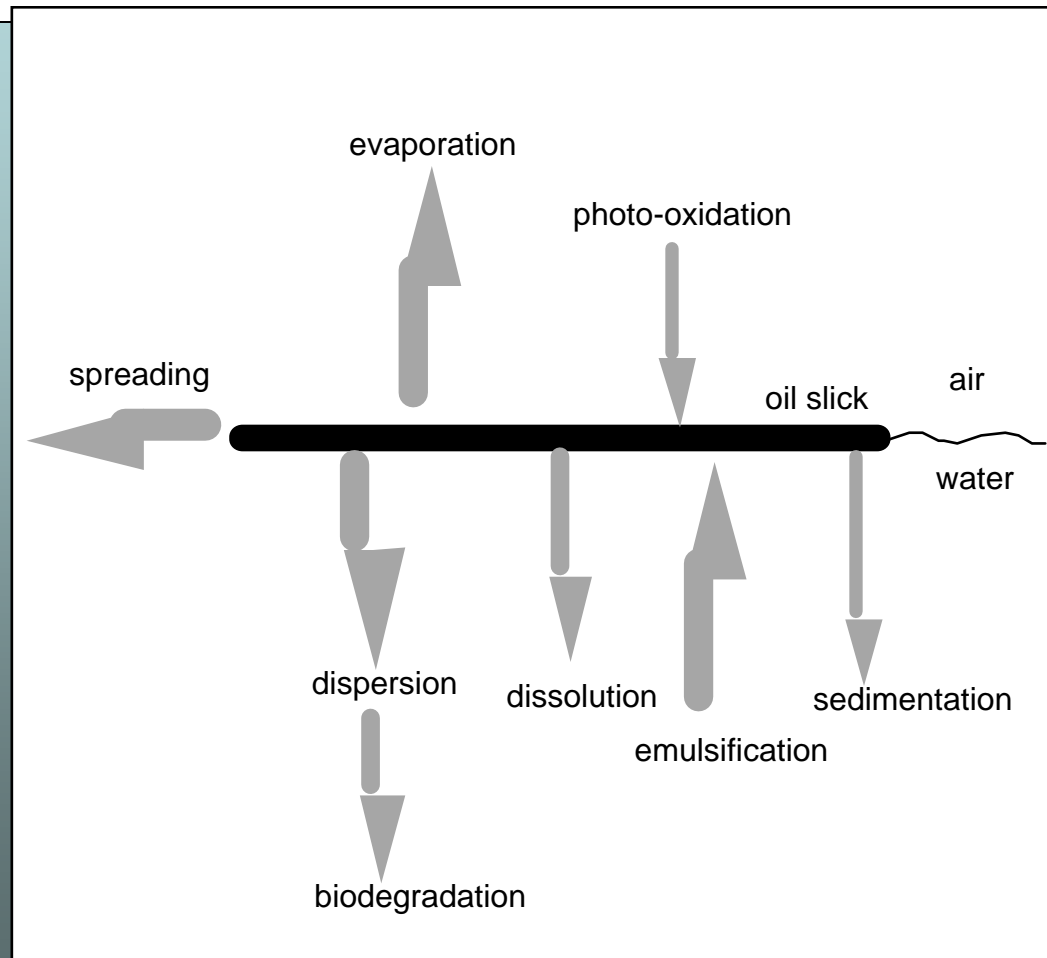


# Oil Fate and Behavior



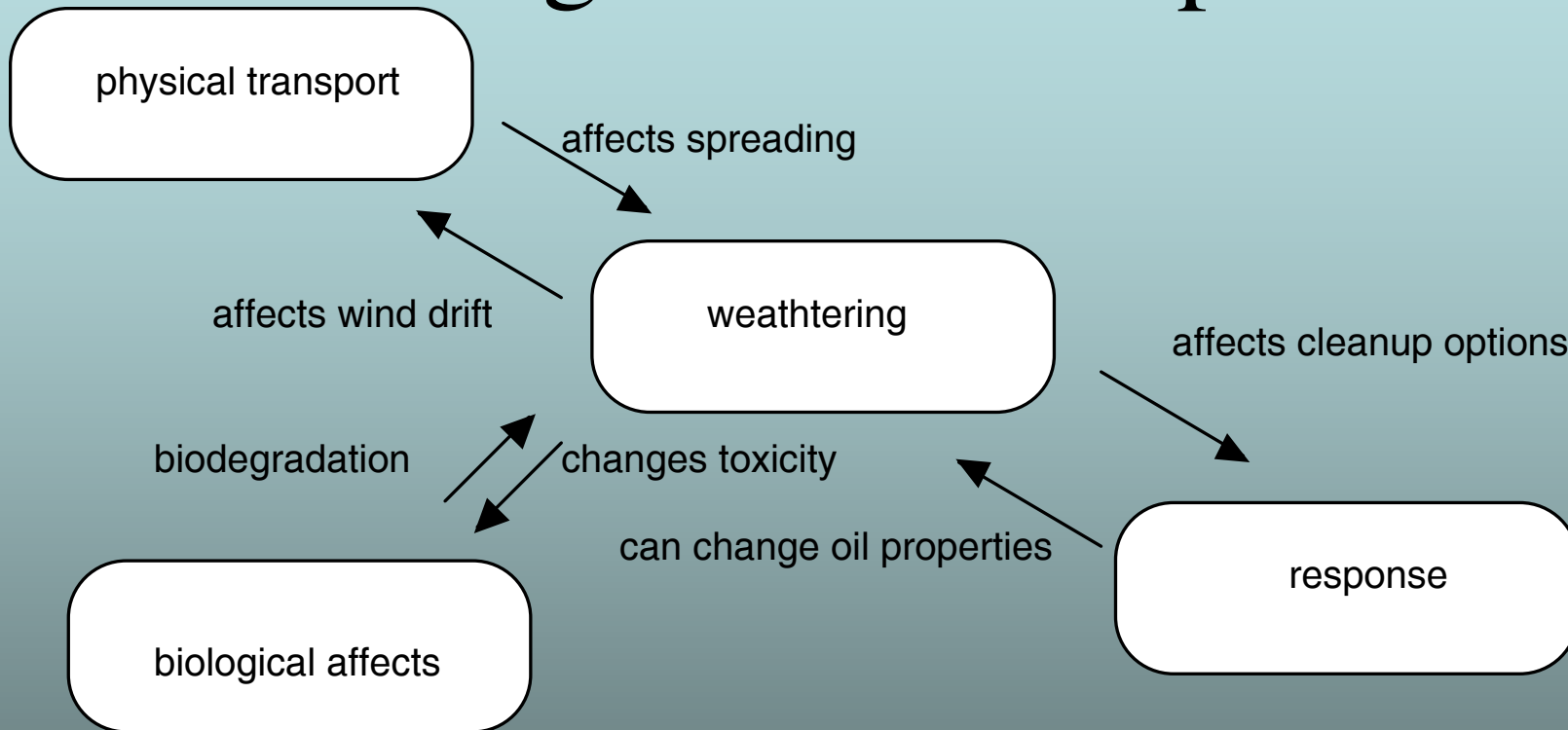
# Lots of processes



# Why fate is important to response

- Mass balance has response and damage assessment implications
- Viscosity and density affect cleanup options
- Hydrocarbon mix influences toxicity
- Oil distribution in or on water affects resource impact

# Linkage between topics



# Oil parameter categories

- Catalogued oil parameters
- Calculated spill properties
- Fate processes

# Oil catalogue parameters

ADIOS OIL LIBRARY library version 2.0 12/3/04

Name **ABU SAFAH** Degrees **F**

**General Info** **Properties** **Distillation** **More Properties**

<b>Flash Point</b> --	<b>Metals (ppm)</b>
<b>Adhesion</b> --	<b>Nickel</b> -- <b>Vanadium</b> --
<b>Maximum Water Content of the Emulsion</b> --	<b>Group Analysis (weight %)</b>
<b>Emulsification Constant</b> --	<b>Aromatics</b> -- <b>Polars</b> --
<b>Interfacial Tension (Dynes/cm)</b>	<b>Asphaltenes</b> -- <b>Resins</b> --
<b>Oil-Water</b> --	<b>Benzene</b> -- <b>Saturates</b> --
<b>Oil-Seawater</b> --	<b>Naphthenes</b> -- <b>Sulfur</b> --
	<b>Paraffins</b> -- <b>Wax Content</b> --

? Done

# Calculated properties

## **Good handle**

- Density
- Viscosity

## **Bad handle**

- Water content
- Oil droplet size distribution

# Estimated processes

## **Good handle**

- evaporation from 'thin films'
- slick drift

## **Bad handle**

- dispersion
- Langmuir cells
- sedimentation
- emulsification
- photo-oxidation
- spreading



# Potential improvements

- Dispersion -Katz and Reed
- Sedimentation - Khelifa
- oil-in-ice
- biodegradation

# Providing useful answers

Oil Name = ABU SAFRAH  
API = 28.6  
Wind Speed = constant at 12 mph  
Water Temperature = 66 deg F  
Time of Initial Release = September 10, 1400 hours

Pour Point = 19 deg F  
Wave Height = computed from winds

---

### 3. Spill Status (Estimated, in Barrels)

	This Operational Period (Since Last Report)	Total
Volume Spilled	1,000	1,000
Mass Balance / Oil Budget		
Recovered Oil	0	0
Evaporation	269	269
Natural Dispersion	6	6
Chemical Dispersion	0	0
Burned	0	0
Floating, Contained	not estimated	not estimated
Floating, Uncontained	681	681
Onshore	44	44
Total spilled product accounted for:		1,000