

## THE PROBLEMS



- 1). Clogged waterways
  - a). Logs from previous floods.
  - b). Trash buildup on these logs and brush.
- 2). Submerged snags
  - a). Logs from previous floods
- 3). Restricted drainage flows
  - a). Trees that have fallen in the water from land.
  - b). Trash buildup on bridges.
  - c). Live trees in waterways and drainage outlets.
- 4). Shoreline trash buildup
  - a). Household trash discarded by landowners
  - b). Washed up trash from swollen creeks.
- 5). Spillway snag and trash buildup
  - a). Down stream currents build up trash and trees on dams and spillways
- 6). Impeded navigation
  - a). Floating debris buildup in coves and channels
- 7). Flooding
  - a). Trees and trash buildup reduces flow and backs water into homes and Businesses.

## 2<sup>nd</sup> PROBLEM

- 1). Environmentally acceptable solutions
  - a). Noise
  - b). Needless destruction of habitat for access.
  - c). Water turbidity.
  - d). Silt runoff from disturbed soils.
- 2). Cost effective solutions
  - a). Budget cut backs prohibit costly previous attempts.
  - b). Previous operations were very labor and equipment intense.
  - c). Increased safety hazards with labor and chainsaws on the water.
  - d). Using equipment that is not designed for that type of operation.
- 3). Publicly acceptable solutions
  - a). Private property crossing for operations
  - b). Local political issues.
- 4). Time effective solutions.
  - a). Other operations were not volume practical.

## ADVANTAGES OF A WATER BASED OPERATION



- 1). Site access
  - a). Makes practically any project accessible.
- 2). Cost effectiveness
  - a). Six man operation instead of fourteen.
  - b). One barge getting more production than four.
  - c). Custom design for these type of operations.
- 3). Environmentally friendly.
  - a). Does not disturb the soil.
  - b). Can take only what is needed without destroying the rest.
  - c). Noise levels are substantially reduced from other operations.
- 4). Landowner acceptability
  - a). No intrusion of private property.
  - b). No disturbing the ground with need of restoration.
- 5). Public acceptability.
  - a). Low profile operation.
  - b). Quiet.
  - c). Environmentalists and politicians can agree upon operations.
- 6). Logistical advantages.
  - a). Simplicity with less equipment and labor.
  - b). Go where land base operations couldn't attempt.
- 7). Safety advantages
  - a). Two men on the water instead of ten.
  - b). Hydraulic saws instead of hand operated chain saws.
  - c). Barge designed for this type of operation with the stability to handle Large logs 360 degrees around.
  - d). No hands on work, all is done mechanically.
- 8). Reduced air quality issues (dust)
  - a). From water you are not disturbing the soil for it to blow like a land Base operation would create.
- 9). Reduced weather delays.
  - a). If the creeks are not flowing too strong you can be productive.
  - b). If shut down for rain you can be back working in sometimes hours Or minutes where land base could be down for 3 days.

## BARGE FEATURES

- 1). Shallow draft
  - a). 19" draft when empty.
  - b). 24" draft when loaded with 40 CY of trees and brush.
- 2). Superior maneuverability
  - a). Twin diesel engines.
- 3). Transportability.
  - a). 12 ft wide 36 ft long 9 ft tall makes it easily truck able in the US.
- 4). Customize construction.
  - a). Propellers in tunnels.



- b). Low center of gravity for stability.
  - c). Twin diesel propulsion.
  - d). Separate auxiliary engine for hydraulics.
  - e). Biodegradable hydraulic fluids.
  - f). Double hull between fuel and lubricants for O tolerance spills.
  - g). Keel cooled..
  - h). 40 CY heaped capacity hopper.
  - i). Spuds for anchoring.
  - j). Grapple arm with hydraulic chain saw.
  - k). Sonar equipped.
- 5). Working tools versatility.
  - a). Grapple /saw for tree removal.



- b). Mower for under brush mowing along shorelines and banks.
  - c). Rake for gathering debris.
  - d). Clamshell bucket for digging.
  - e). Rock grapple for riprap.
  - f). Removable tank in hopper for hydro mulch seeding or spraying.

- g). Removable tank in hopper for oil spill recovery with a skimmer.
- 6). Fuel efficiency.
  - a). Small diesel engines meeting current EPA standards.



- b). Four blade nibral propellers for maximum propulsion.
- 7). Low operational noise levels.
  - a). All machinery is below decks.
  - b). Mufflers on all engines.
- 8). Independent loading and unloading



- a). Hydraulic boom arm is mounted on the bow for ease of loading itself  
And unloading itself so a land base machine is not needed for unloading.
- 9). Low profile
  - a). Built low to the water for an 8 ft height clearance.
- 10). Design.
  - a). Designed by Excavation Technologies Inc.

## ADDITIONAL THINGS TO CONSIDER

- 1). Natural disaster cleanup possibilities.
  - a). Tropical storms and hurricanes can leave a devastating mess.
  - b). Flooding can create oil spills and hazardous conditions to be cleaned up.
- 2). Lakes, Rivers and dams.
  - a). Coves and shore lines in lakes are holding areas for upstream debris.
  - b). Rivers deposit debris and trees from hundreds of miles upstream.
  - c). Dams are the end of the line for trash, trees and debris
- 3). Reduced mobilization cost.
  - a). Many places along the coast we can drive the barge to the projects.
  - b). One truck can haul the entire barge anywhere in the USA.
- 4). Reduced project cost.
  - a). 2 man operation compared to 8 to 10 men in other comparable operations.
  - b). Reduced insurance liability exposures with only 2 men on the water.
- 5). Safety.
  - a). No hands on work, all done mechanically
  - b). Proven Barge stability under loads.
- 6). Time effectiveness.
  - a). Mobilization can be quick.
  - b). Project times are reduced due to custom design and simplicity.
- 7). Simplicity.
  - a). Nothing complicated with operations.
  - b). Deal with company owners that are hands on operators.
- 8). Positive impact on public relations.
  - a). Politicians can rally behind.
  - b). Positive public support.