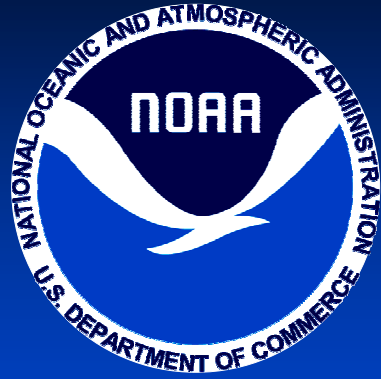


Update to the SAFMC Coral and Habitat APs on energy projects and EFH consultations in Florida

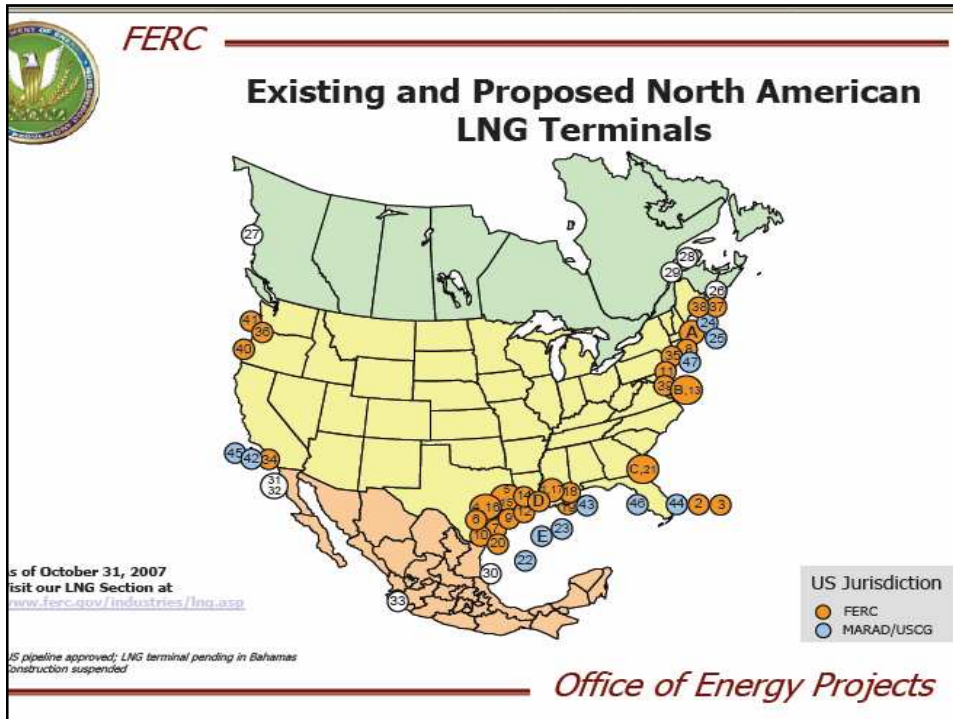


National Marine Fisheries Service
Southeast Regional Office
Habitat Conservation Division Atlantic Branch
Jocelyn Leah Karazsia

Presentation overview:

- Calypso LNG facility
 - DEIS status
 - HB and port siting
 - ichthyoplankton sampling
- Hydrokinetics
 - Ocean turbine development in the South Atlantic





Calypso DEIS status

- USCG/MARAD lead federal agencies
- NMFS cooperating agency
- The completeness determination → 330-day NEPA review (pursuant to the Deep Water Port Act)
- Federal Register DEIS NOA Nov 2, 2007
- DEIS comment deadline: Dec 17, 2007
 45-day review (~152 of 330)



Calypso Deepwater Port Isometric View

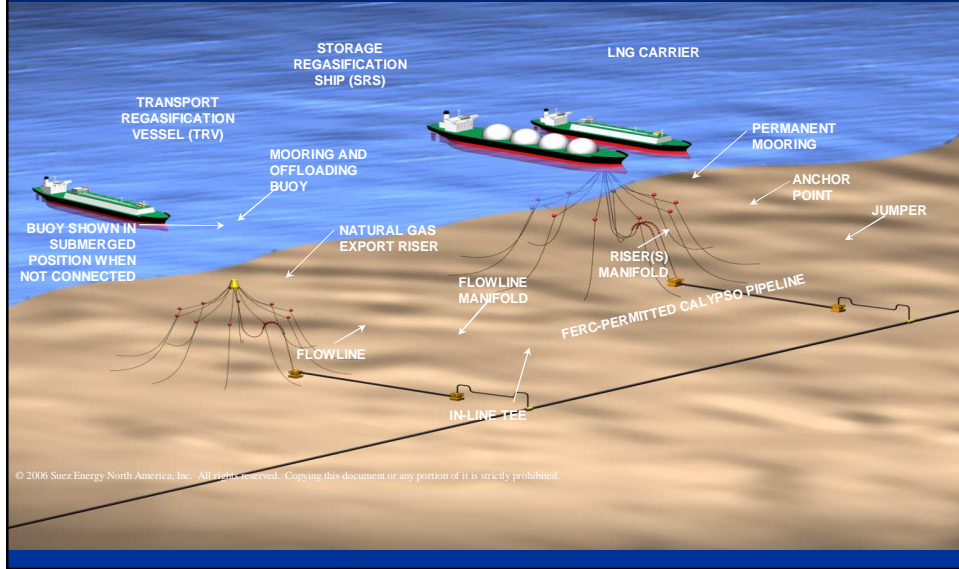
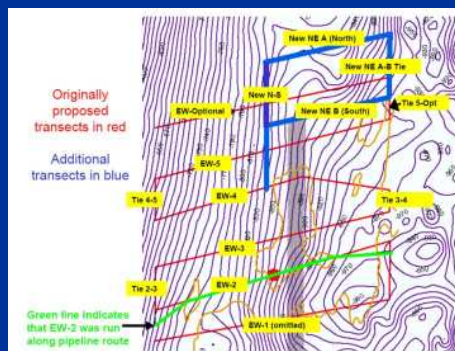
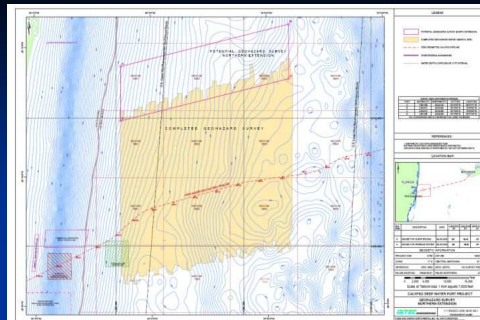
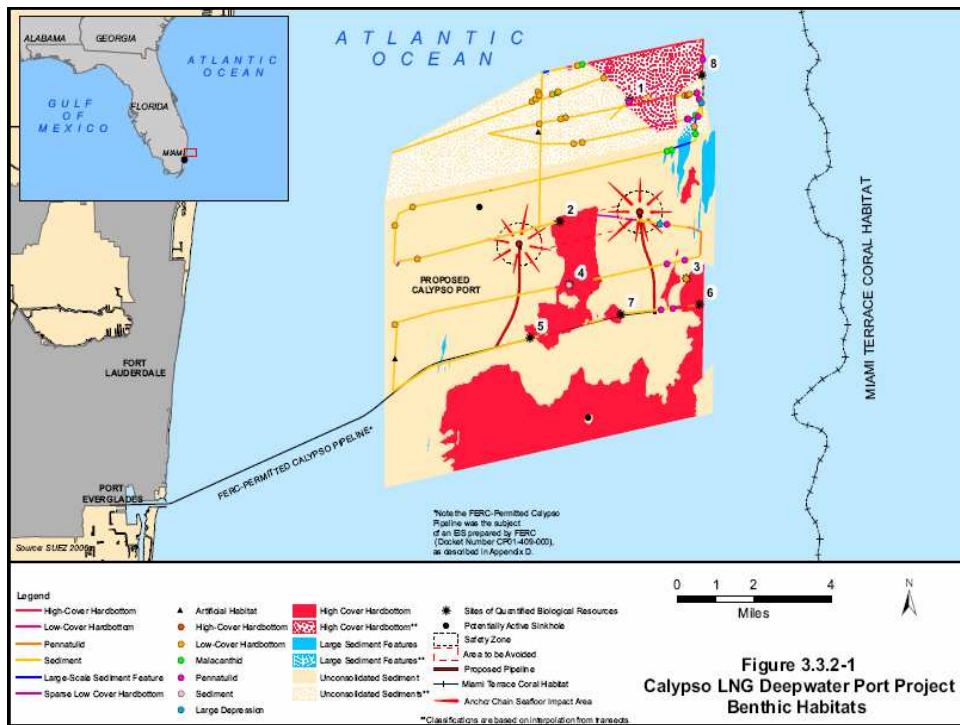
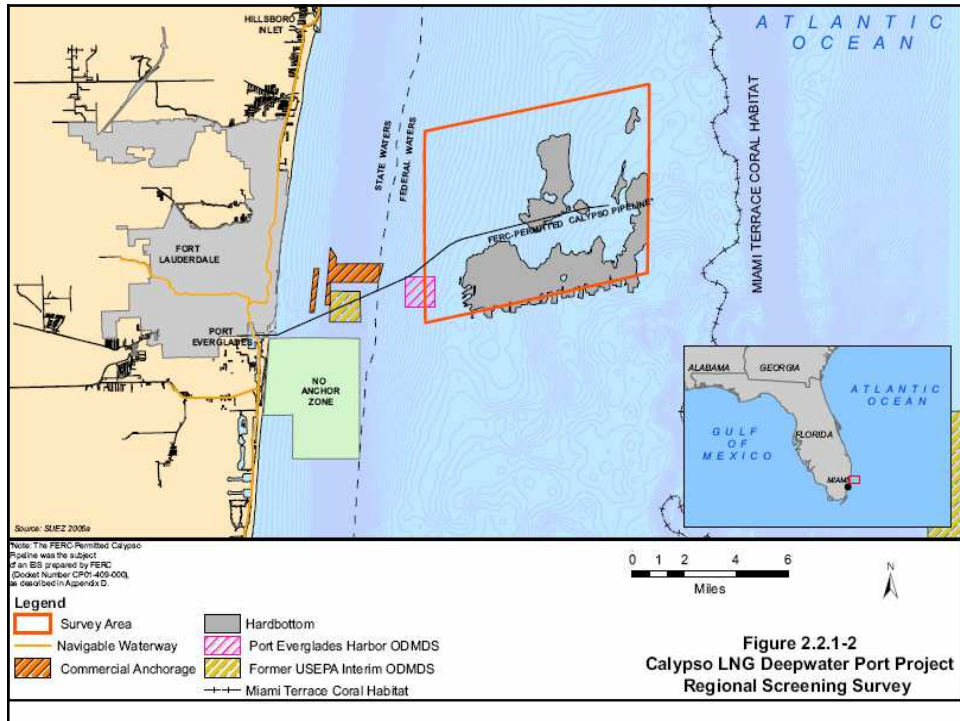




Figure 1. Target area for LNG port port showing recent geohazard survey area and proposed northern extension to be surveyed; latter is not recommended alternative based on ROV survey results showing extensive hardbottom (Figure 2).



ROV ground-truth survey done by Reed et al. in 2006. Red dive transects ("EW" lines) were run in area of original geohazards survey (Figure 1). Blue dive transect ("New" lines) was run at end of the cruise and revealed extensive hard bottom communities along the "New NE A (North)" line.



**No hard bottom impacts;
142 acres of soft bottom impacts**

**TABLE 5-2
Construction and Operational Impacts of the Proposed Project to Essential Fish Habitat**

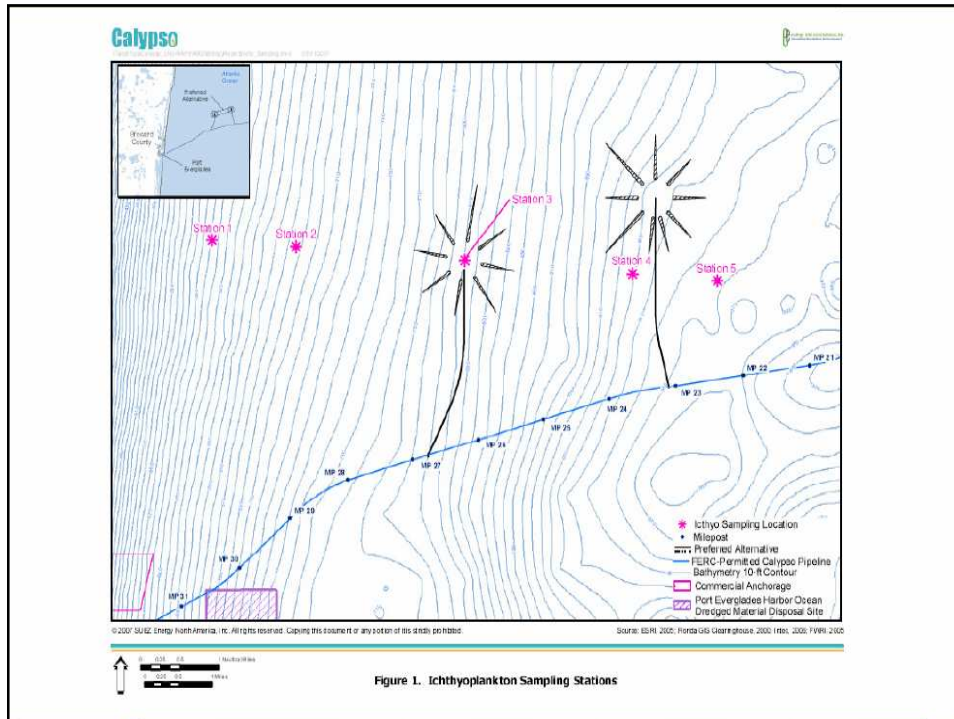
Project Component	Essential Fish Habitats Affected			
	Coral, Coral Reefs, and Live/Hardbottom (acres)	Softbottom (acres)	Sargassum ^a	Marine Water Column ^a
Construction				
Gravity Anchors and Suction Piles	0 ^b	0.59	No	Yes
Anchor Chain/Wire	0 ^b	139.50	No	Yes
Pipelines	0 ^b	1.80	No	Yes
Other Seafloor Components	0 ^b	0.264	No	Yes
Construction Vessels	0	0	Yes	Yes
Total Construction Impacts	0^b	142.18	N/A	N/A
Operation				
Gravity and Suction piles	0	0.59	No	Yes
Anchor Chain/Wire	0 ^b	139.50	No	Yes
Pipelines	0	1.80	No	Yes
Other Seafloor Components	0	0.17	No	Yes
Support Vessels	0	0	Yes	Yes
LNG Vessels	0	0	Yes	Yes
Total Operational Impacts	0^b	142.06	N/A	N/A

Notes:
 NA = Information is not available.
^a Impacts to these EFH types cannot be quantified. Sargassum is expected to incur impacts through increased vessel traffic.
^b These habitats may experience indirect effects from the Project, but indirect effects cannot be quantified.

**TABLE 2.2.1-1
Comparison of Alternative Deepwater Port Locations**

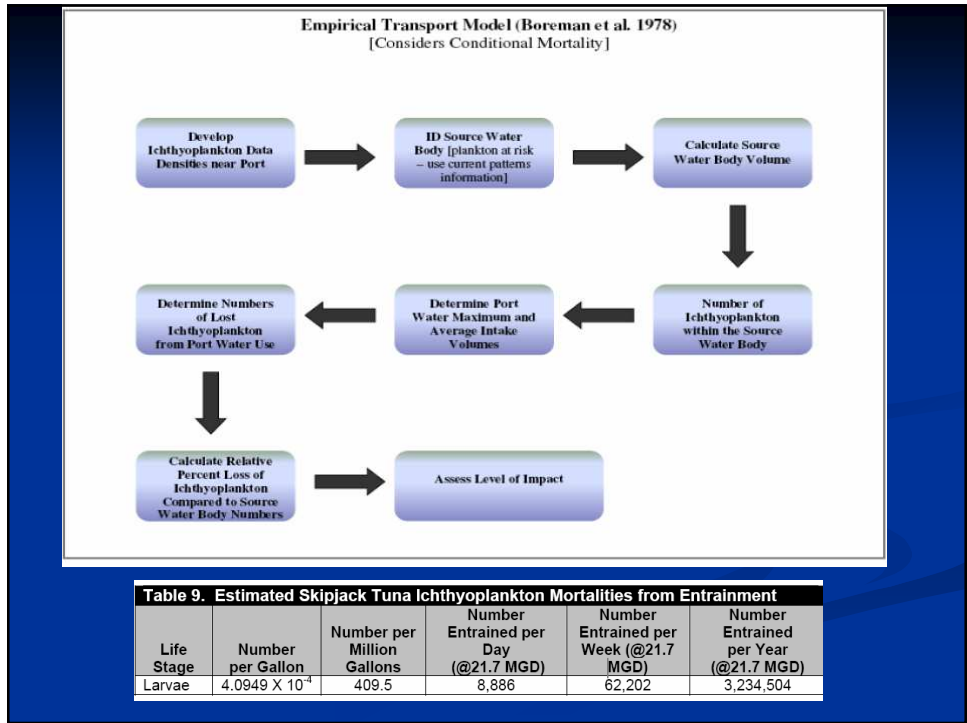
Selection Criteria	Alternative Location 1	Alternative Location 2	Alternative Location 3	Alternative Location 4	Alternative Location 5
Approximate water depth (ft) ^a	752-802	729-764	714-805	805-932	750-900
Distance from nearest hardbottom (ft)	534	3,873	573	564	N/A
Distance to shore from West Buoy (miles) ^b	6.5	6	5.4	7.7	6.4
Distance to shore from East Buoy (miles) ^b	7.9	6.5	7.7	10.3	9.2
Distance from Miami Terrace Coral Habitat Area of Particular Concern (c-HAPC) (miles)	5.4	6.1	5.3	3.2	<0.2-2.5
Approximate Pipeline Length to the FERC-Permitted Pipeline					
Length of West pipeline (miles)	1	0.7	3.3	2.6	13 -15.5 ^c
Length of East pipeline (miles)	2.8	2.6	2.4	2.4	13-15.5 ^c
Total pipeline length (miles)	3.8	3.4	5.7	5	26-31 ^c

Notes:
 NA = Information not available
^a Water depth at West Buoy, water depth at East Buoy
^b Approximate distance based on general site conditions
^c Minimum straight line distance to the north end of the Miami Terrace c-HAPC



Scientific Name	Common Name	February	March	Average
Larvae				
Lutjanidae	Snappers	0.00	0.10	0.05
Anthiinae	Groupers and sea bass	<0.01	0.02	0.01
Bothidae	Lefteye flounders	<0.01	<0.01	<0.01
Paralychthidae	Lefteye flounders	0.00	<0.01	<0.01
Carangidae	Jacks, pompano	0.00	<0.01	<0.01
Branchiostoma	Lancelets	<0.01	<0.01	<0.01
Monacanthidae	Filefishes	<0.01	<0.01	<0.01
Decapterus	Mackerel scads, round scads	<0.01	<0.01	<0.01
Katsuwonus pelamis	Skipjack tuna	<0.01	<0.01	<0.01
Coryphaena hippurus	Dolphinfish	<0.01	<0.01	<0.01

Notes:
^a Density values presented represent the average of all bongo net samples (all mesh sizes, all depths, all stations).



This same approach was used for the other target species found in the February 2007 survey samples. Results of the impact analysis for these (and for skipjack tuna as described above) taxa are presented in Table 10. These results indicate that, based on February 2007 measured densities, no significant impact will be expected to the few target species that may be entrained by the port.

Table 10. Evaluation of entrainment impacts to target species.

Taxa	Number per M gallons	Daily entrainment	Number in Source Water body	Percent loss from entrainment
<i>Menippe mercenaria</i>	236.7	5,135	1,542,941,038	0.00033
<i>Panulirus argus</i>	298.7	6,481	1,947,057,064	0.00033
<i>Thunnus sp.</i>	60.2	1,305	392,144,605	0.00033
<i>Katsuwonus pelamis</i>	409.5	8,886	2,669,692,614	0.00033
<i>Euthynnus alleteratus</i>	61.7	1,336	401,549,714	0.00033
<i>Coryphaena hippurus</i>	27.7	601	180,798,564	0.00033
<i>Epinephelus sp.</i>	49.2	1,067	320,718,270	0.00033

Towards elucidating the role of larval fish in the planktonic food web

Joel K. Llopiz and Robert K. Cowen

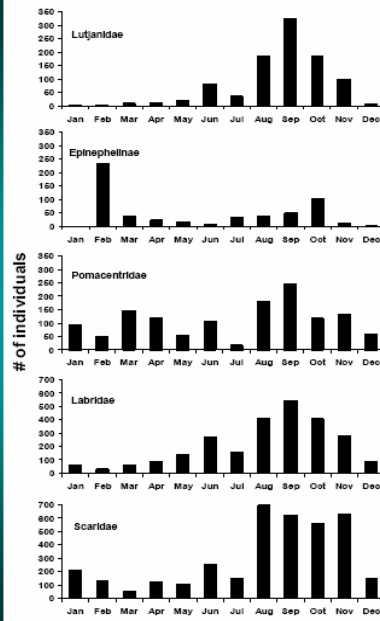


Billfish Project: Spatial Coverage

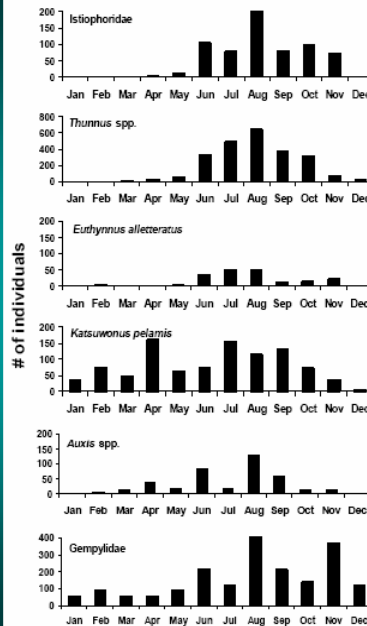
- Transect of 17 stations across the Straits of Florida
 - Sampled monthly in 2003 & 2004
 - Sampled 5 times in 2005
- 48 hr sampling of single station
- Broader spatial sampling
- Lagrangian sampling



2003 Reef fishes



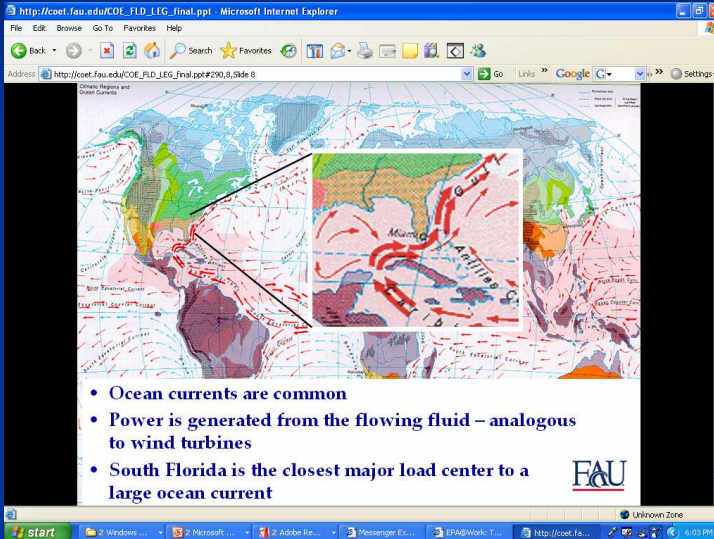
2003 Scombroids



Calypso LNG monitoring/mitigation

1. We recommend development of a protocol for agency review of ichthyoplankton information, as this information becomes available during the late stages of the permitting process. Adaptive management should be built into this protocol to allow for modifications of port operations should the monitoring indicate adverse impacts are occurring.
 2. We recommend that the USCG and MARAD develop a protocol for coordinating an agency review of the port's decommissioning.
 3. We recommend that the draft EIS include a conceptual mitigation plan to offset losses of fishery resources and EFH.
- Other monitoring/mitigation recommendations from SAFMC? APs?

Hydrokinetics

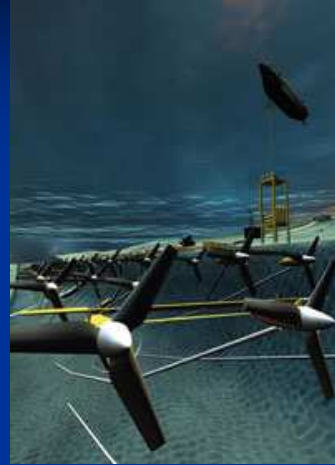
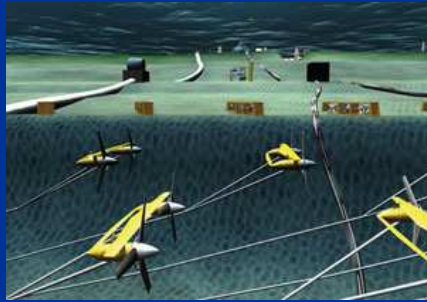


http://coet.fau.edu/COE_FLD_LEG_final.ppt - Microsoft Internet Explorer

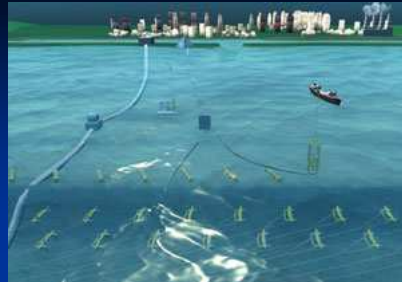
Address http://coet.fau.edu/COE_FLD_LEG_final.ppt#290,8,Slide 8

- Ocean currents are common
- Power is generated from the flowing fluid – analogous to wind turbines
- South Florida is the closest major load center to a large ocean current

FAU



All images from FAU <http://coet.fau.edu/>



NMFS EFH recommendations

The development of biological monitoring plan to include:

Specific hypothesis that will be tested, locations of control sites, and a full description of the data collection and analysis methods. Issues for the biological monitoring plan that are most relevant to fishery resources include the effects of the turbine on fish aggregation, fish impingement and entrainment, in addition to cage design effects on fishery resources by life history stage

NMFS EFH recommendations cont'd

- Testing of 10-, 6-, and 1-inch mesh screens in order to collect information that could foster a better understanding of the effects of mesh size on fishery resources.
- Deployment of a downstream sampling net similar in diameter to the turbine during an established set of tide cycles (day and night), to collect injured fishery resources.
- An underwater video camera also may be useful to collect information on the effects of the turbines to fish.



November 2, 2007 NOAA guidance on FERC pilot projects

- Roosevelt Island Tidal Energy project in (NY)
- Finavera wave energy project (OCNMS)
- The proposed 5-megawatt (MW) threshold
- FERC should define “sensitive designations” and “unacceptable environmental effects”
- Baseline conditions
- Study and monitoring plans needed

Questions?

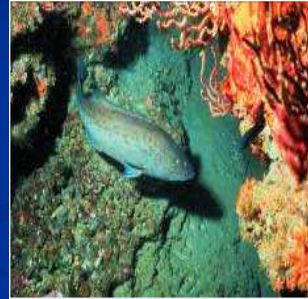


DWP Application Process

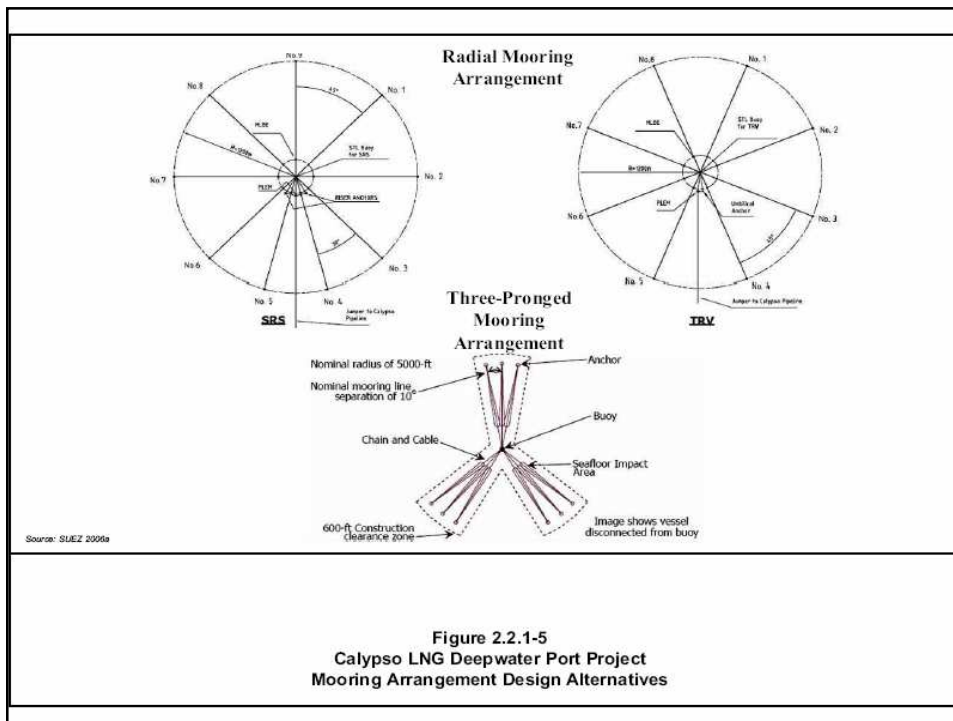
- **Application Process**
 - Statutory time limit of **356 days**
 - 21+5 Review for completeness/publish notice
 - 240 Develop EIS/hold final public hearing
 - federal register DEIS NOA November 2, 2007
 - 90 Receive comment/issue ROD
- **Single Environmental Impact Statement (EIS)**
- **USCG & MARAD** consult with other Federal Agencies and Adjacent Coastal State(s)
- **Applicant** will be required to prepare and submit individual permit applications to appropriate agencies e.g., EPA (air/water permits); USACE (Section 404, 10)

Deep Water Port Act

- Maritime Transportation Security Act of 2002
- Application Process
 - Statutory time limit of 356 days
- NOAA Guidance documents
 - NOAA Fisheries Southeast Region Habitat Conservation Division *LNG Monitoring Plan Considerations*
 - NOAA *LNG Best Practices* document (draft)



[33 USC §1501 et seq]



Existing and Proposed North American LNG Terminals

CONSTRUCTED

- A. Everett, MA : 1.035 Bcfd (DOMAC - SUEZ LNG)
- B. Cove Point, MD : 1.0 Bcfd (Dominion - Cove Point LNG)
- C. Elba Island, GA : 1.2 Bcfd (El Paso - Southern LNG)
- D. Lake Charles, LA : 2.1 Bcfd (Southern Union - Trunkline LNG)
- E. Gulf of Mexico: 0.5 Bcfd (Gulf Gateway Energy Bridge - Excelsior Energy)

APPROVED BY FERC

- 1. Hackberry, LA : 1.0 Bcfd (Cameron LNG - Sempra Energy)
 - 2. Bahamas : 0.84 Bcfd (AES Ocean Express)*
 - 3. Bahamas : 0.83 Bcfd (Calypto Tractebel)*
 - 4. Freeport, TX : 1.5 Bcfd (Cheniere/Freeport LNG Dev.)
 - 5. Sabine, LA : 2.6 Bcfd (Sabine Pass Cheniere LNG)
 - 6. Corpus Christi, TX : 2.6 Bcfd (Cheniere LNG)
 - 7. Corpus Christi, TX : 1.1 Bcfd (Vista Del Sol - ExxonMobil)
 - 8. Fall River, MA : 0.8 Bcfd (Weaver's Cove Energy/Hess LNG)
 - 9. Sabine, TX : 2.0 Bcfd (Golden Pass - ExxonMobil)
 - 10. Corpus Christi, TX : 1.0 Bcfd (Ingleside Energy - Occidental Energy Ventures)**
 - 11. Logan Township, NJ : 1.2 Bcfd (Crown Landing LNG - BP)
 - 12. Port Arthur, TX : 3.0 Bcfd (Sempra Energy)
 - 13. Cove Point, MD : 0.8 Bcfd (Dominion)
 - 14. Cameron, LA : 3.3 Bcfd (Creole Trail LNG - Cheniere LNG)
 - 15. Sabine, LA : 1.4 Bcfd (Sabine Pass Cheniere LNG - Expansion)
 - 16. Freeport, TX : 2.5 Bcfd (Cheniere/Freeport LNG Dev. - Expansion)
 - 17. Hackberry, LA : 0.85 Bcfd (Cameron LNG - Sempra Energy - Expansion)
 - 18. Pascagoula, MS : 1.5 Bcfd (Gulf LNG Energy LLC)
 - 19. Pascagoula, MS : 1.3 Bcfd (Bayou Casotte Energy LLC - Chevron/Texaco)
 - 20. Port Lavaca, TX : 1.0 Bcfd (Calhoun LNG - Gulf Coast LNG Partners)
 - 21. Elba Island, GA : 0.9 Bcfd (El Paso - Southern LNG)
- APPROVED BY MARAD/COAST GUARD**
- 22. Port Pelicans : 1.6 Bcfd (Chevron/Texaco)
 - 23. Offshore Louisiana : 1.0 Bcfd (Main Pass McMoran Exp.)
 - 24. Offshore Boston : 0.4 Bcfd (Neptune LNG - SUEZ LNG)
 - 25. Offshore Boston : 0.8 Bcfd (Northeast Gateway - Excelsior Energy)

ANADIAN APPROVED TERMINALS

- 6. St. John, NB : 1.0 Bcfd (Canaport - Irving Oil/Repsol)
- 7. Kitimat, BC : 1.0 Bcfd (Kitimat LNG - Galveston LNG)
- 8. Riviere-du-Loup, QC : 0.5 Bcfd (Cacouna Energy - TransCanada/PetroCanada)
- 9. Quebec City, QC : 0.5 Bcfd (Project Rabaska - Enbridge /Gaz Met/Gaz de France)

MEXICAN APPROVED TERMINALS

- 0. Altamira, Tamulipas : 0.7 Bcfd (Shell/Total/Mitsui)
- 1. Baja California, MX : 1.0 Bcfd (Energia Costa Azul - Sempra Energy)
- 2. Baja California, MX : 1.5 Bcfd (Energia Costa Azul - Sempra Energy - Expansion)
- 3. Manzanillo, MX : 0.5 Bcfd

ROPOSED TO FERC

- 4. Long Beach, CA : 0.7 Bcfd, (Mitsubishi/ConocoPhillips - Sound Energy Solutions)
- 5. LI Sound, NY : 1.0 Bcfd (Broadwater Energy - TransCanada/Shell)
- 6. Bradwood, OR : 1.0 Bcfd (Northern Star LNG - Northern Star Natural Gas LLC)
- 7. Pleasant Point, ME : 2.0 Bcfd (Quoddy Bay, LLC)
- 8. Robbinston, ME : 0.5 Bcfd (Downeast LNG - Kestrel Energy)
- 9. Baltimore, MD : 1.5 Bcfd (AES Sparrows Point - AES Corp.)
- 0. Coos Bay, OR : 1.0 Bcfd (Jordan Cove Energy Project)
- 1. Astoria, OR : 1.5 Bcfd (Oregon LNG)

ROPOSED TO MARAD/COAST GUARD

- 2. Offshore California : 1.4 Bcfd, (Clearwater Port LLC - NorthernStar NG LLC)
- 3. Gulf of Mexico : 1.4 Bcfd (Bienville Offshore Energy Terminal - TORP)
- 4. Offshore Florida : 1.9 Bcfd (SUEZ Calypso - SUEZ LNG)
- 5. Offshore California : 1.2 Bcfd (OceanWay - Woodside Natural Gas)
- 6. Offshore Florida : 1.2 Bcfd (Hoogh LNG - Port Dolphin Energy)
- 7. Offshore New York : 2.0 Bcfd (Safe Harbor Energy - ASIC, LLC)

