to be the coastline location. Stetson bank shows Oligocene turbidites rotated to almost vertical.
- Bath and subsurface at Alderdice map. Slightly more raised than at Stetson. Alderdice is deeper; therefore the weight of the water column is more. There is more sediment input in this area because of the close location of the Mississippi River. There is quite a bit of uplift in this area. Like Stetson, however, the topography is showing up in pods where the salt is actively pushing up. There are twin basalt outcrops (spires) that he will discuss later. There is a salt collapse depression where there was spillover.
- Basalt spires have been studied in the past. They are late cretaceous (60-61mya) They are very similar chemically and similar to Amius plugs? That line the GOM. There are hundreds of these that head up from southern Texas up through Arkansas then down through Mississippi and back into the Gulf. They appear to be very vertical spikes with high potential energy. These are vulnerable and would fall to there lowest potential energy id hit with a strong storm. Creating more of a mesa like shelf. Not uncommon to have basalts with salt. That is how the salts get deposited. In Ethiopia there is rifting or spreading apart of Africa and the red sea will spill over. Salt and basalt can also intermingle in volcanic activities.
- Topographic map of the Alderdice Bank underlying salt stock. The center core of the salt stock forms the support for Alderdice. The outlying base of the “salt Mountain” is at 25000 feet.

Hardground Banks NW GOM

Question:

What do you think will happen when the caprock layer is breached? Will it dissolve?

Answer (MB):

MB I don't think that the cap rock layer will be breached. They are in the turbid layer and there is enough replenishment of silts and clays that you never really get down to the salt. Sometimes there is seepage from the deeper salt areas caused by heat.

Question:

Will Stetson look like Alderdice once it is deeper in the water column?

Answer (MB):

He does not believe so. It has been at its depth for 7000 years.

Salt has lag time movement away after deposits come in to the equation. We may still be seeing some buoyancy effects due to the lag created by the deposits from the Mississippi since the storm at the FG.

During glacial periods sediment deposition is much higher because of the large amount of rain. We can look at the meander scars and determine the amount of sedimentation. A lot of the movement that you see now is from things that happen 100s of years ago.

Characterization of selected banks – 2**- Emma Hickerson**

Biology documented through ROV mainly and some submersible. Bathymetry of Bright Bank documented. And some SCUBA surveys. Some species lists and building on the lists provided by Tom Bright. Summary of surveys conducted (see slide) collected over 200 samples and 8497 digital images.

Stetson Bank

- Added georeferenced tracks of ROV surveys. These are entered into the GIS database. Some images taken with the ROV.
- Black corals octocorals lots of sponges (surprised by the diversity of sponges) some hard branching corals.

McGrail Bank

- Coral cap, coral HAPC.
- Focus area with lots of ROV surveys (Phantom by NOAA fisheries). ROV tracks – different colors rep different species.
- Stephanocoenia dominate at FGB, but in small heads. At McGrail have these large heads. Close up view of coral cap – stars are large heads of Stphanocoenia. Use point count analysis. Of all coral documented - 91% Stephanocoenia. Show the range of cover. The average is 27-28% overall cover.

Video

Interesting aggregations of sea urchins and interesting association with marbled grouper,

Sonnier Bank

- Two areas - 60 and 80 foot divable areas.
- Coral community present questions that hurricane is responsible for all the damage seen – anchoring possibility.
- Going through photographic data. Huge Barrel Sponges since 1996 were no longer there prior to the hurricane – so shows damage not caused by it.
- Coralline algae dominated.
- Also Deep Coral zone – black coral.

Bright Bank

- Pits created (12 foot deep) created by treasure hunters – branching coral community.
- Used to be coral heads there.
- Also illustrates a loop hole in the regulations that allows treasure hunting to occur – no one is currently regulating this activity. Potential for huge destruction.
- Deep areas – whip and black corals, also soft coral.

Geyer Bank

- Rich community on top.
- One orange cup coral appears that it is starting to get more access to Geyer – is originally a pacific coral transmitted through Panama Canal.
- Appears to be out-competing natural communities – over 100

Horseshoe Reef

- No protection currently.
- Rich area quite productive. Mud volcanoes in the middle can see the density waves and expulsions of natural gas.

Sea turtle and manta ray utilization of the FGB

- Emma Hickerson

Sea Turtles

- Pelagic communities – resident population of sea turtles – 5 turtles tagged. Majority of turtles caught on EFGB – some tagged for a year and a half – site fidelity is pretty high.
- Core and home range, 50 and 90 % probability respectively. Animals caught on WB were resident of that bank – same with EB. Caught the same turtle three times under the same ledge at the same bank.
- Looked at how much of the core and home range were protected by the sanctuary boundaries. Determined how much more of the ranges would be covered by different expansion of the current sanctuary boundary. Currently – Core 72 and 44 home. If we extended the boundary to the 4 mile MMS zone would almost cover 100% of the core and home zones.
- Loggerheads are the primary turtle. One hawksbill at Stetson because is a spongivore.

Manta Ray

- One animal did round trip – demonstrated movement between the banks.
- Looking at putting other acoustic receivers at other banks and platforms to see where else they move to.
- Tagged six mantas last year.

Also looking to tag whale sharks.

PUBLIC COMMENT

Comment:

Darryl Walker – Lake Charles LA, dive shop and research vessel owner. Been diving in GOM for 30 years. Here to talk about Sonnier Bank. First dove there in 1977, was beautiful. Has no scientific background but giving observation testimonial. The reefs at Sonnier were beautiful. Describes multi-colored sponges. Orange, blue and green sponges on a spearfishing trip. Gone 3-5 times a year for the last 30 years. Notices a drastic change in the amount of growth at Sonnier over the years especially with regards to sponges. Believes that most of the damage occurring at Sonnier is due to anchorage. What he had seen on a personal basis – saw an 80 foot vessel anchored there. Large vessel had destroyed a large area of reef where sponges and coral were cut off by the chain during the night as the boat swiveled during the night. Dove it the next morning – the large vessel had wiped a swath half the size of this room clear. Sonnier bank remoteness had been its salvation. What has changed is the vessels that can get out there. On any given day, there are 4-5 vessels trying to anchor out there. Noticing more furrows – has been drug through. Similar to Stetson. He is hoping that we can be persuaded to bring this area under sanctuary protection. From an economic impacts status this will not affect my business (recreational fishing and diving), but believes that it should be done. His business includes spearfishing - does not think that this would affect his business at all. There is still stuff that is there to be saved. Was just there last week. VR318 is very close and he, as a fisherman, can go there to go fishing. Doesn't have to do this at Sonnier. Believes that Geyer and Bright should be included as well.

Comment:

John – what difference does these things make to us. What if the FGB are bulldozed flat and this affects very few people. Same if someone burned the Mona Lisa. But there is only one Mona Lisa and only one Flower Garden Banks and likewise there is only one Sonnier, Greyer etc. We need to protect these unique environments. There is only one FGB there will never be another, but these other jewels can not be replaced. These areas need to be protected.

Comment:

Brandt Mannchen – Reiterating the irreplaceable nature of the banks. Urge people to have a bigger vision than what we consider the FGB. We have all these other banks and we cannot replace them. They are all we have. Our vision should include a time when the needed protection (his view) is there. Would like to consider a time when changes could really happen the way conservationist would like it to be. Specifically oil and gas drilling in the area of banks and reefs. At some point in time we may not have oil and gas out there, but when would that time be? In the interim we can agree to certain protections. Like the NPS system they have different levels of protection. Some of these areas are included in a system like that. He wants us to continue with the current goals, but to think further into the future while working for protection today. Perhaps have another Sanctuary in the Gulf to include areas that are not or cannot feasible be included under the umbrella of the Sanctuary. Look ahead and see a system where we see what is needed for those areas farther away or give it to Billy Causey to someone else for the needed protection. Don't forget about those areas.

Comment:

Raphael Calderon– Following in the words that were just spoken – Even though in the analysis from this morning not considering anything east of Louisiana, urge you to continue to consider the areas like those near Alabama and are not known to be connected to FGB. Biodiversity network across the GOM it is important to have that regional representation of that biodiversity about the region. We should continue to consider these areas because they have the same importance of those banks on this side even if they do not have biological connectivity between them and the FGB.

Comment:

Greg Boland- Like the keys where it was not just Key Largo or Looe key – consider the same for the GOM and that it should not just be named the FGBNMS since it does include Stetson too.

Comment:

Billy Causey- Local communities did not always like that idea – did not want to lose Looe Key NMS.

Discussion Sessions 1, 2, 3 Summaries

Steve Gittings – Take out your handout and look at the strategies column – A, B, C problem statements. We will try to spend 30 minutes on each.

A. Stetson Ring Feature – Issue is an inadequate boundary. Do we include vulnerable habitat that is geologically and biologically connected to Stetson Bank? Do you all agree with the concept of the criteria that was used?

Comment:

Consider using the term “correcting” sanctuary boundary to include Stetson ring. At the time, we made the best decision that we could with the knowledge we had. We know more now.

Comment:

SG – We really underestimated the influence of the geology of the area at the time. It is so unique.

Comment:

Yes, let’s expand to the ring, but also connect it to the east and west FGB – should consider including an ocean buffer around the areas to include the pelagic animals like the manta and sea turtles. Also should go all the way down to the bottom – also to the top include the water. Include the area around the bottom of the features, not just the feature. Thinking about energy transfer, etc,

Comment:

Would accomplish that inclusiveness if we made the new boundaries those that are the HAPC – in addition, they are square and easy for vessels navigating.

Comment:

Is there anyone who does not want to include Stetson? (No response)

B. Flower Garden Banks and adjacent areas like Horseshoe Bank

Comment:

New mapping that shows connectivity that we did not know about. Mud mounds and other hard bottom. Juvenile species out on the horseshoe bank, those species occur as adults in FGB.

Comment:

don't have an issue with adding those areas.

Comment:

Square v Irregular boundaries. Horseshoe is in the middle. Will we make it its own square? We could connect to the E and W banks? Don't include so much soft bottom space the oil industry is going to want to use in the future by using too big of squares and rectangles.

Comment:

Why not include the soft bottom areas? Protect against effects at the edge.

C. Other Banks in the NW GOM

Comment:

In general, all the banks that you have listed are subject to mechanical damage – anchoring or fishing - the algal sponge community is just as vulnerable to damage from mechanical damage as the coral. There is a good reason to designate any of these areas to be part of the sanctuary. It was the primary reason that FGB was designated. This happens elsewhere as well. In Belize was a lot of damage from anchor with dive boats would have to be dragged in and would cause extensive damage to the reef. – is a serious problem.

Comment:

I agree with the above comment (from Tom Bright) – yes.

Comment:

Current protection to these other areas is not adequate. There are holes from dynamiting that is going on with the treasure hunters as the evidence.

Comment:

The Florida Keys had this problem as well if I recall correctly.

Comment:

Same problem in the keys – We were doing grounding assessments outside of the keys. The same attorneys that want assessments say that they can't prove any of it because it is not an intentional taking. Congress took action after the Exxon Valdez grounding and this is the kind of thing required to get action. Coral Conservation Program is trying to close the loop that if it is not fishing or research, it is still taking. Sanctuary provides more than just regulations; the other programs - education and research - are for comprehensive management.

Comment:

It should not be a problem to prohibit treasure hunting if they are endangering vulnerable species. According to their manager (Rich McLaughlin) said that there should be no problem enforcing regulations if they are endangering the biologics.

Comment:

Technically you can destroy corals as long as it doesn't involve fishing or research.

Comment:

There is a gap in the federal regulations in protection and the sanctuary program is the one to fill it. It took going to court to get them to stop blowing holes in the reef looking for Spanish galleons. The feds could not accomplish this, so there is definitely a gap in the federal regulations protecting these places.

Comment:

HAPCs get other parts of the system, like Bright bank

Comment:

Consider public love for geologic parks on land and like Monterey canyon. Geological significance is important too. Public does not think about this as much in the ocean.

Comment:

Benefit of NMSP – education can raise public awareness of those features

Comment:

Geyer Bank – believe it has the deepest surrounding depth that is occurring the coral communities – shows the maximum possible development of these communities and is therefore an extra vote of representatives. He would like to give Geyer an added plug because of the possibility that we could find out more about these communities at depth.

Comment:

Is in support of boundary expansion to these other areas.

Banks outside those that met the Boundary Expansion Subcommittee criteria

Comment:

Has a comment on the criteria of 'distance from sanctuary'. All these structures (beyond the 7 areas proposed by Boundary Expansion Subcommittee) are important regardless of

the direct connectivity. The fact that it is close or not doesn't matter, should be considered on their uniqueness.

Comment:

response to previous comment – we think they are just as important but do not have the ROV work, the data. We were considering those areas, but don't have the data to back it up.

Comment:

SG – One of the criteria discussed in group was larval transport, modeling studies that have settled on the idea that there are certain distance between features that make them no longer inter connected. We chose to not include these because of their high level of disconnect. Stayed with the list that are within a 100 km or less and disregarded those other three. Understands that the criterion gives preference to those closer areas that should be considered.

Comment:

Should say that those other areas are important and name them in your plan, but also say that we need more data on these areas and then spend time on that research over the next five years.

Criteria and shape of boundary changes: vulnerability, compliance, enforcement, ecologically-based and geologically-based.

Ecologically-based criteria

Comment:

Several people mentioned the importance of maintaining breeding stocks and environments for them. Must include areas in proximity to these sites.

Comment:

SG: Fisheries uses the term essential habitats for this. Breeding/spawning juvenile areas. This area (mud flats) is often seen providing habitats for juveniles of certain species.

Comment:

Comment on the shape – should consider what is best for biology and ecology not just the simplistic – needs to be scientifically validated.

Comment:

Need to consider “edge effects” in the ocean system like in the terrestrial. Makes sense to push that boundary out to accommodate that effect.

Comment:

MMS would probably prefer biologically-base so that does not include lease blocks that are not important to the biology.

Comment:

MMS has sets of rules for oil and gas companies to comply with.

Comment:

The inclusion of many of the other banks with the FGB would make this more like ecosystem based management which would be more beneficial ecologically.

Comment and Question:

The question of biological connectivity seems to be lacking an answer. We have the data on turtles and manta rays from Emma but is there any more connectivity with other species. Do we need more studies?

Answer:

SG: You're right we do not have a lot of work done in these areas, but even in the middle of nowhere you will observe species in sandy, muddy, or hard ground areas that you normally see only in the larger features. He believes that it may be a feeding ground for these species.

Comment:

Concerned that this connectivity is the reasoning for the expansion when there is little data.

Comment:

The connectivity is not the entire reason, although we are working on this data, but similarities between the biota and the geology of the area is much of the reasoning behind this.

Comment:

One constant that should be highlighted here is the biological diversity. This area is significant because it is unique and the connection to protected areas is worthy based just on the fact that they deserve some level of connection

Comment:

SG: Connectivity is only one of the variables included in the work up of this study. Uniqueness was another, but dependency on the other for protection is important.

Vulnerability to Impacts

Comment:

Vulnerability. We must id the sites that are most vulnerable and we must consider, what are the actions that are causing the most harm? What is the level of impact of these actions? How do we triage these areas with enforcement? Connectivity for connectivity's sake is not why we are here. We need to determine which areas are most vulnerable.

Comment:

Clarifying an area as a vulnerable area is one thing, but we need to determine what it is that is making them vulnerable.

Comment:

SG: Bottom impacts from fishing are a very large impact creating vulnerability. Adequate protection must be implemented. Anchoring in the shallower areas also a big impact.

Comment:

There is a section in your booklet that considers which threats are in the banks area with a rating system. Read it and get back with us about any concerns you may have about the list or the system.

Geologically-based criteria

Comment:

Unique geology can be important. Are the features of the Horseshoe geologically unique enough to be significant enough to be included in the criteria? So, can we use the geology like we use biological uniqueness to accomplish this?

Comment:

SG: There are gas seeps that form volcano looking features (ring)

Comment:

Very unique area of hardgrounds. There are many seeps across the Gulf, but there aren't any next to the FG and they give us an opportunity to see the life history of the geological formations.

Comment:

He agrees with Mark and Kevin

Comment:

He agrees as well. Reiterates Mark's point about location for study. Is there a component in the criteria scheme for something that is "generally representative?"

Comment:

SG: If we knew about these features in the 70's would this be a no-take zone now?

Answer:

We don't generally protect mud volcanoes if there is no biota around it. (Deep water)

Comment:

Most vessels already specifically avoid these areas because of seepage activity even if it was minor activity.

Comment:

The industry as a whole is under a gulf wide Notice to Lessees from 2005. This includes the protection of significant features. Tells us to avoid issues like this related to any structure that is over 10 feet tall (for safety reasons). Must have 100 feet offset from and of these structures. These areas such as the Horseshoe would not be allowed to be leased; MMS would not allow the industry to drill there around these structures. When going in front of the general public we should discuss the biological not geological features because geology is a boring science and the people are not that interested in saving geology like they are in preserving biological creatures. He is fully supportive of the expansion, and regardless of sanctuary status he believes that you will not have any issues with the oil and gas people because of the Notice to Lessees.

Comment:

SG: Not sure if the sanctuary, if the expansion occurred, would enforce more regulations on the oil and gas industry.

Comment:

It is possible that in the future someone will come along and decide to make a national monument out of the whole area and no work will be done there ever again. Who knows what will happen in a decade or two.

Comment:

Relating to regulation to the oil and gas industry. We try to include them after the sanctuary was created. Discharges (such as in HI) were no longer permitted later in the life of the sanctuary even though it was at the same levels from prior to sanctuary involvement.

Enforcement

Comment:

Tortugas experience – 1998 one of the first criteria that came up was that the area needed to be enforceable. And at that time enforcement agents said that the square was the best way – but that was with the technology at the time.

Comment:

Electronic technology is important – GPS easily puts that information on a layer on your screen. The shape can be complex or simple now – the shape is only relevant to those that do not have that technology.

Comment:

Would really hate to make decisions for the future based on the technology that exists today.

Comment:

Need to enforce it now, so that is something to consider.

Comment:

She was involved in the development of the HAPC boundaries – enforcement is not only on the water, but with the Coast Guard in the air. So, their detection by air is easier for them. The simpler it is the better for them.

Comment:

Supports both side of the argument. Minimum size requirement that is needed for the sanctuary. At the enforcement summit – they said keep it simple – the square.

Comment:

would like to propose a blend of both

Question:

what percentage of enforcement is water vs. air based?

Answer:

Depends on the sanctuary. Focus on enforcement in the region. Heard enough yesterday to make that commitment that it is priority. Will be working with GP, but it will never be enough. Have a zoning – MMS has already encircled the biologically sensitive areas, what we are talking about is the different management by MMS, NOAA Fisheries and NMSP. It is a matter of time that we did something that logical.

Compliance

Comment:

Thinking about ease of compliance as well as ease of enforcement. Simpler is better for general public to understand and comply with the rules.

Zones

Comment:

What the sanctuary is allowed to manage and what are the different restrictions. Can have a large area, but different zones of levels of restriction.

Comment:

Many of the no activity zones – what additional acreage would be removed from the sale and what other restrictions would be put in place.

Comment:

on the oil and gas side, there is protection above 85 meters, fishing is going to have some interest. Anchoring is the major impact that is not protected against. Shipping community is the ones who would be most affected. When we talk about protection, we need more money. Not as contentious as you might think.

Boundary Alternatives

Question:

GP – What is the feeling on what the subcommittee put forth as the preferred alternative – the 7 banks or so? We would like to hear opinions on the rankings, as this essentially makes those top 7 the preferred alternative. Should we be more or less restrictive? What about the areas (hidden highways) that are in between the banks? What about the HAPC boundaries?

Comment:

One alternative might be clumping various banks close together, or grouping ones that have together that have natural or biological connections.

Comment and Question:

Geyer is right in the middle of the ship traffic safety fairway – could be a problem, Elvers too – but no HAPC. Does the ship traffic affect the diving at Geyer?

Comment:

SG: Interesting dilemma because the ship traffic fairway is directly over the south of the Geyer bank. If we make this a sanctuary what do we do with the vessel traffic? Elvers bank also has this problem. Haven't talked about the idea of having a continuous sanctuary. That might be the extreme side, but it is a potential alternatives.

Comment:

Include everything all the way across – about representation – like all hard bottom features based on regional biodiversity protection.

Comment:

Go back to the scoping comments – ask for pinnacles and south Texas banks.

Comment:

Work off the MMS no activity zones – limit to some longitude east and west. Rename the sanctuary.

Question:

What is it going to take to get boundary expansion through DC?

Answer:

Right now there is a lot of support - but must continue to work with all those people in this area. We are trying to live down that national marine sanctuaries are used to combat oil and gas. We will put forth a range of alternatives as part of the draft management plan – you will be a part of developing the preferred alternative. That goes out for public review and we evaluate public support but must follow the NEPA process. Focus on the middle of the road – not the no-action or the most restrictive.

GP – We will consider a range of alternative in the EIS. We are trying to get at the preferred alternative. Range – nothing to some to all. We can start to evaluate.

Next Steps and Summary

- G.P. Schmahl

We will try to summarize the comments and put together a document. Will send that out to participants and put it on the web. Subcommittees have done their initial work, this provide us with additional information to put together final recommendations to the SAC at the Sept meeting. Then it will be up to the council to decipher what the next step will be. We will take the best then form an EIS - develop a range of alternatives and a preferred alternative. Then put together an EIS and Draft Management Plan – series of action plans.

We have some funds to have someone do some of this. A consulting firm we have worked with has experience in this kind of EIS work. We also have an economist that is on staff with the program. He can go out and determine, by interviewing fishers, what the socioeconomic impacts of the closure and/or expansion. After that it does fall on those in house to finish the product. We are shooting for having all of the components of a draft management plan by the meeting that we will have in December. This will go through the public release and comment period and then will be released to you guys. The final management plan will incorporate the regulatory changes that need to be in place. We need to define what the boundaries would be for example. This would also include any changes to current regulations. Fisheries are a little more difficult issue. We are determined to work with the Gulf of Mexico Fishery Management Council. We may adjust some of the fisheries regulations if need be in order to get this through in a minimal amount of time with as little difficulty as possible. Ideally, the final would then be published by the middle of 2008 and 2 years after the start date we would have the next follow up.