

# The Dredging Process and Overdepth Dredging

A Primer

8 June 2005

## Issues

- Environmental Documents have misleading descriptions of work/dredging that are too precise
- Need a better understanding of excess dredging
- Differing sediment types and differing dredge types influence bottom differently
- Need to discuss dredging process, quantities and zone of influence to preclude unmet expectations
- “Inadvertant” overdepth dredging misconception

## Dredging Variables

- Tides
- Currents
- Waves
- Sediment Types
- Sediment thickness being dredged
- Dredge type
- Side Slopes

## Action Items

- DCW Guidance document to Field
  - Require all references to dredging process in Environmental Documents be placed in Specs
  - Require Bidder certification
  - Require in pre-construction conference address dredging process and expectations and environmental documents
  - Require upfront coordination with all agencies in planning process to address dredging operations
- Public Education of dredging process
  - Use AAPA, AGC, GICA, PNWA, etc to get message out

## TYPICAL DREDGED SECTION

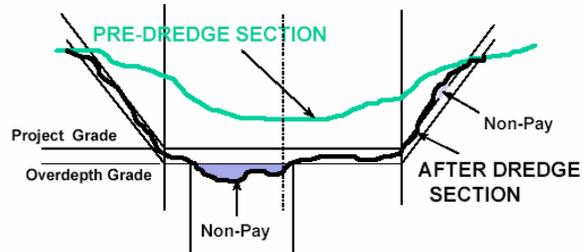


Figure 14-2. Typical Pre/Post Dredge Section

## SIDESLOPE DREDGING

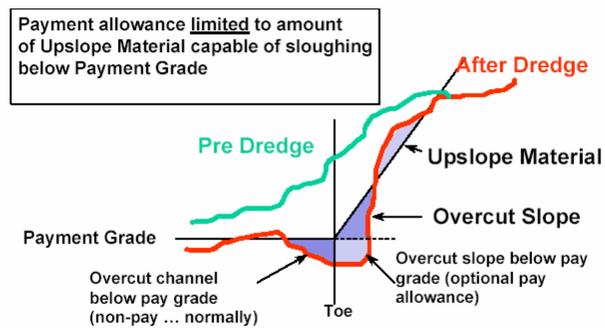


Figure 14-5: Box Cut Payment Method

## CLEANUP DREDGING

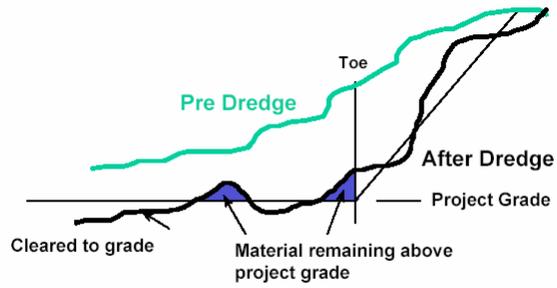
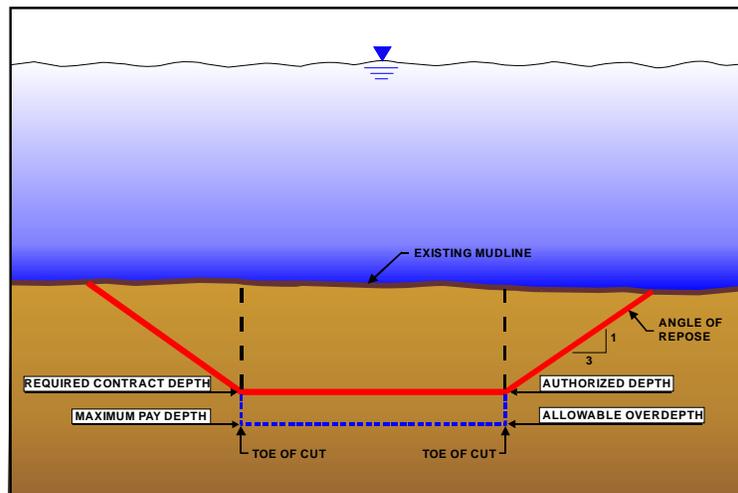
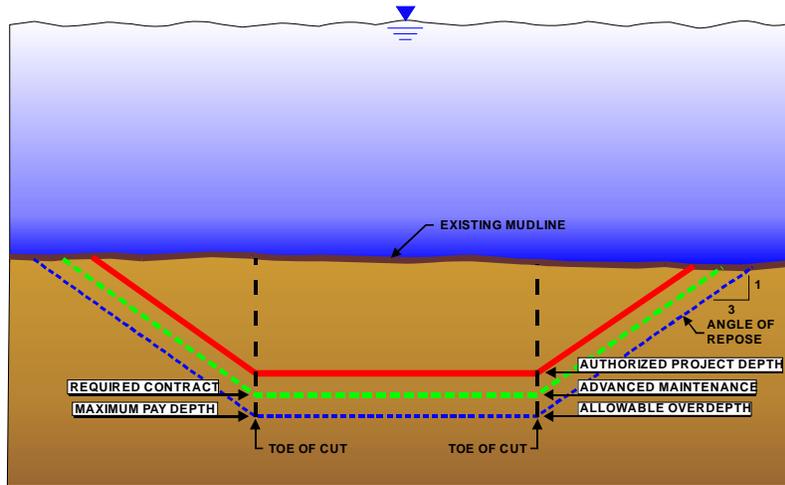


Figure 14-6. Channel clearance along toes

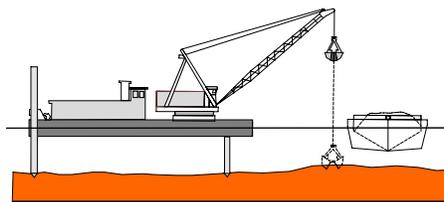
## Technical Clause Definitions



# Technical Clause Definitions



# Mechanical Dredge Classifications



Wire Rope Connected

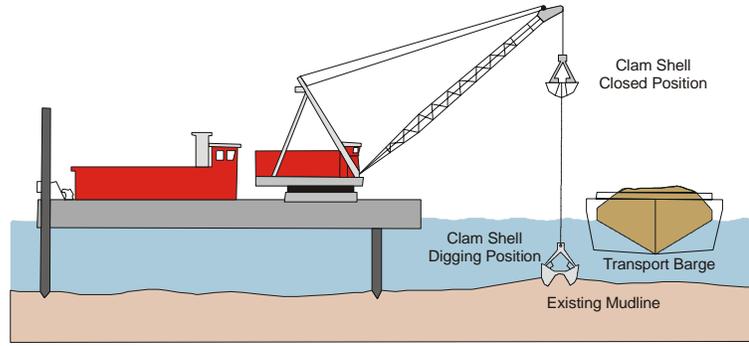
Structurally Connected  
Backhoe or Dipper

Source: IHC Holland



Structurally Connected Source: The Dutra Group

# Clamshell Dredge



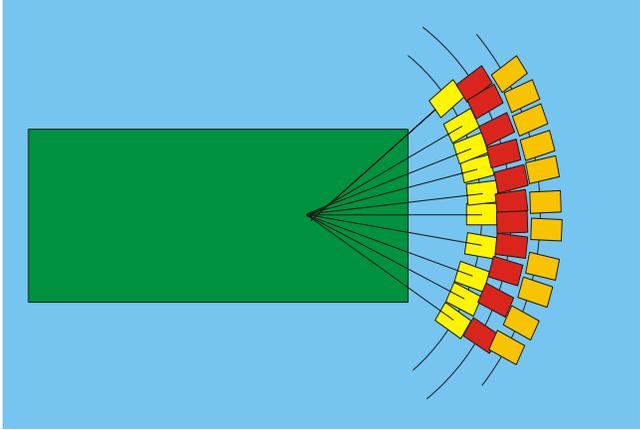
Mechanical Dredge

# Clamshell Dredge



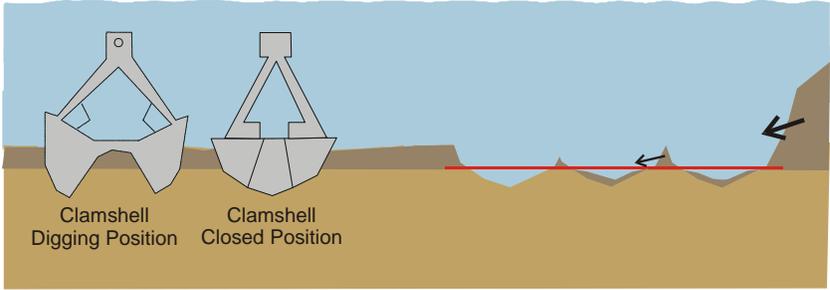
Source: The Dutra Group

# Dredging Pattern



# Clamshell Dredge Cuts

- Horizontal Dredge Cut
- Scalloped Bottom
- Over-depth Allowance 1-3 ft.



## Backhoe Dredge



Source: Great Lakes Dredge and Dock Co

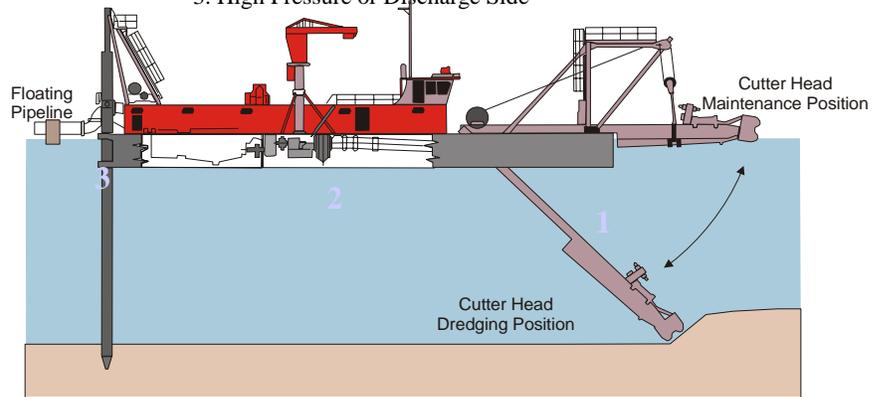
## Dipper Dredge



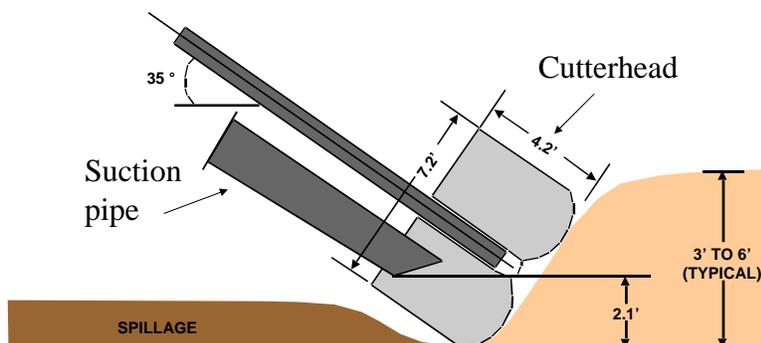
Source: Great Lakes Dredge and Dock Co.

# Components of Hydraulic Dredging

1. Low Pressure or Suction Side
2. Dredge Pump Operation
3. High Pressure or Discharge Side



# Bank Factor



# Hopper Dredge



Source: IHC Holland

# Bed levelers



Source: Bean Dredging



Source: Weeks Marine Inc..



Source: Great Lakes Dredge and Dock Co.