

Navigation on the Texas Coast

University of Houston – Clear Lake

Christopher Frabotta

Deputy Chief, Operations Division

Chief, Navigation Branch

USACE Galveston District

May 3, 2012



®

US Army Corps of Engineers
BUILDING STRONG®



Mission Areas

- Navigation
- Flood Risk Management
- Ecosystem Restoration
- Shoreline Protection
- Regulatory
- Military Construction
- Emergency Management



The Operations Team

- **Joe Hrametz**, Chief of Operations Division
 - **Chris Frabotta**, Deputy Chief, Operations Division
Chief, Navigation Branch
 - **Karl Brown**, Chief, Project Operations Branch
-

- **56 team members**

- Operations Managers
- Engineers and Technicians
- Biologists
- Park Rangers
- Lock and Dam Operators
- Admin Support Personnel



USACE Galveston District Facts



- 50,000 sq-mile district boundary
- 460 miles of coastline
- 48 Texas Counties
- 18 Counties – Coastal Bay Estuaries
- 3 LNG
- 346 full time employees
- 760 miles shallow draft
- 240 miles deep draft
- 13 shallow draft ports
- 15 deep draft ports
- Texas Ports and Waterways moved 575M
- 3 Strategic Ports



Operations and Maintenance Navigation Mission

Provide safe, reliable, efficient and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation.



GIWW & Tributaries

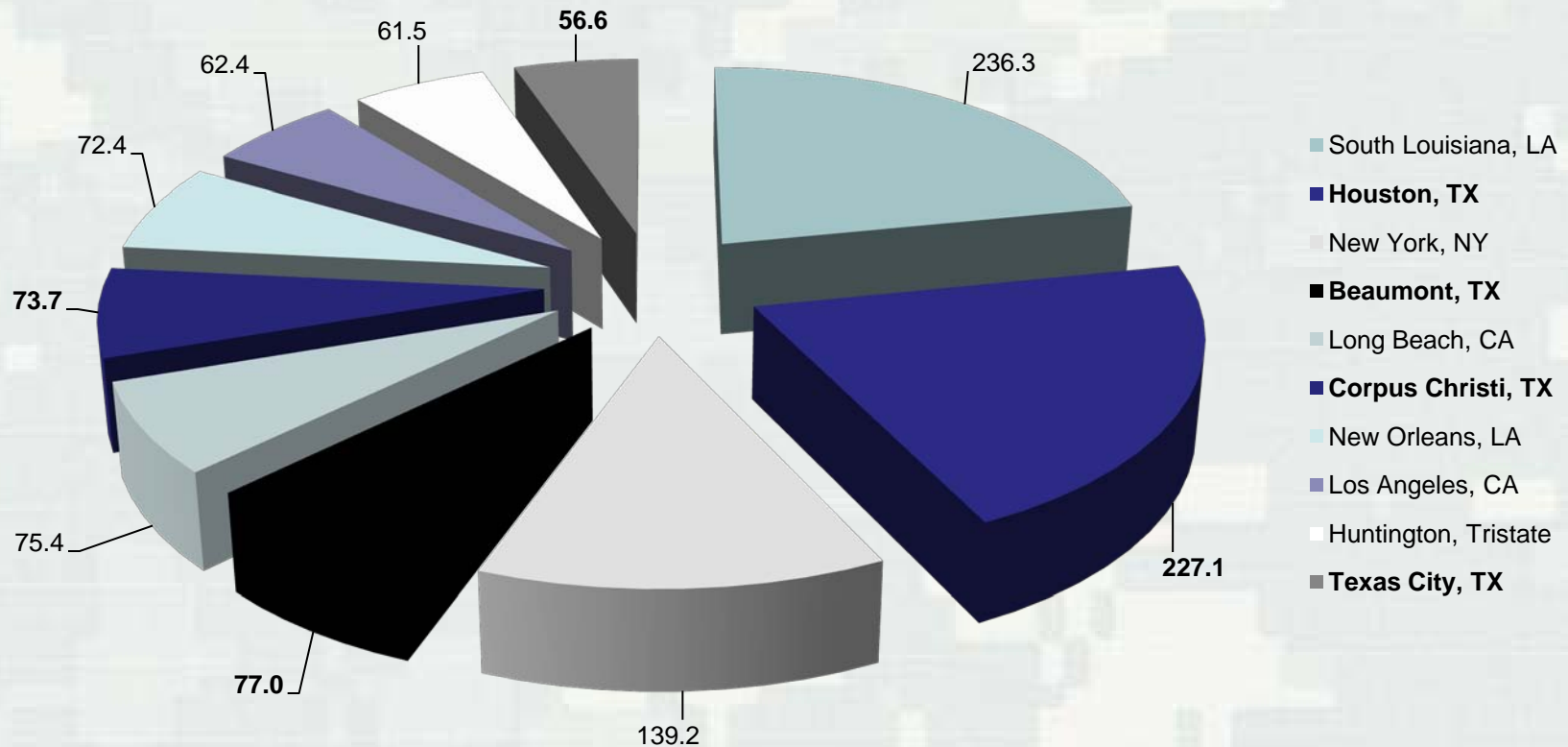


Deep Draft & Tributaries



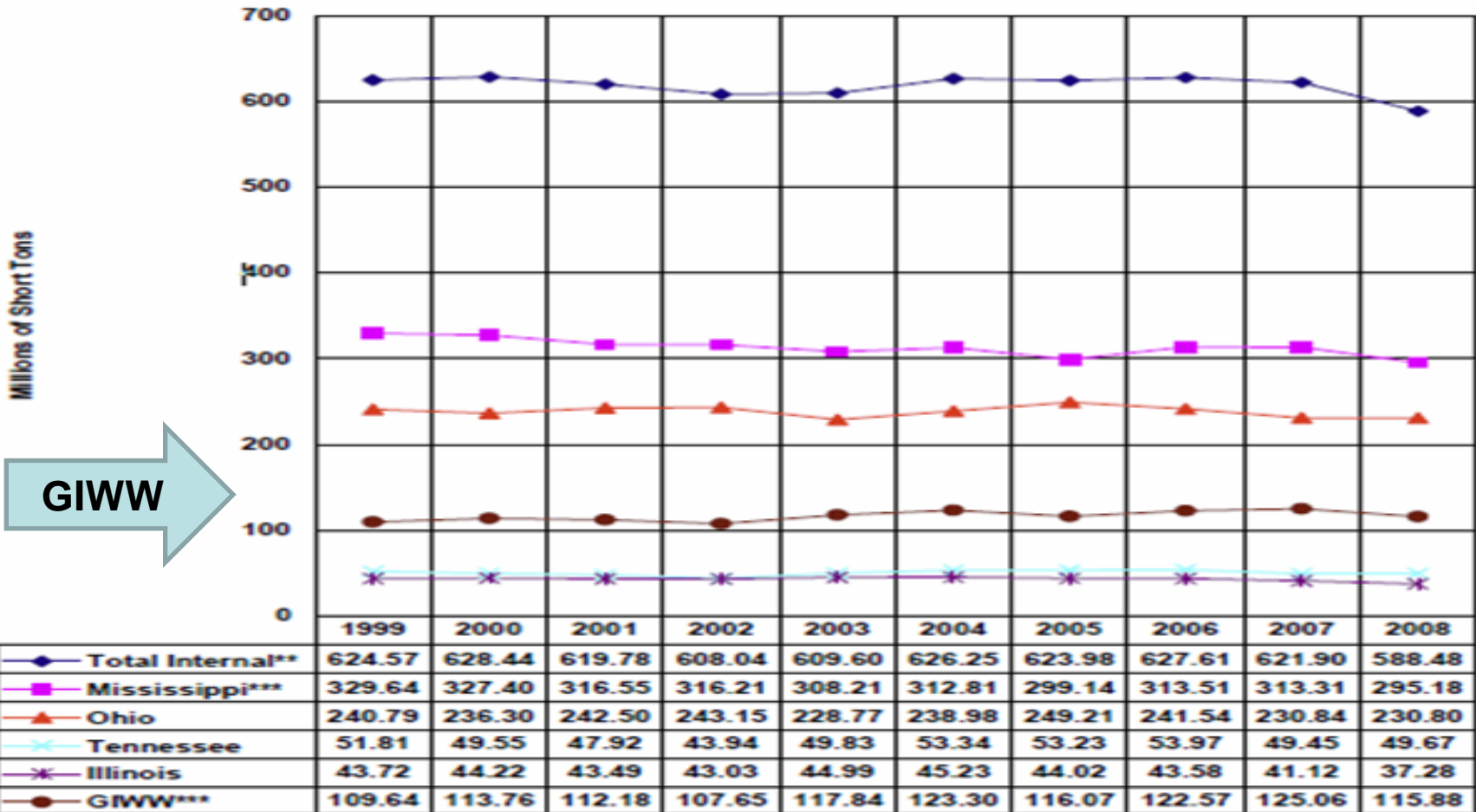
Tonnage for Top 10 Ports in Texas

Millions of Tons (2010)



BUILDING STRONG®

Commerce on Selected Inland Waterways



GIWW

**Total Internal excludes waterway improvement materials, and beginning in 1996, excludes fish.

***Includes domestic coastwise tonnage.

Data from 1999-2008

2011 Accomplishments

- 13 O&M dredging contracts awarded
- 3 Construction contracts awarded
- 20.5M cys dredged – maintenance
- 925K cys dredged – storm quantities
- Jetty repairs – 2008 Storm damages
- DAMP activities – Houston/Harlingen/Texas City
- 1.3M cys Beneficial Use of Dredge Material
- Awarded the Extension of LaQuinta Channel Project
- Completed the Deepening of Galveston/Texas City
- Completed Sabine Chief's Report



Project Facilities

- Minimize shoaling
- Safety



Brazos River
Floodgates

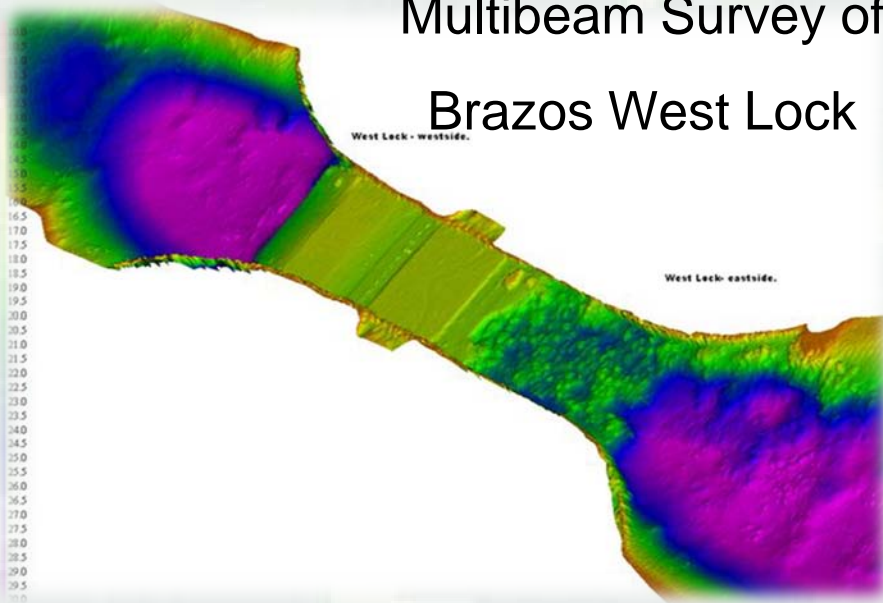


Colorado River Locks



2011 Highlights

Multibeam Survey of
Brazos West Lock



Brazos River South Fender



Brazos River Floodgate Rehab



BUILDING STRONG®

2011 Highlights

Placement Area 14/15



BUILDING STRONG®

2011 Dredging Highlights

Completion of the Deepening of Galveston & Texas City Channels



BUILDING STRONG®

Beneficial Use



Beach Nourishment, South Padre Island



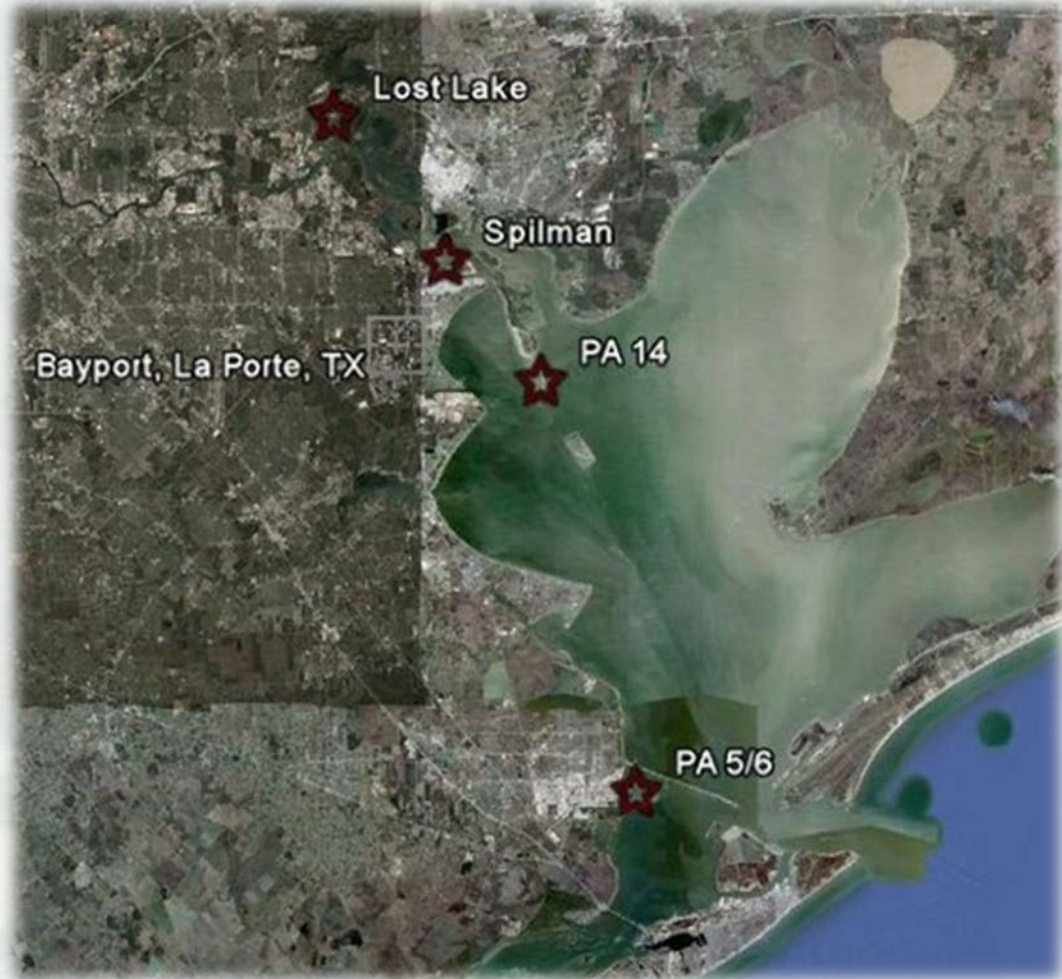
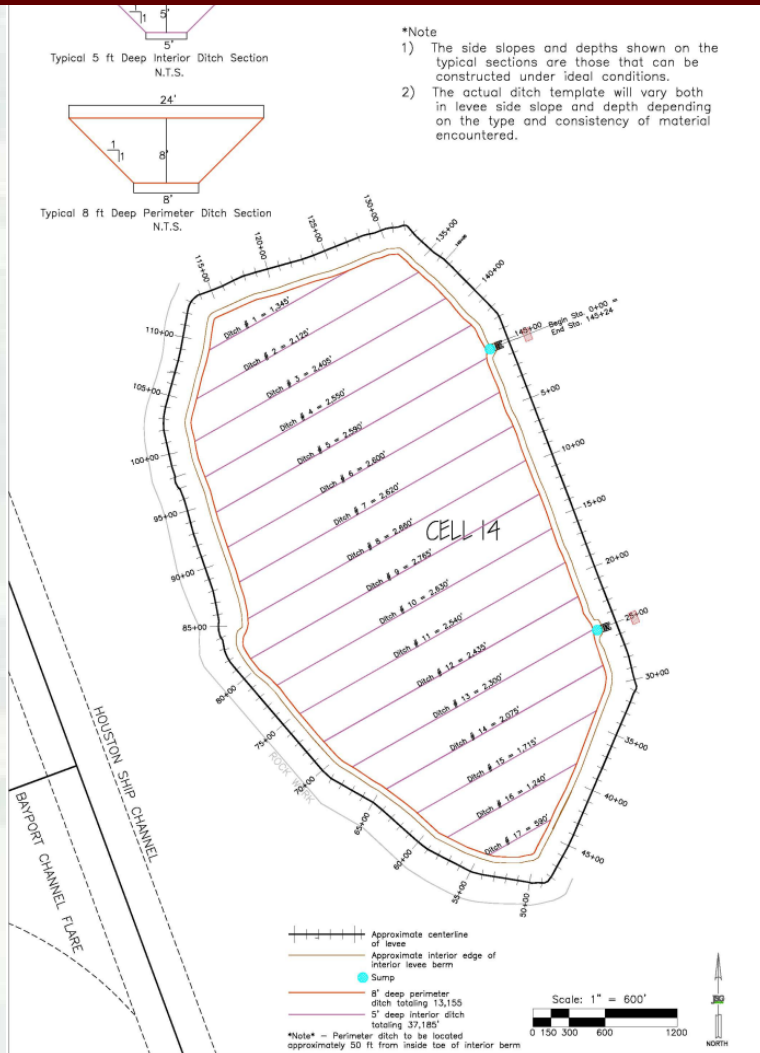
Laying Pipeline



Pumping Sand on the beach



2011 Highlights



2011 – Disposal Area Management Practices Activities



BUILDING STRONG®

Dredging Methods

TYPES OF DREDGES



Mechanical Dredges

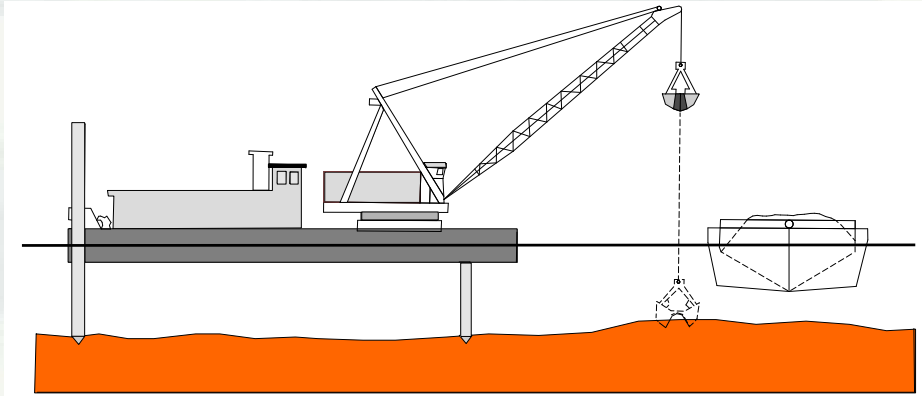


Source: Manson Construction and Engineering Co.



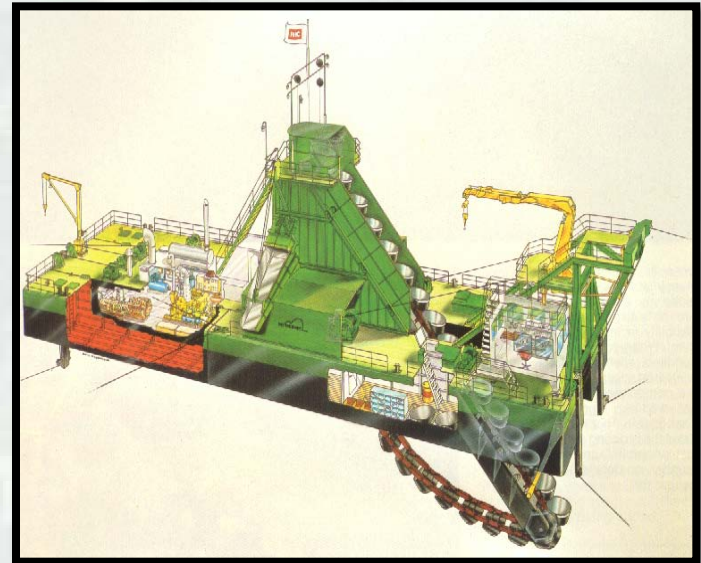
BUILDING STRONG®

Mechanical Dredges Classifications



Wire Rope Connected

Chain & Structurally Connected



Source: IHC Holland

Structurally Connected



Source: The Dutra Group



BUILDING STRONG®

Clamshell Dredge



Source: The Dutra Group



BUILDING STRONG®

Backhoe Dredge



Source: The Dutra Group



BUILDING STRONG®

Dragline Dredge



Source: The Dutra Group



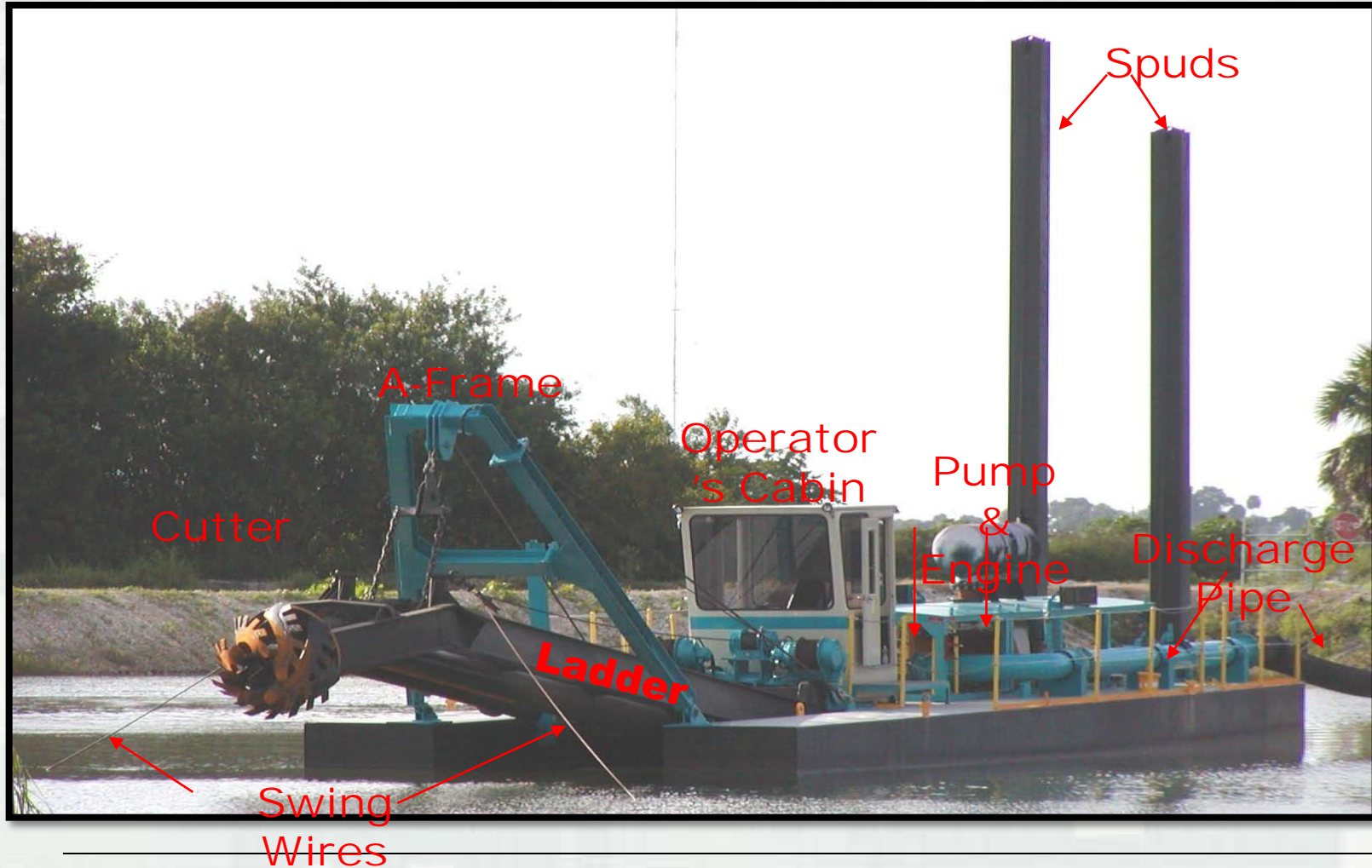
BUILDING STRONG®

Model of Hydraulic Pipeline Dredge



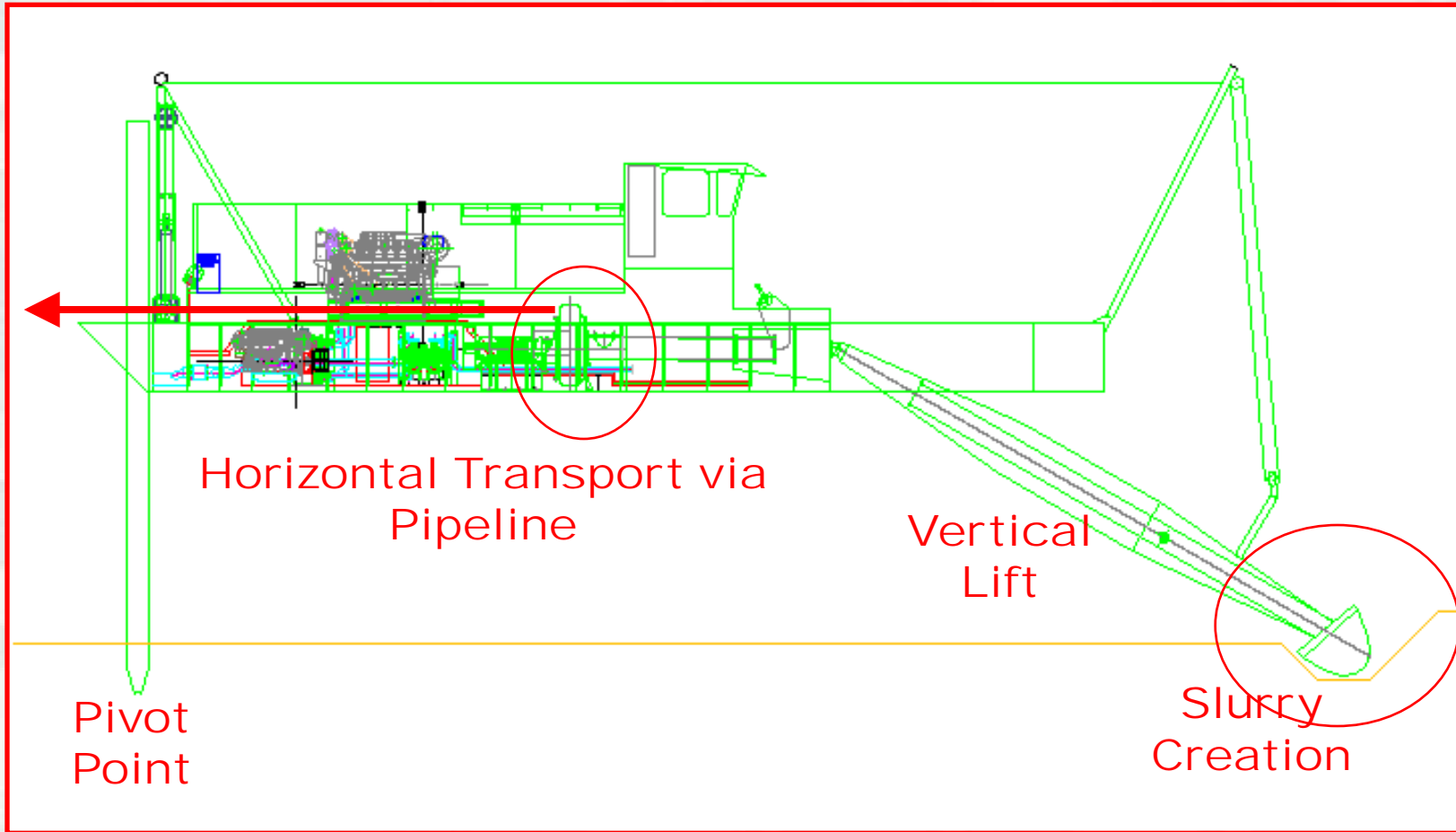
BUILDING STRONG®

Anatomy of a Cutter Suction Dredge

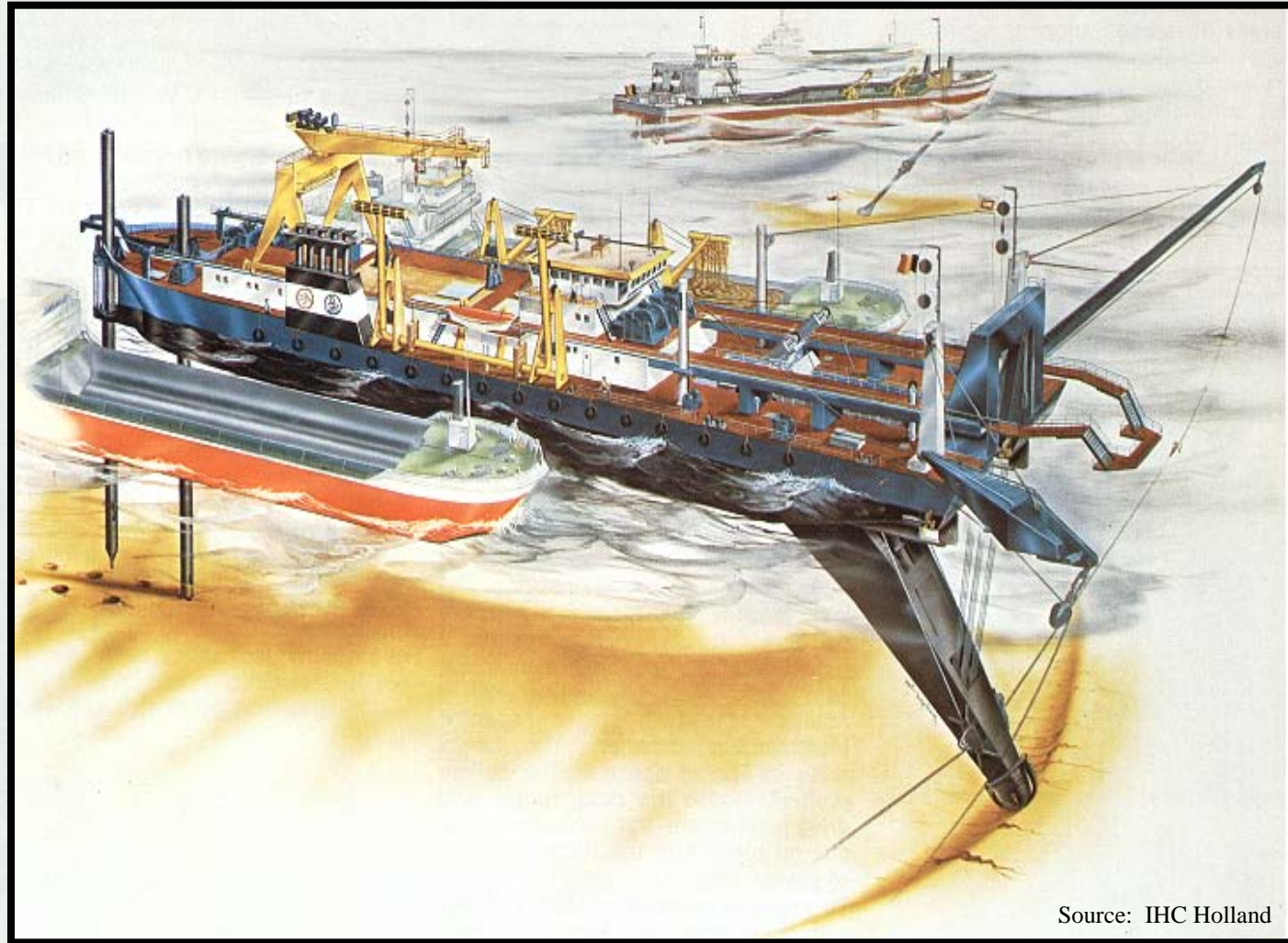


BUILDING STRONG®

Method of Operation



Hydraulic Pipeline Dredge



Source: IHC Holland



BUILDING STRONG®

Cutterheads



BUILDING STRONG®

Cutter With Teeth



Source: Great Lakes Dredge and Dock Co.



BUILDING STRONG®

Cutterhead Suction Dredge



Source: IHC Holland



BUILDING STRONG®

Dredgers



BUILDING STRONG®

RS Weeks



BUILDING STRONG®

Great Lakes - Texas



Idler Barge –
w/ Spud Carriage

The Texas performs rock dredging on the Wilmington Harbor Deepening Project.



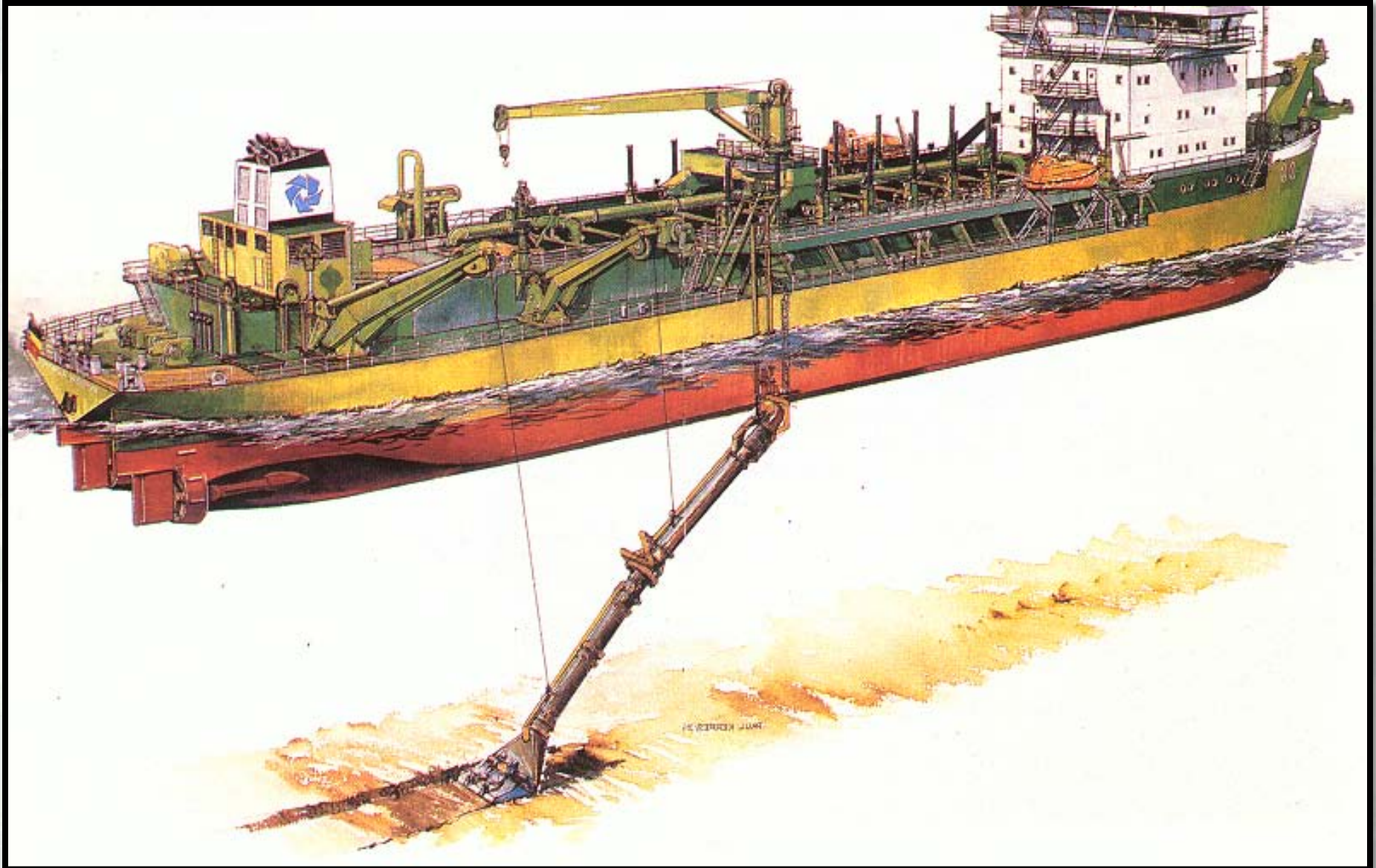
BUILDING STRONG®

Present U.S. Hopper Fleet

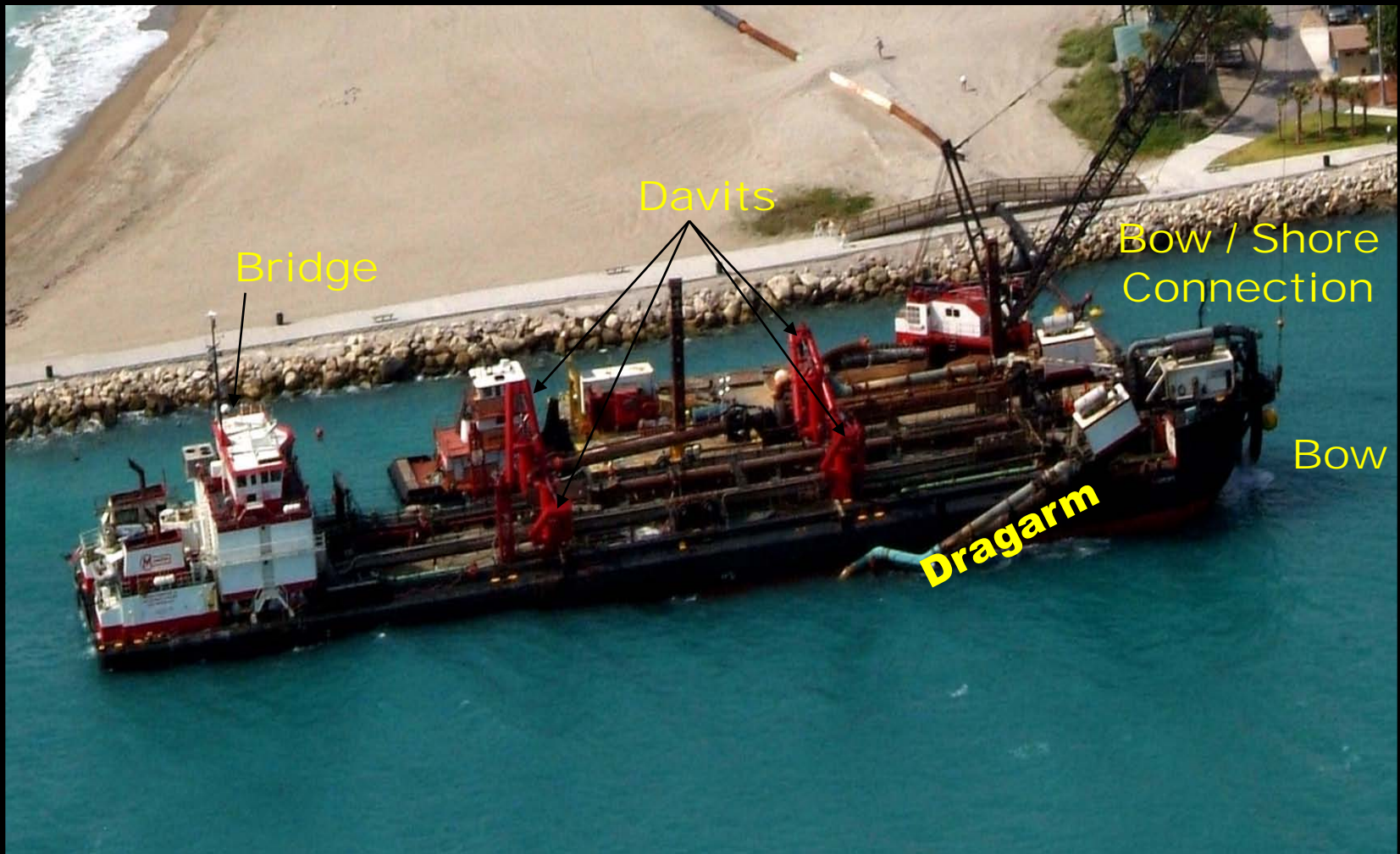
1.	Glenn Edwards	13,800 CY	2006
2.	Stuyvesant	11,140 CY	1982
3.	Wheeler	8,000 CY	1981
4.	Liberty Island	6,540 CY	2001
5.	Terrapin Island	6,400 CY	1981
6.	Essayons	6,000 CY	1983
7.	Bayport	5,000 CY	1999
8.	Columbia	4,425 CY	1944
9.	Newport	4,000 CY	1982
10.	BE Lindholm	4,000 CY	1985
11.	RN Weeks	4,000 CY	1987
12.	Padre Island	3,600 CY	1981
13.	Dodge Island	3,600 CY	1980
14.	McFarland	3,140 CY	1967
15.	Westport	1,500 CY	1980
16.	Atchafalaya	1,300 CY	1980



Hopper Dredge



Anatomy of a Hopper Dredge



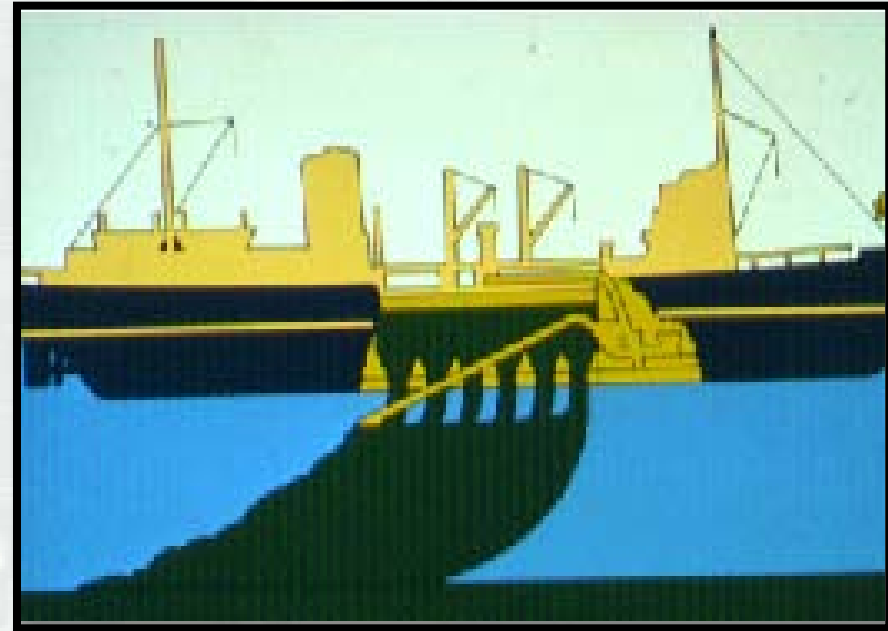
Hopper Dredge



BUILDING STRONG®

Hopper Dredge With Dump Doors

- Discharge & Overflow
- Pump-out Capability



BUILDING STRONG®

Split Hull Dredge



Source: Bean Dredging



BUILDING STRONG®

Glenn Edwards – Largest Hopper in the Fleet



BUILDING STRONG®

Anatomy of a Hopper Dredge



Hopper
Ram

Aft Weir

Hopper
Seals

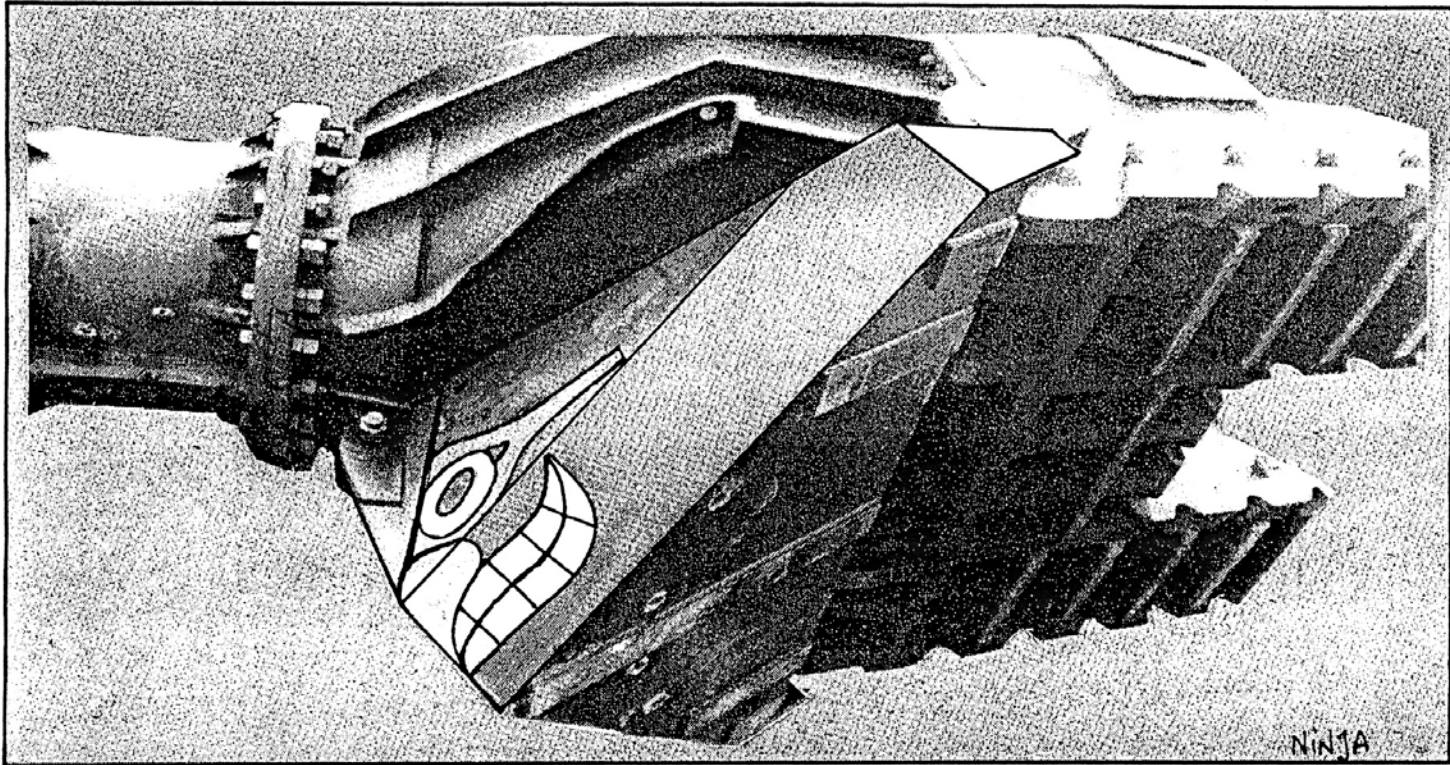


Hopper Dumping – Split Hall

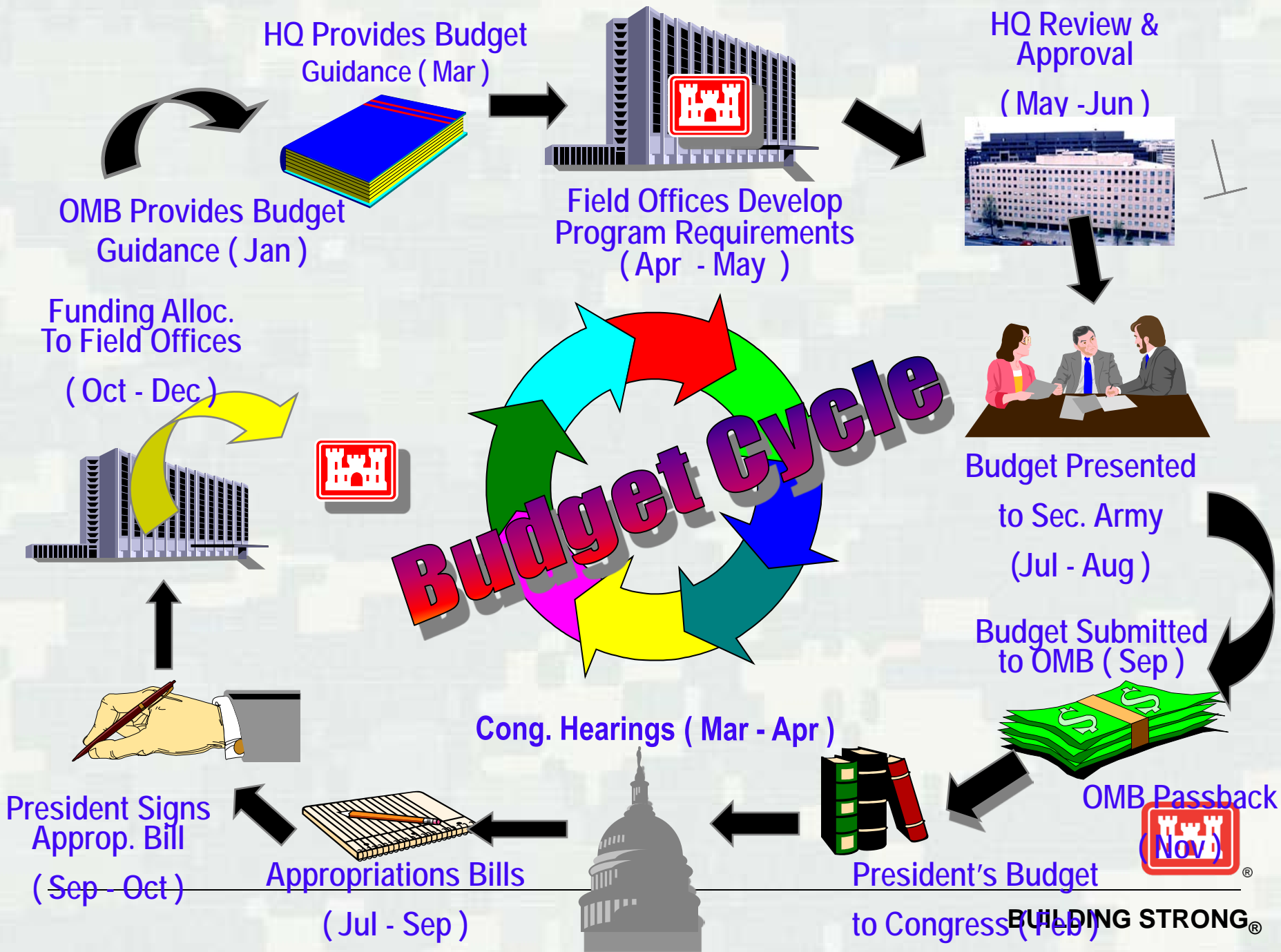


BUILDING STRONG®

Turtle Exclusion Devise

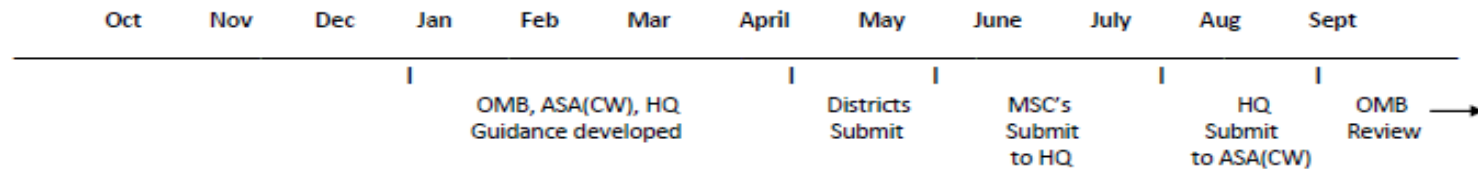


A stylized turtle's face adorns the draghead deflector designed by MDC. The deflector is positioned on the front of the draghead, so as the dredge moves forward, the deflector pushes turtles out of the way, keeping them from being sucked into the draghead. (Photo courtesy of Jacksonville District Public Affairs Office.)

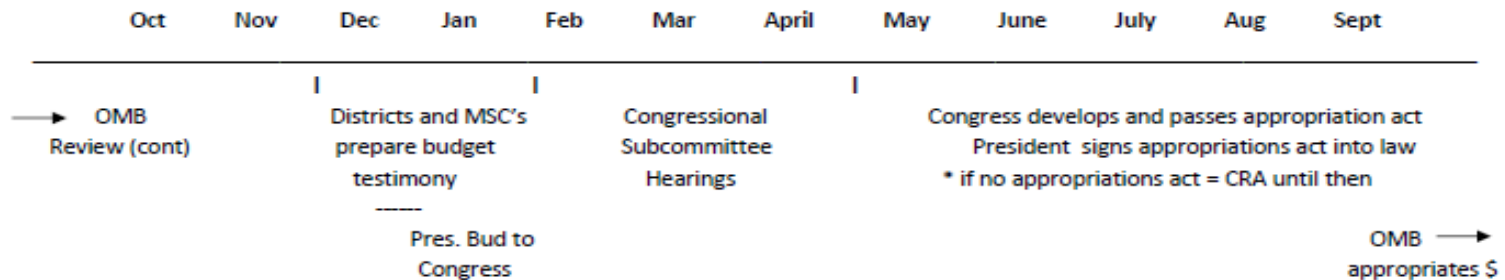


Budget Cycle Timeline

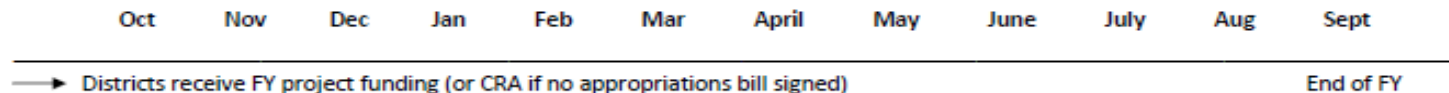
FY+2 (Planning Phase)



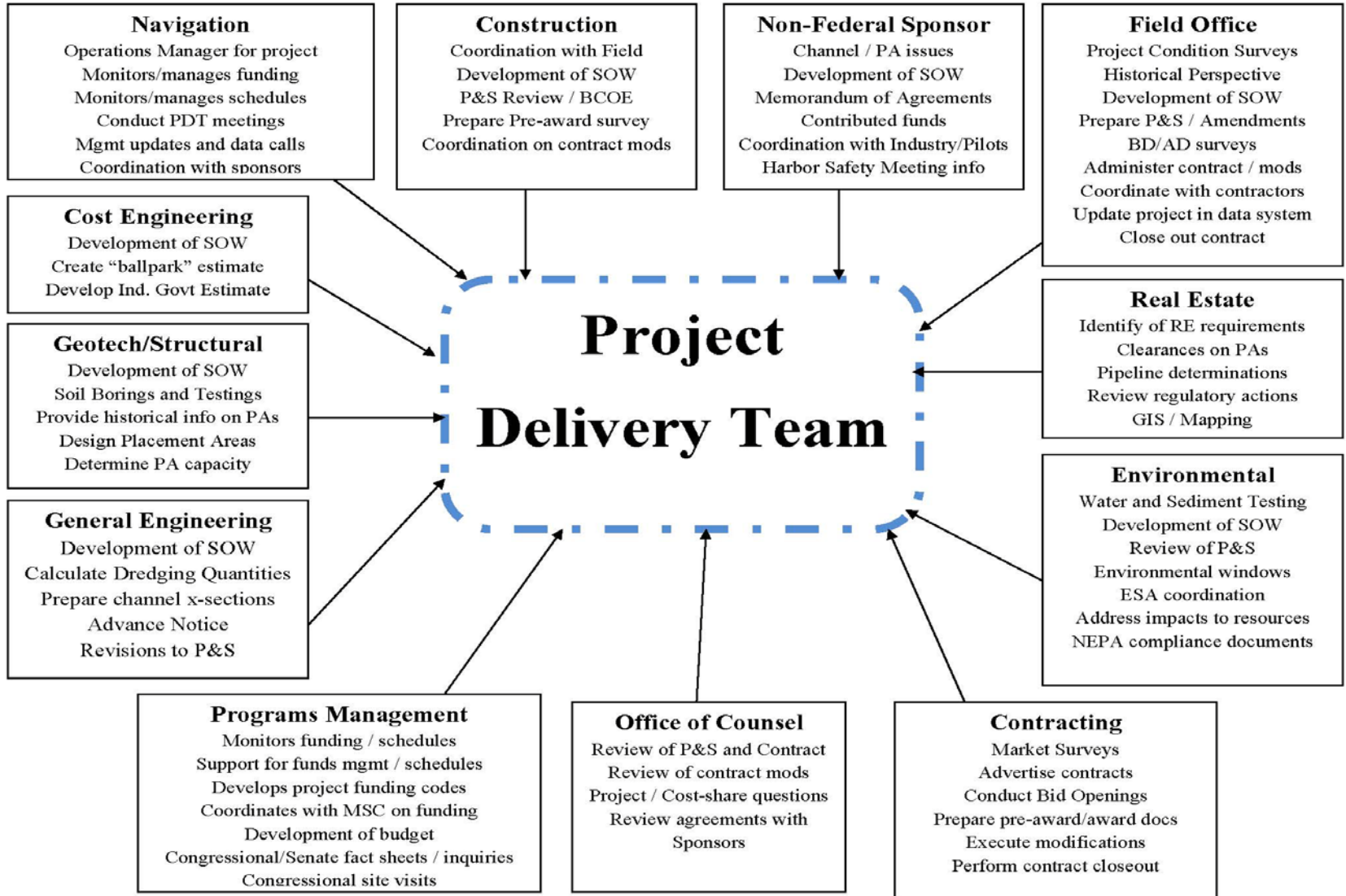
FY+1 (Defending Phase)



Current FY (Execution Phase)



Project Delivery Team



Questions/Comments?



CONNECT WITH US!



ON FACEBOOK

www.facebook.com/GalvestonDistrict



ON TWITTER

www.twitter.com/USACEgalveston



ON YOUTUBE

[www.YouTube.com/Galveston
District](http://www.YouTube.com/GalvestonDistrict)

ON DVIDS



www.dvidshub.net/units/USACE-GD



ONLINE

www.swg.usace.army.mil



BUILDING STRONG®