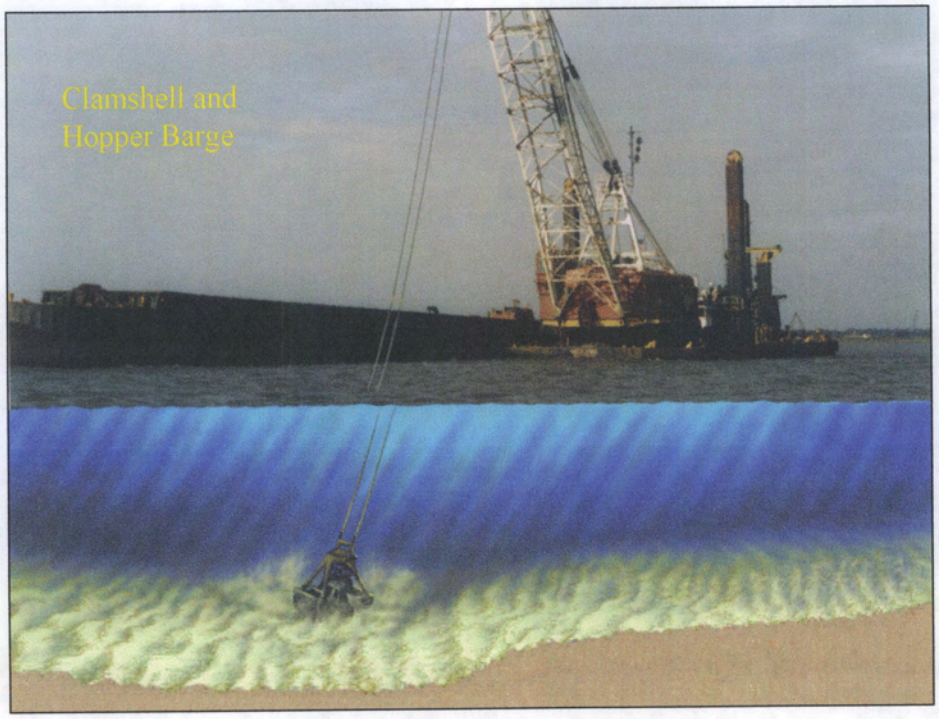
CED add pix of disposal hopper

There are 2 categories of dredges – Mechanical and Hydraulic

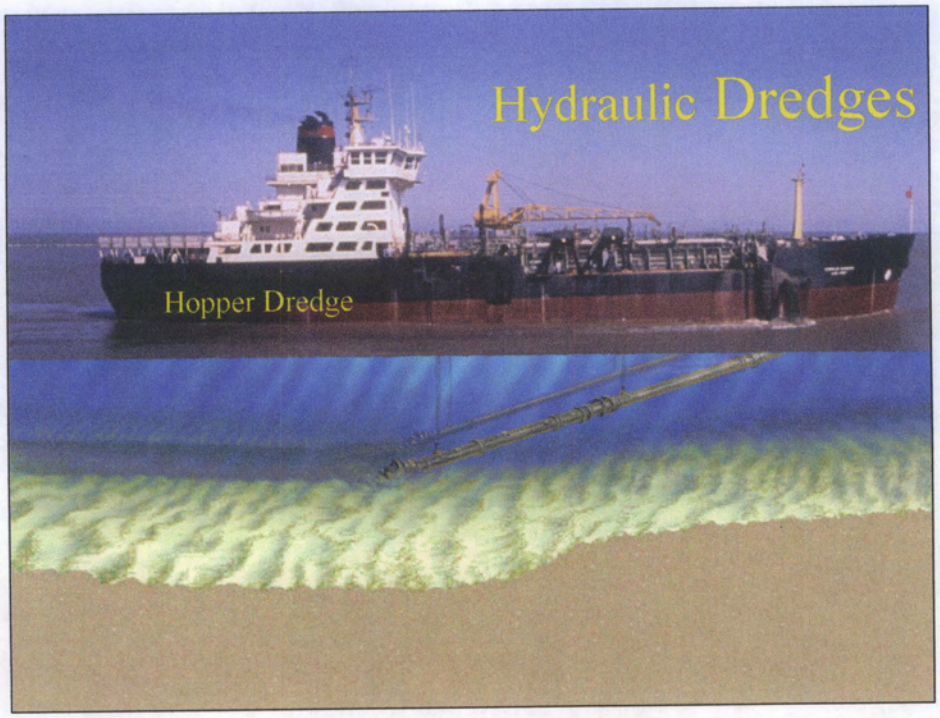
Examples of Mechanical dredges are dipper, backhoe, clamshell and a few other exotic forms. These types of dredges are used normally where the disposal distance is great. The material is loaded onto barges and transported to the disposal site which is typically open water, however, pumping out or mechanical removal of the material from the barges is also an option. Here in Mobile, we do not use this type of equipment often, only for cleaning out of basins in the river channel and for channel improvement projects. These type dredges are not as efficient as the hydraulic dredges for most of our work.

do we want to define that phrase or will that actual description not produce neutral response?

Here is a typical backhoe type dredge working on an improvement project in Pascagoula harbor -

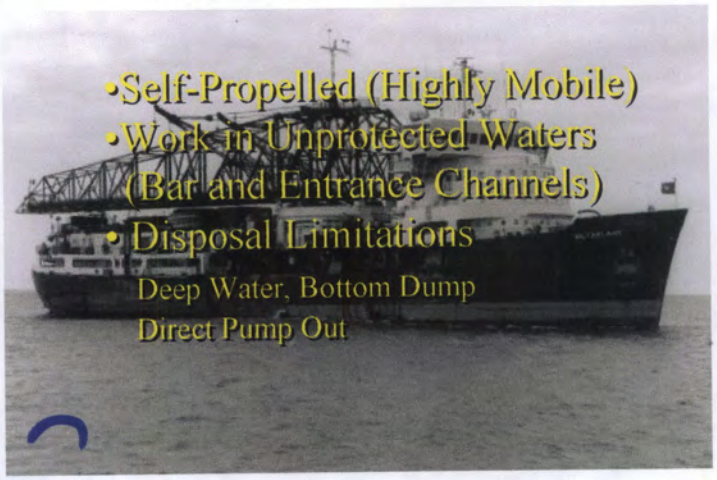


Here is a clamshell dredge and you can see the hopper barge along side the dredge – a tugboat will push the barge to the disposal area in deep water and the barge will open up and dump the material.



Here is a typical hopper dredge – it is basically a ship with a holding compartment, or hopper. Material is pumped from the channel bottom into the hopper. Once the hopper is full the ship will sail to a deep water disposal area and dispose of the material.

Hopper Dredge Features



ASK about this?

Hopper dredges are ideal for working in rough sea conditions as is usually encountered on bar channels. Disposal is normally into a deep water site, however, most hopper dredges do have pump out capability – the dredge will moor at a designated point and connect to a pipeline that extends to the disposal site. The dredges cannot pump the material very far. For distant disposal sites, a booster pump must be added. Cost for this type operation are usually great due to the inefficiencies of the operation and the extra equipment required. We normally maintain Mobile Bay and Bar with hopper dredges due to the long disposal distances. The bay channel is maintained continuously. The upper 20 miles of channel shoal in with fine grained silts and clays we move from 4 to 6 million yards of fine grained material from the bay channel every year.

No/yes to this giving an idea of an option we should have tried before now?

yes excellent lead in & signed to JS

!! don't want to say this & don't think I thought we did it because the material was included with the larger project job

NO

Contract Dredges	Loaded Draft
Stuyvesant	29
Eagle	22
Bayport	18
Newport	17
Lindholm	21
Columbia	17
Dodge Island	19
Padre Island	19
Manhatten Island	19
Sugar Island	19
Atchafalaya	15

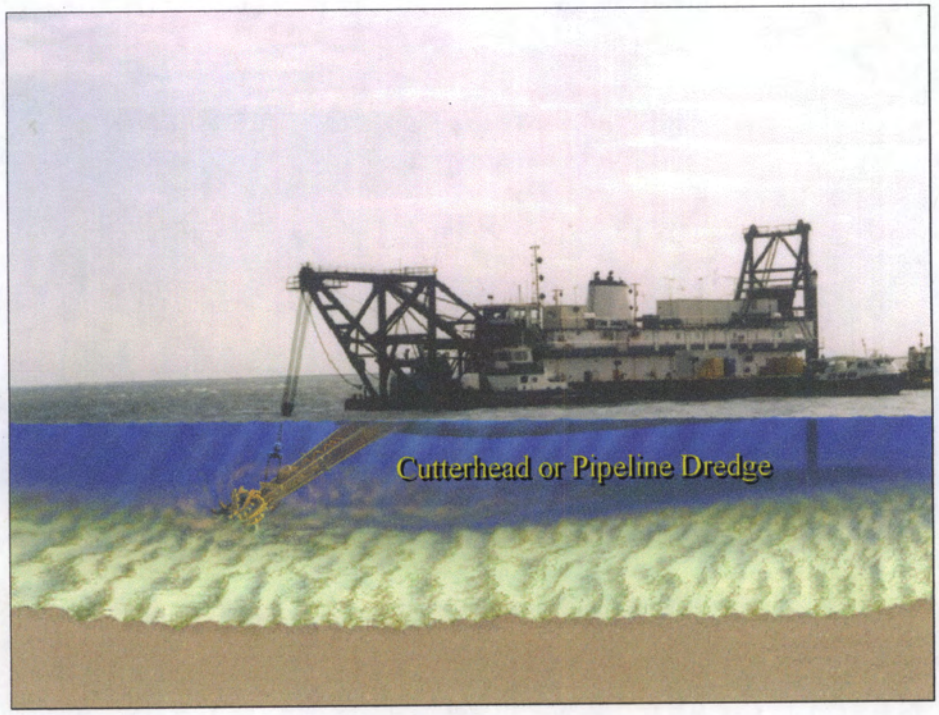
after Hurricane George, etc

very small
not efficient for Bay maybe OK for GAR

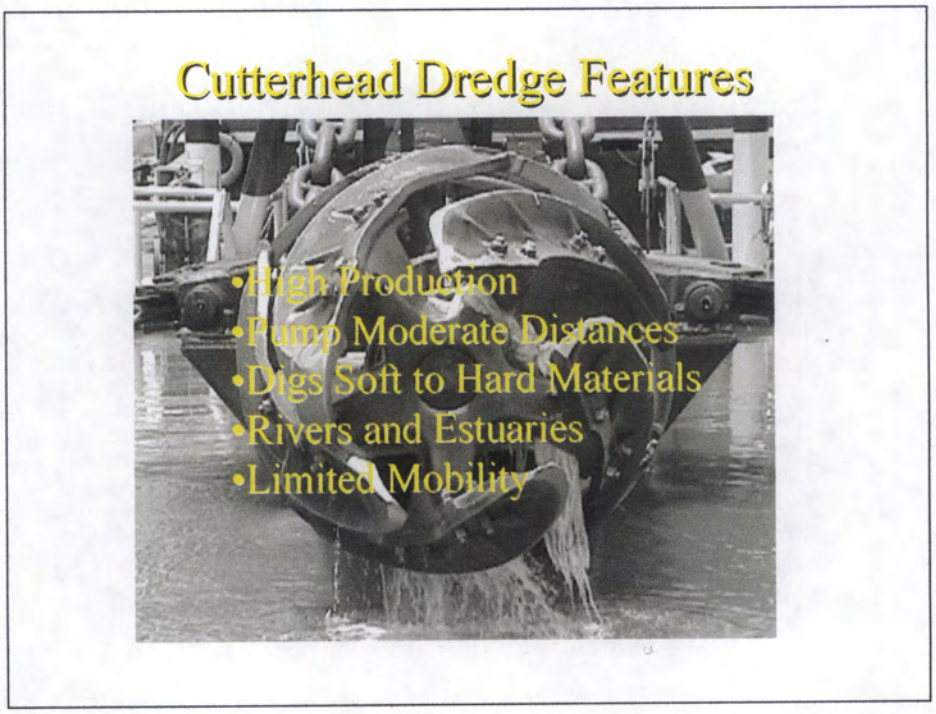
entire country

Here is a list of all of the contract dredges that are capable of working in Mobile Harbor – this is all the hopper dredges that exist in the U. S.with the exception of 4 government owed dredges and a few more that do not have adequate capabilities to work in Mobile Harbor The drafts listed are the loaded draft of the vessel all of these vessels require from 2 to 6 additional feet of water in order to dump the material. The last dredge Atchafalaya is so small that we normally exclude this dredge from bidding our routine rental hopper contracts for Mobile. However, it is the only dredge that can perform is relatively shallow water.

in



The other type of hydraulic dredge is the cutterhead or pipeline dredge – these dredges are not self propelled, they are pushed to the work site by tug and then use a system of winches and spuds to move slowly along the channel swinging the cutterhead from side to side. The material is pumped via pipeline to the disposal area.



Pipeline dredges are the most efficient, provided the disposal area is not too distant, typically, pipeline dredges work within 1- 2 miles of the disposal area. Some of the larger dredges can pump up to 5 to 6 miles usually this requires additional booster pumps. These dredges do not work well in rough seas. The spuds will bend or break when sea conditions are rough and moving the dredge to and from the work location to avoid bad weather is very inefficient. Some of the larges pipeline dredges can work in rough sea conditions through the use of a set of anchors and cables instead of using spuds to hold their position. We call this "working on wires" This technique allows the dredge to operate in rougher conditions, however it decreases the efficiency of the dredge by handling the anchors and subsequently drives up costs.

Contracting Methods

- Unit Price – preferred method used when known quantity of material – contractors take risk
- Rental – used when quantities are undefined – rapid response time – Government takes risk

Typically – Bar channel work includes known quantities – however- response time is a factor at Mobile Bar- the area of the channel adjacent to Dixie Bar is very difficult for the Bar Pilots to navigate due to the "set" . The ships tend to get sideways – consequently any shoaling in the channel is critical and rapid response is needed. By utilizing the Bay rental hopper-shoals can immediately be removed, usually within a week or two at a very economical price – approx $1 per yard, however, the disposal area depth must be matched to the dredge's draft capabilities. When large enough quantities exist, such as after Hurricane George, we can bid unit price work at reasonable costs. The disposal area used dictates the cost of the dredging. After Hurricane George we performed the work for slightly over $1 per yard and disposed into the Sand Island Beneficial Use area. We received good bids because of the large quantity of material and the nearby disposal site which could be used by the shallower draft hopper dredges along with the larger pipeline dredges, this increased competition among bidders hence the relatively low price.

Unit Price contracting can be used when large quantities exist. We

? drives

? this could be read backwards against wi

Ask Carl the type of equipment and

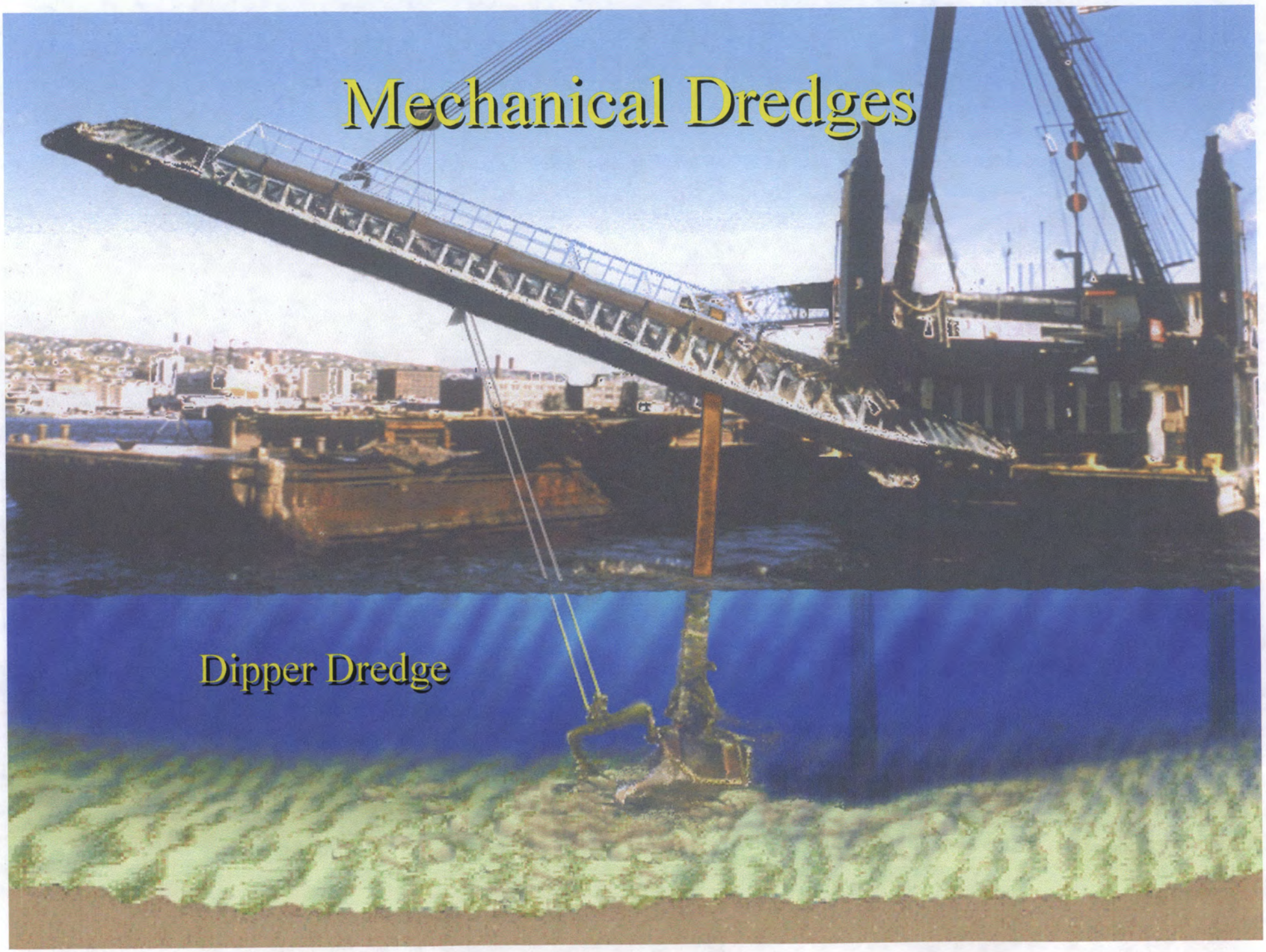
this will be discussed w/ TIS, you know

different than what we last discussed

?

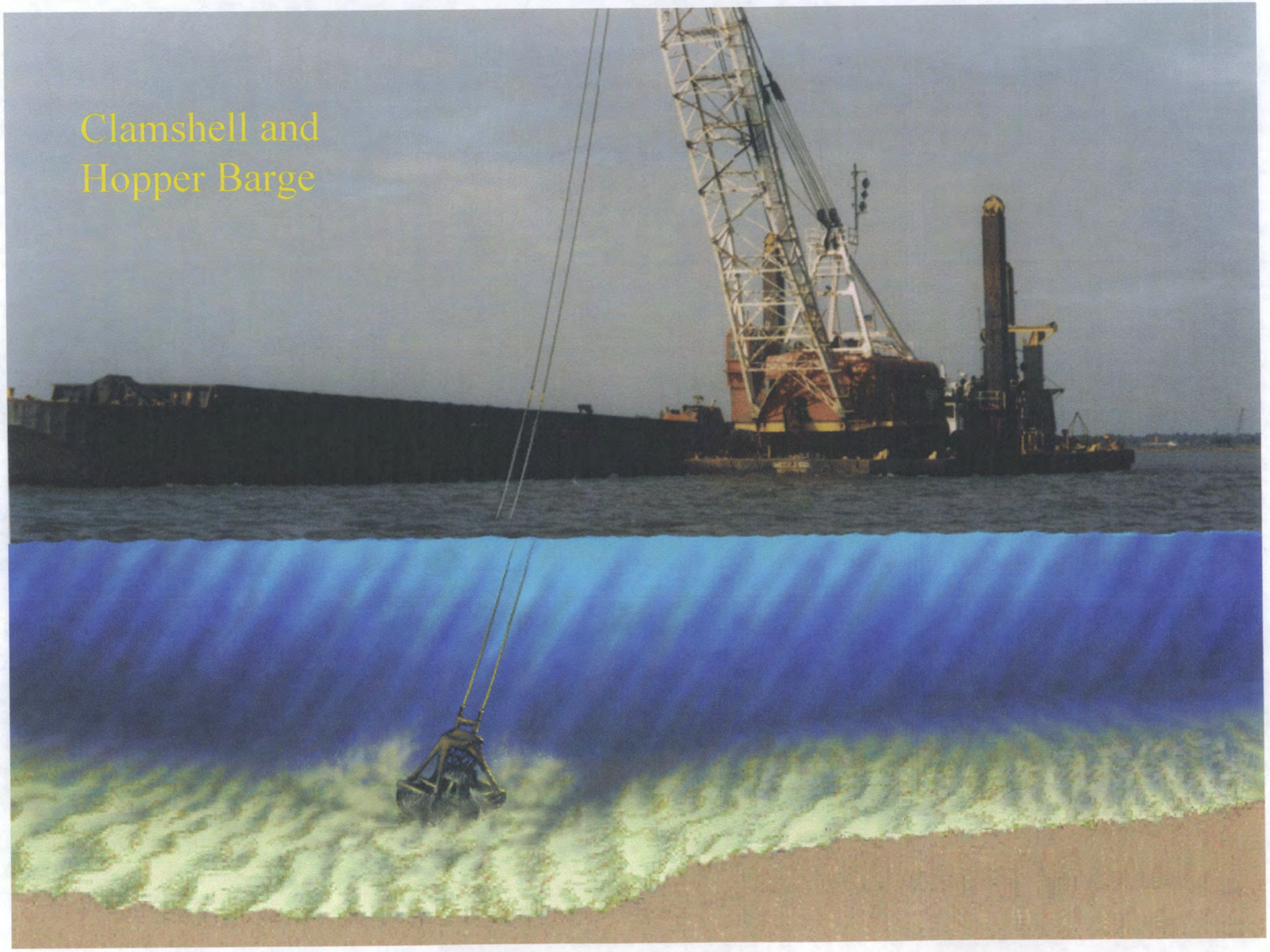
Ask Carl about the bar dredging — there are rumors that there are changes about

Mechanical Dredges

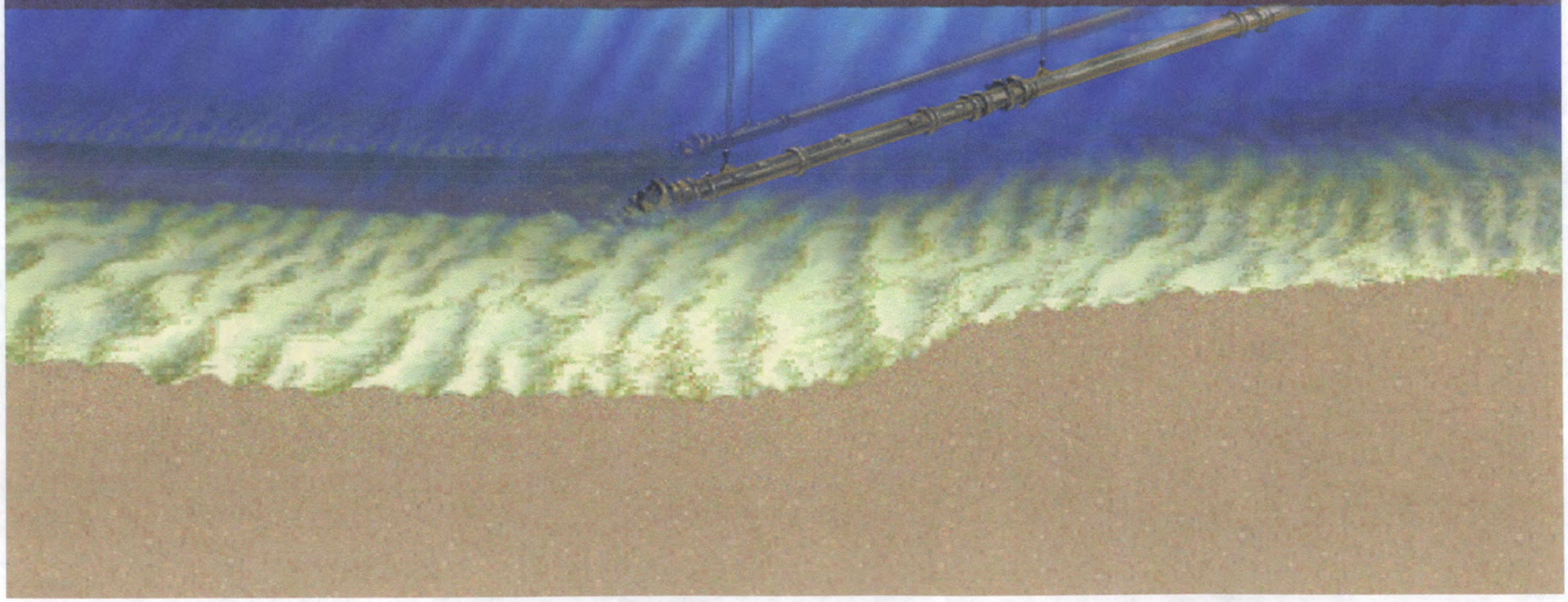


Dipper Dredge

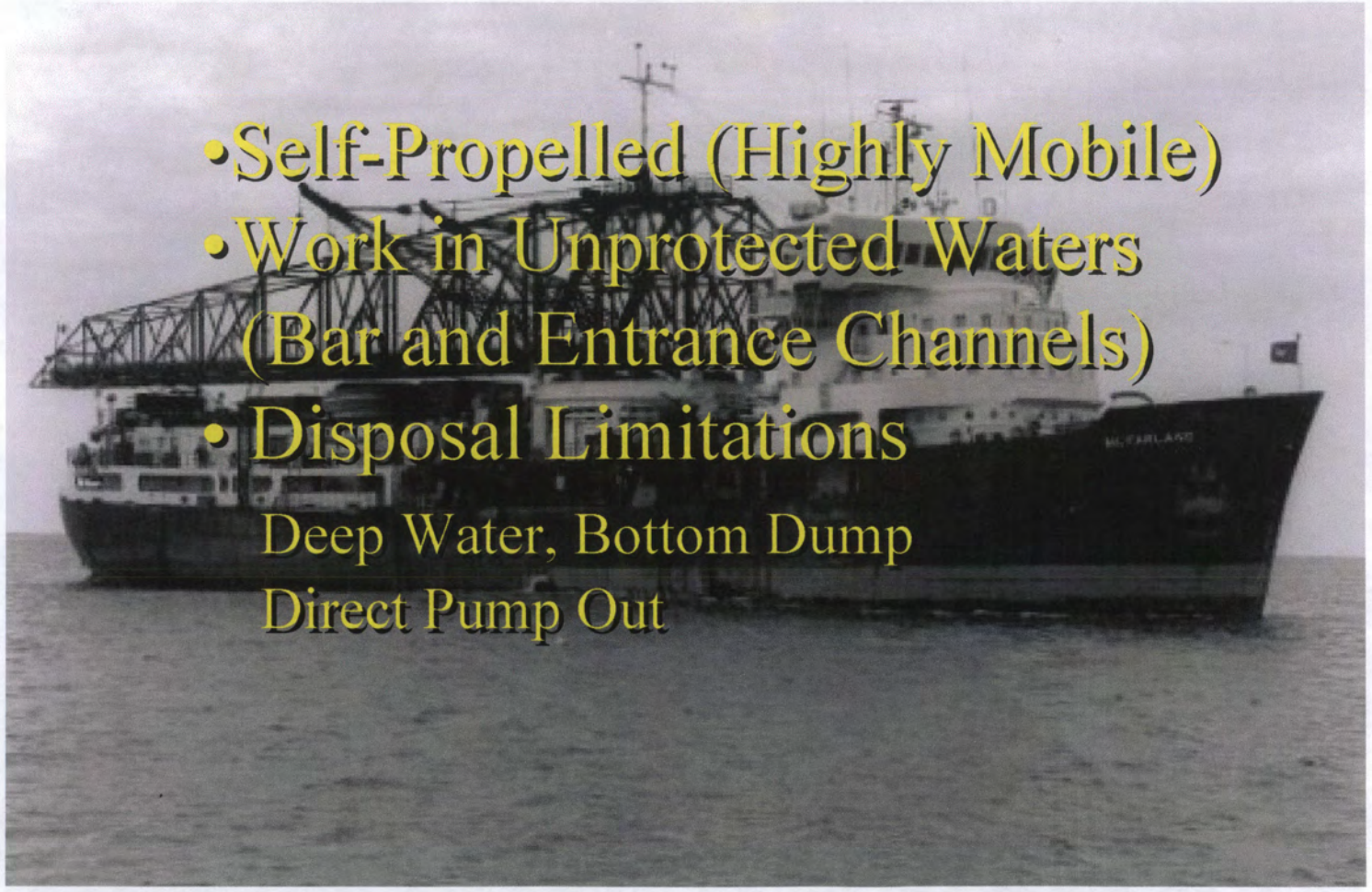
Backhoe Dredge


Clamshell and
Hopper Barge

Hydraulic Dredges

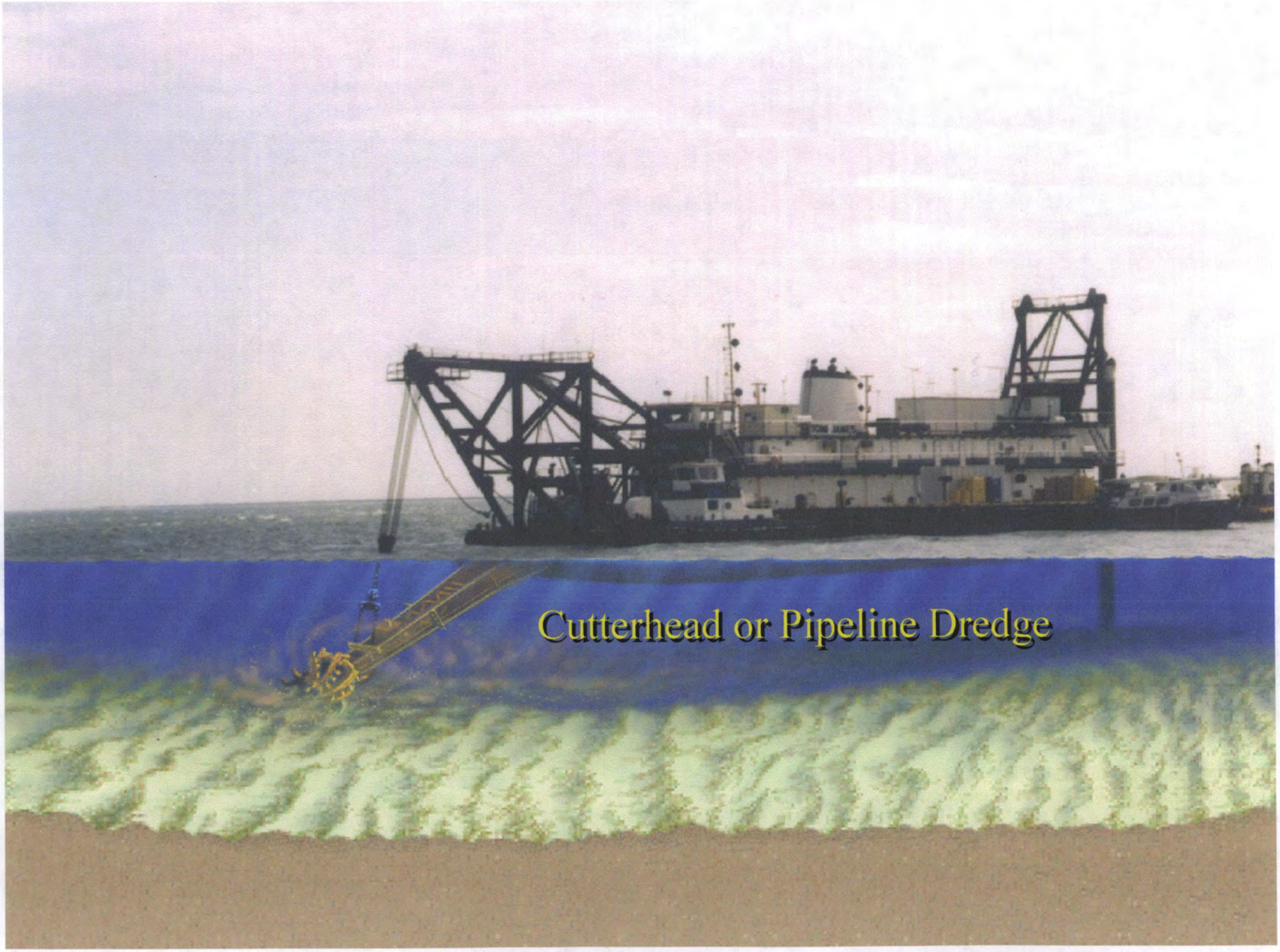


Hopper Dredge Features

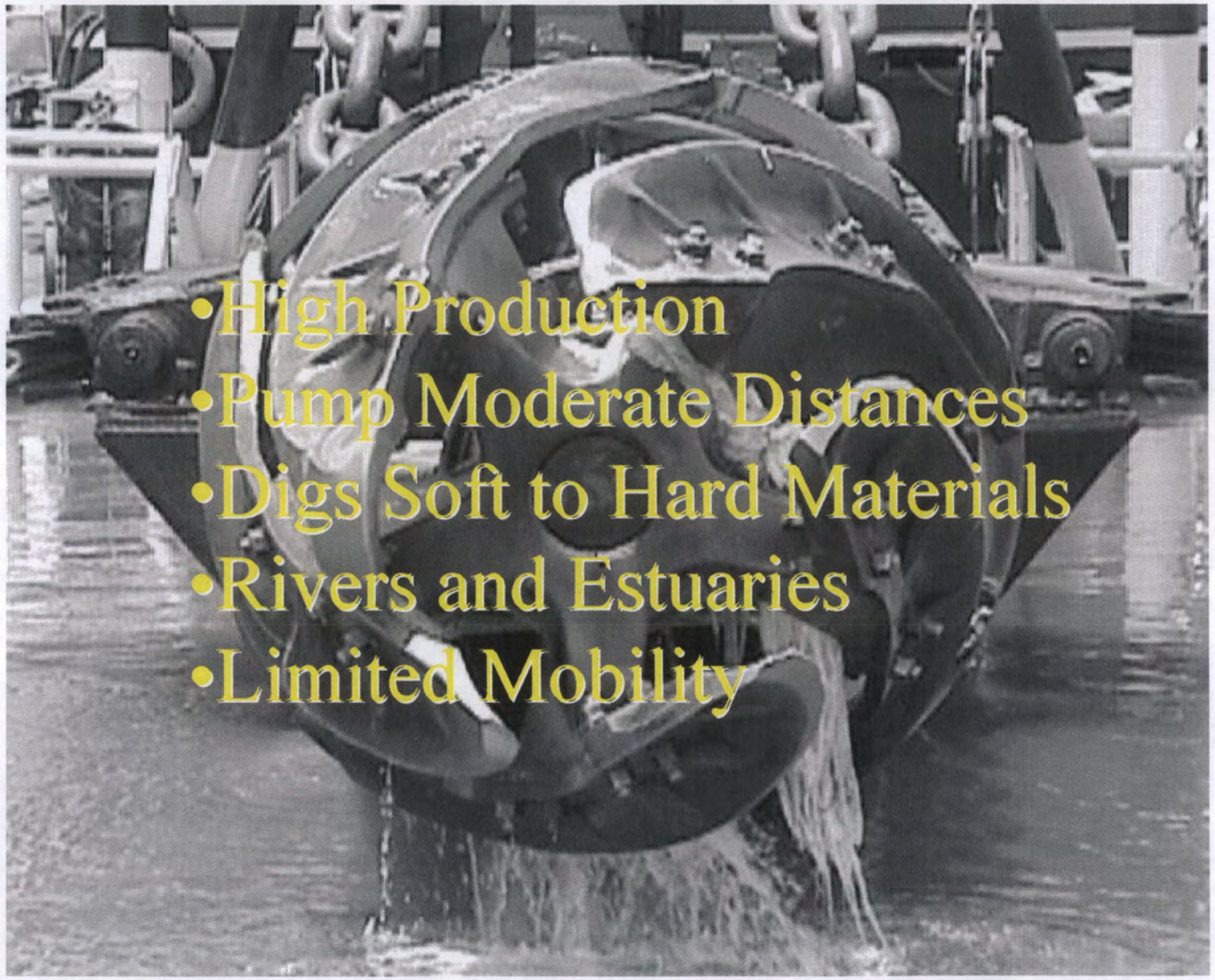


- Self-Propelled (Highly Mobile)
- Work in Unprotected Waters (Bar and Entrance Channels)
- Disposal Limitations
  - Deep Water, Bottom Dump
  - Direct Pump Out

Contract Dredges		Capacity Cubic Yards	Loaded Draft
Stuyvesant		11147	29
Eagle		6400	22
Bayport		4830	18
Newport		4000	17
Lindholm		4000	21
Columbia		4387	17
Dodge Island		3600	19
Padre Island		3600	19
Manhatten Island		3600	19
Sugar Island		3600	19
Atchafalaya		1300	15


Cutterhead or Pipeline Dredge

Cutterhead Dredge Features



- High Production
- Pump Moderate Distances
- Digs Soft to Hard Materials
- Rivers and Estuaries
- Limited Mobility

Contracting Methods

- Unit Price – preferred method used when known quantity of material – contractors take risk

- Rental – used when quantities are undefined – rapid response time – Government takes risk