Oil Spill Response Considerations & Realities

GOMOSES Conference

New Orleans, LA
February 2018

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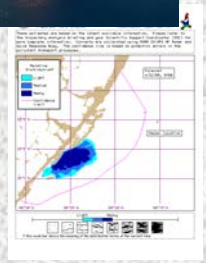
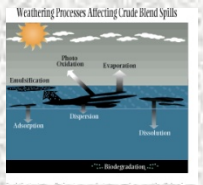
A FEW QUOTES FROM MY COLLEAGUES:

- *"I've never been to the same spill twice,"*
  Dr. Jacqueline Michel
- *"I reserve the right to be smarter later,"*
  Dr. Jerry Galt
- *"Its always bad when there is an oil spill, but if everyone is allowed to play the part they can play, it can be less bad,"*
  Debbie Payton
- *"Everybody's got a plan until they get hit,"*
  Mike Tyson

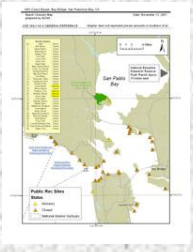
What got spilled?

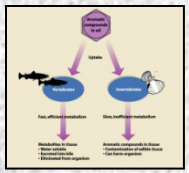




Where does it go?

Who does it hit?

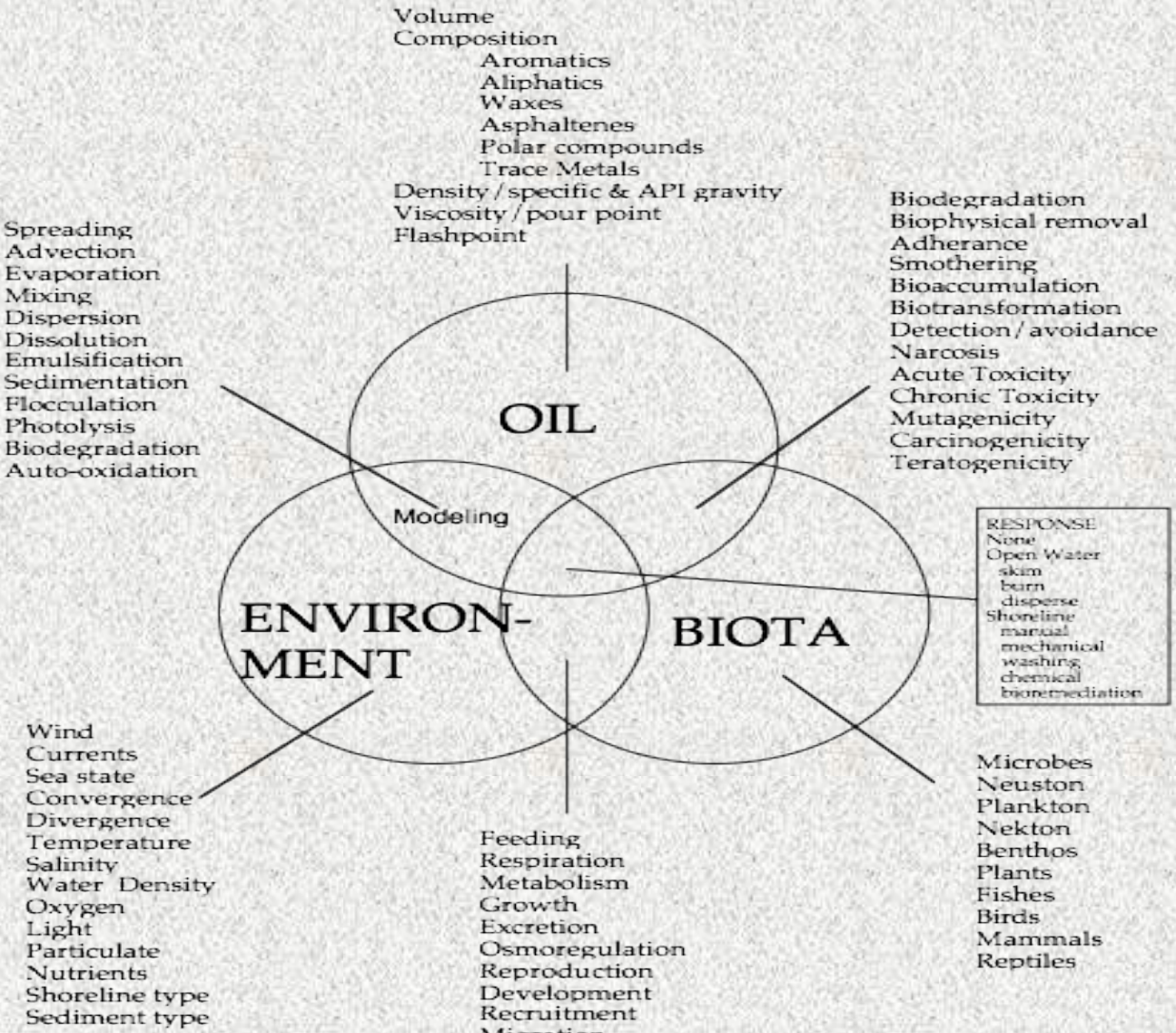




How does it hurt?

What can I do?

Transport, Fate, Transformation, Effects and Management of Oil Spills: An Overview



Dr. Alan Mearns

Oil Spill Response Options

Because spills happen ….

Begin with the end in mind!

Selection Guide for Oil Spill Applied Technologies

Volume I - Decision-Making

RRT III

RRT IV

Spill Response Options

Clean-up is probably the most important phase of "most" major oil spills

It is really what we are most prepared to do when a major spill occurs

The goal is to return the affected area back to its pre-spill condition

5 Basic Response Options

These do not remove oil; still in the environment

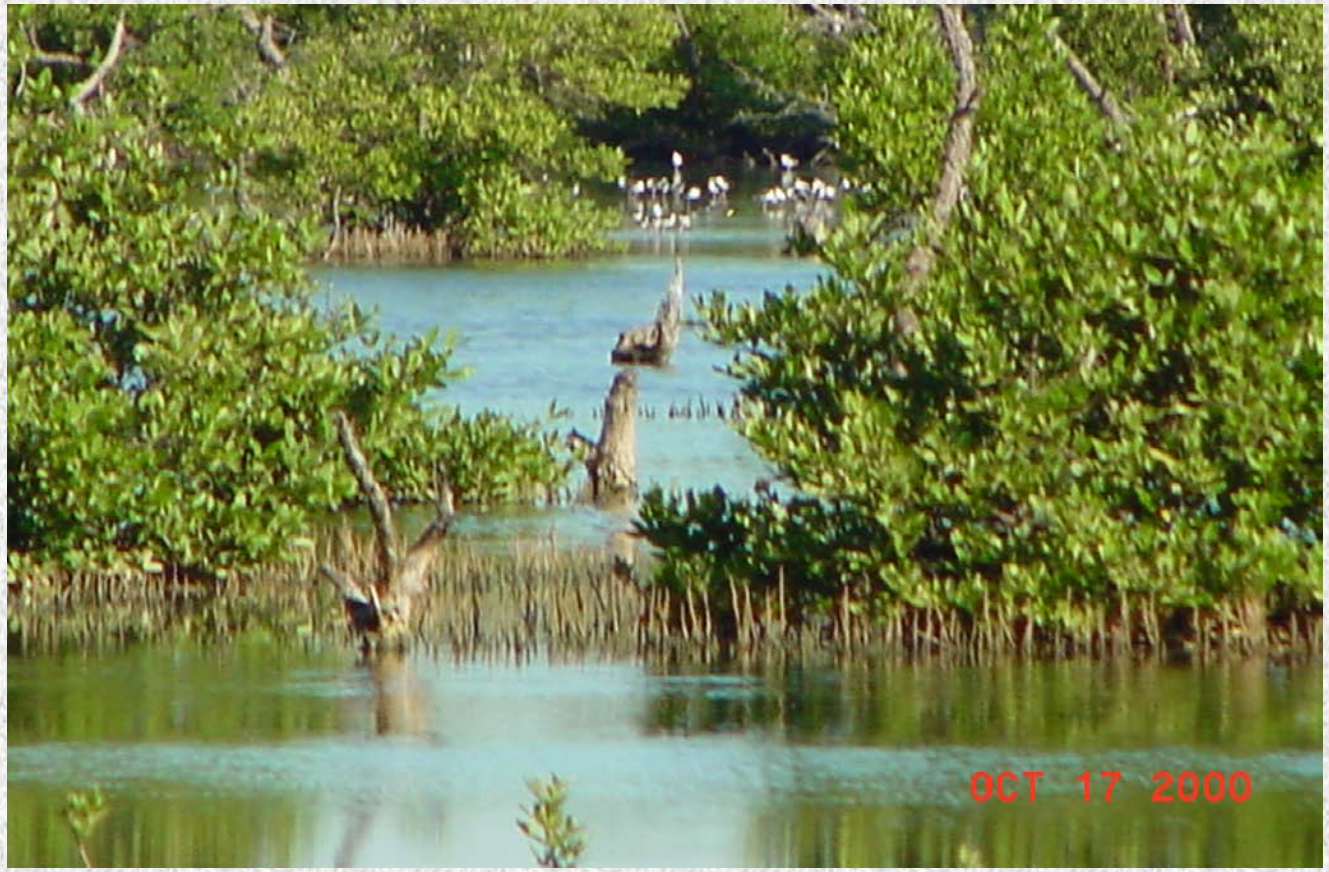
- Do nothing
- Burn In-Situ
- Treat Chemically

Removes oil from the environment

- Recover on water
- Clean-up on shore

There are many levels of clean-up activities, from the most aggressive techniques…

…to no action, where natural recovery is most effective



Do Nothing…

- Often imposed by environmental conditions, habitat, or nature of the oil spill

Portland, ME 10/06/96

07/23/97

10 months later

Burn In-Situ…

- Best way to "remove" large quantity of oil in short time
- Window of opportunity is short
- Can jeopardize lives and/or property
- Strong sentiment against causing air pollution
- Ordinances may prohibit burning oil in open air; permit may be required

Treat Chemically…

- Generally not used in freshwater
- Requires suitable conditions
- Window of opportunity may be short (i.e., dispersants)
- Some chemicals are inherently toxic to biota
- Some types of oil are not suited for chemical treatment
- Approval may be required by state and RRT

Recover On Water…

- Best chance to recover large quantities of oil if done quickly before oil spreads widely
- Window of opportunity is short (but longer than burning or chemical treatment)
- More efficient & cost effective than on-shore clean-up
- Removes oil from the environment

Cleanup On Shore…

- Oil spilled on the water usually ends up on shore sooner or later
- Oil collects in same spots as other water-transported debris
- Oil can be more easily removed from sand than other shoreline types
- Is very labor-intensive
- Usually requires considerable time
- Removes oil from the environment

Response Reality…

- Clean-up is often a COMBINATION of response options
- Most options have a number of alternative strategies
- Strategy used depends on a number of different factors
- Clean-up activities may cause additional environmental injury
- In spite of the best efforts, little oil of the total amount spilled may be recovered

Termination Of Clean-up

- Meeting Clean-up endpoints
- Decision to end clean-up is made on case-by-case basis
- Made by representatives from the Unified Command
- Decision to halt clean-up made when...

Clean-up effort is no longer commensurate with the degree of environmental improvement

...or...

- Environmental injury from clean-up operations is greater than the environmental injury caused by leaving the oil in place.

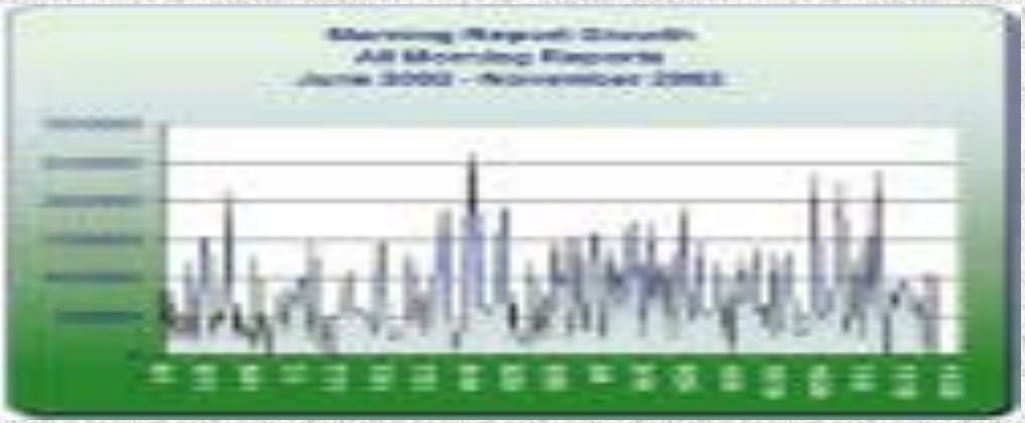
Generally, four guidelines drive clean-up endpoints

- *If it is recoverable, recover it*
- *If the threat continues, recover it*
- *If the oil is still mobile and can be refloated, recover it*
- *If the clean-up action doesn't cause more damage or delay recovery of the affected resource, recover it*

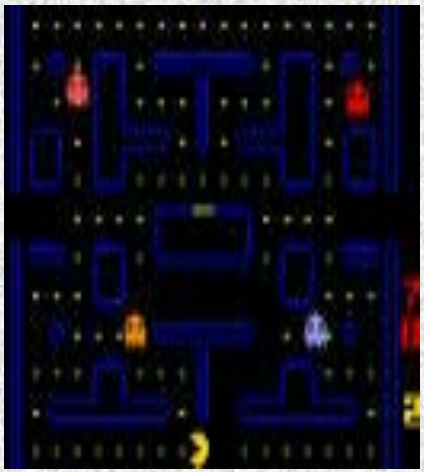
One more important clean-up driver

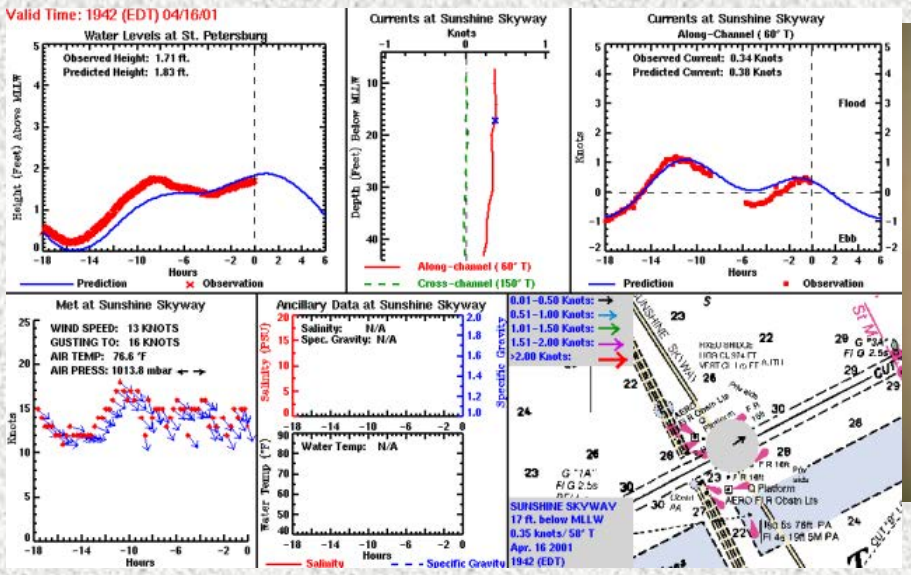
We must keep in mind that the most effective recovery of the resource should be the overriding guidance when choosing the best clean-up recommendations and clean-up endpoints.

(net environmental benefit-NEBA)



There is often heavy emphasis and demand for intensive clean-up as emanating from the belief that "technology" has a quick fix for the oil spill problem.





Believing in a magic technology that will undo all the bad things that may be caused by an oil spill comforts our nagging realization that there is a true cost to many of our modern conveniences such as our dependence on fossil fuels.

Many people demand at least a visual "clean-up" because they want to continue to believe that a complete clean-up is possible.

When we suggest clean-up approaches that may be more long term, or may leave some oil in the environment, they tend to be very unpopular.

We cater to this for a couple of reasons:

- **Its easy, especially if someone else is paying the bill, and**
- **Complete prevention is more difficult and will involve costs and painful choices.**

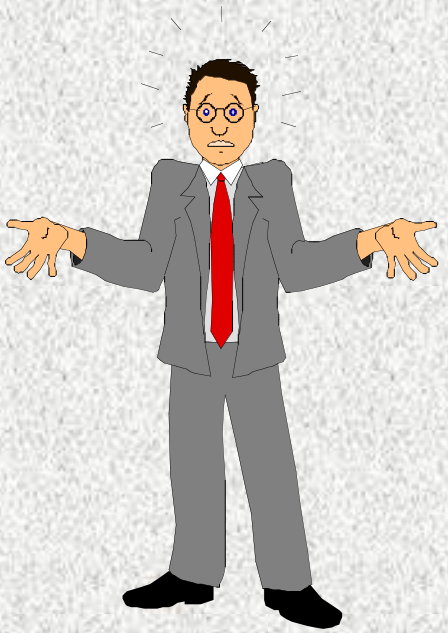
We continue to build on our knowledge of clean-up techniques and improve in the way we evaluate and choose methods as well as accept appropriate trade-offs.

We have learned that the least intrusive and destructive methods of clean-up are most often preferred – especially for the most sensitive resources.

We have learned that nature is "another tool" in our response tool bag.

We realize and understand that the impact of the clean-up itself adds to the impact to sensitive habitat and shorelines.

Do we believe that pre-planning will help us become more successful during a response?

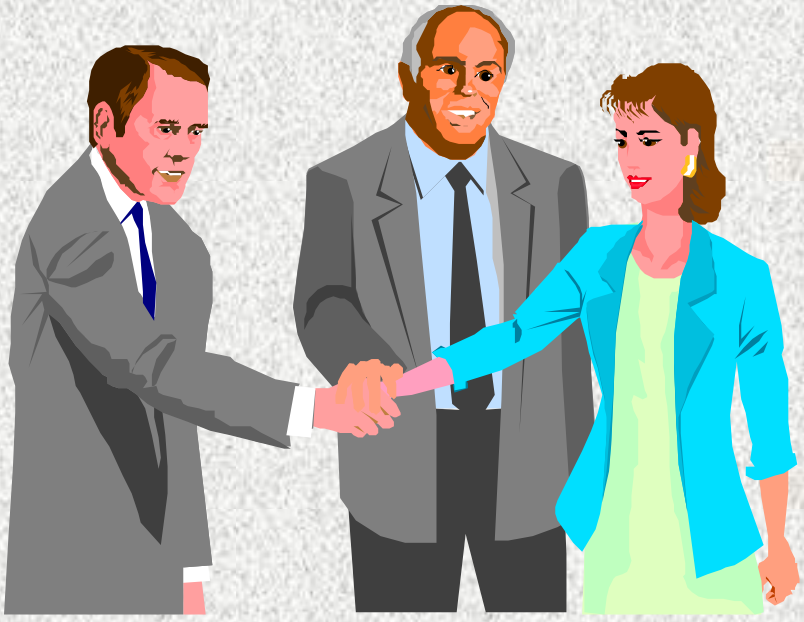


Pre-Event Planning vs Planning During the Event

- Presumably, there is a difference between a response where there has been effective pre-event planning and a response where all response efforts have to be invented during the emergency.

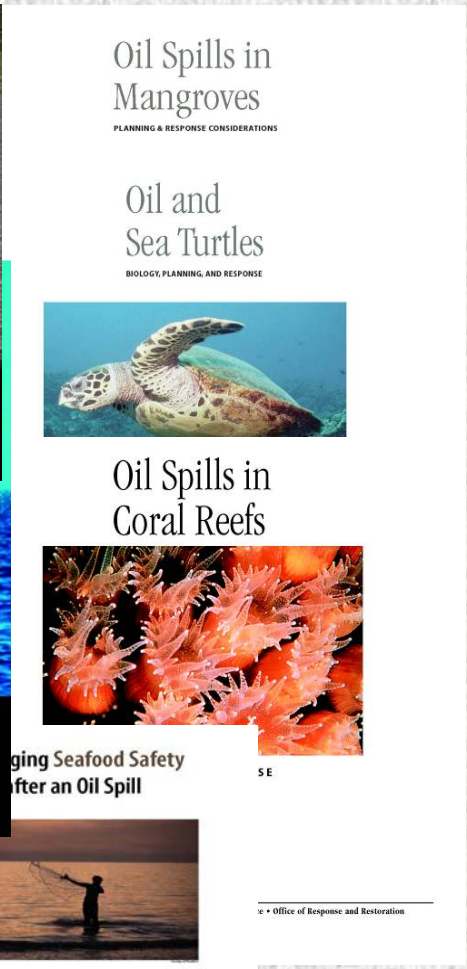
- The Penalty for failure of pre-planning will be some level of increased damage to habitat, more animals will be exposed to lethal and sub-lethal impacts, and the rehabilitation effort will be limited by a lack of resources, focus, and frustration.

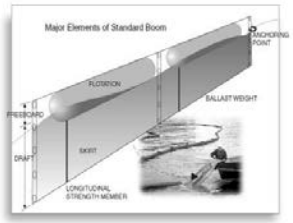
What is Success? "Best Response"



- # of projects completed?
- Time to complete projects?
- Restore economy?
- Support communities?
- # of birds protected?
- # of fish protected?
- Cost?
- Prevention of more major resource impact or loss?
- Happy resource managers?
- Restoration of impacts?
- Leave environment in as good or better condition than before response?
- Happy politicians?

Factsheets, manuals, job aids, software & more





American Petroleum Institute
National Oceanic and Atmospheric Administration
U.S. Coast Guard
U.S. Environmental Protection Agency

Questions?

Emergency Response Division "NOAA Hazmat"

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