# Response to Non-Floating Oils in California

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**Prevention First – September 26, 2018**

# A special meeting of the TAC **November 15, 2017**

- TAC members
- USCG
- NOAA
- EPA
- CCC
- CEC
- OSPR
- BCDC
- T&T Marine Salvage
- SF Baykeeper

# SPEAKERS:

- **Gordan Schremp**, CA Energy Commission
- **Jordan Stout**, National Oceanic and Atmospheric Administration (NOAA)
- **Chris Barker**, NOAA
- **Jacqui Michel**, Research Planning, Inc.
- **Kathleen Jennings**, Office of Spill Prevention and Response (OSPR)
- **April DaSilva**, OSPR
- **Kurt Hansen**, US Coast Guard
- **Jim Elliott**, T&T Marine Salvage

# QUESTIONS:

- What might be spilled?
- Where will it go?
- What might get hit?
- How will it hurt?
- What can we do about it?

# What might be spilled?

- Heavy oils ARE transported within CA.
- Tracking them is difficult.
- Heavy crudes are mixed into *blends*.
- Light oils can become NFO.


# Where will it go?

- Modeling NFOs is much more difficult.
- Fate and Transport
  - Density, viscosity, and specific gravity
  - Droplet size
  - Weathering
  - Evaporation and dissolution
  - Currents and turbulence

# Where will it go?

Detecting submerged oil:

- Acoustic sensors
- Fluorometry
- Optical scattering
- Induced polarization
- Water column sampling

# Where will it go?

Detecting sunken oil:

- Sonar
- Visualization
- Sorbents
- Bottom Sampling
- Underwater Laser Fluorescence
- Divers

# What will it hit?

- Microhabitats
  - Riffles
  - Pools
- Highest risk
  - Demersal fishes
  - Benthic organisms
- Mitigate impacts of upstream ops

# How will it hurt?

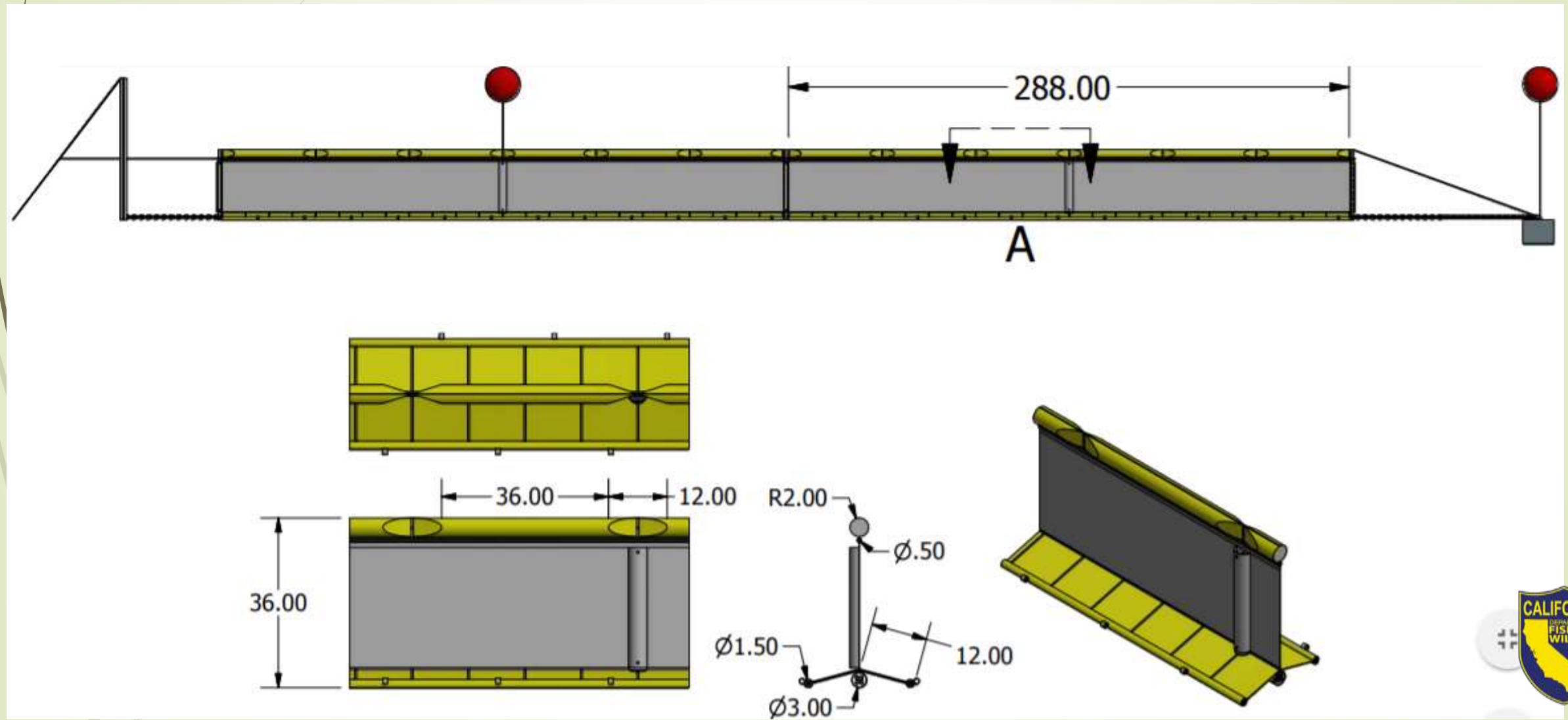
- Chronic
  - Detection and recovery are difficult.
  - Weathering is slower, increasing persistence.
- Acute
  - Smothering
  - Coating

# What can we do about it?

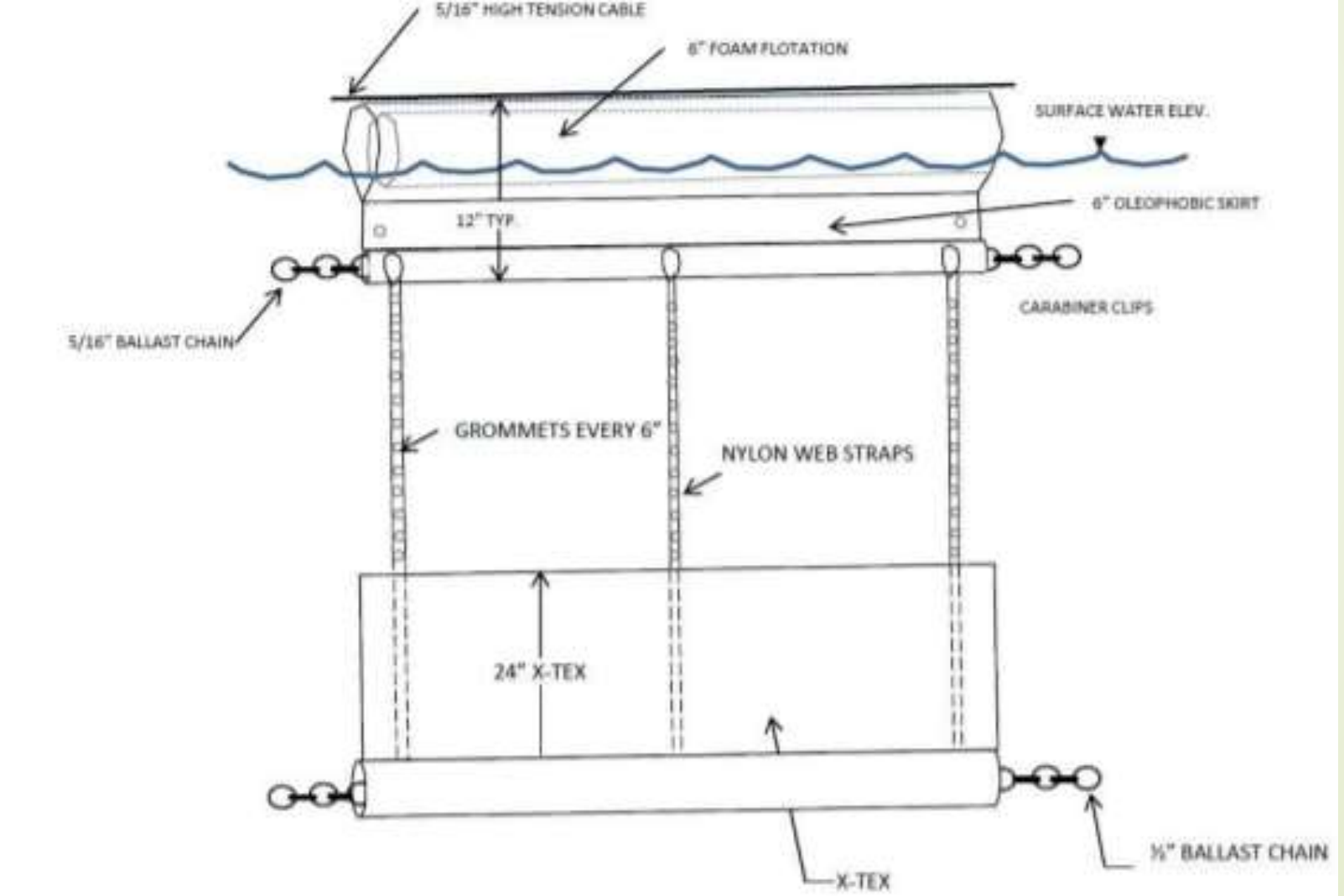
Containment

- Bottom-half curtain for shallow depths
- Full-height curtain for low energy environments
- Bottom filter fence
- Berms and trenching
- Natural collection areas

# Bottom Half Curtain (shallow depths)



# Bottom Half Curtain



# Bottom Filter Fence

# What can we do about it?

Recovery

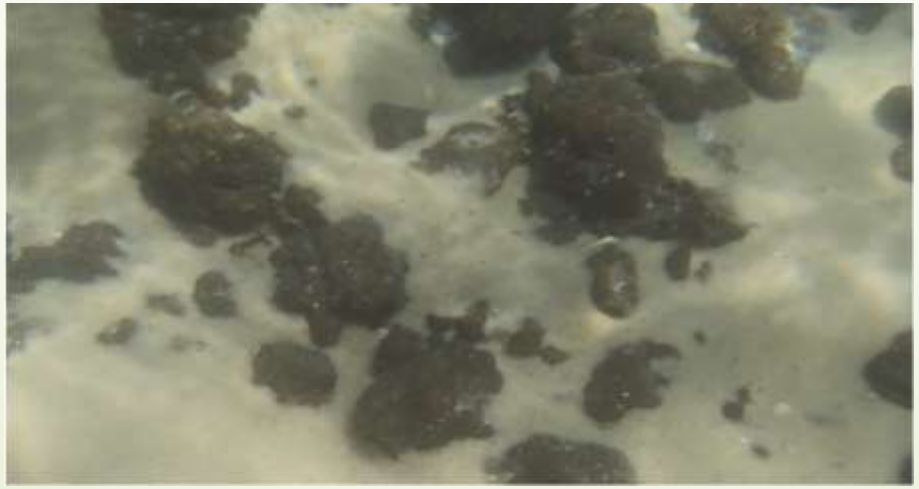
- Suction dredges (≤ 40’ depth)
- Excavators (≤ 20’ depth)
- Manual recovery
- Refloating – agitation or air bubbles

Other limitations

- Decanting
- Waste Management
- Time

# CONCLUSIONS

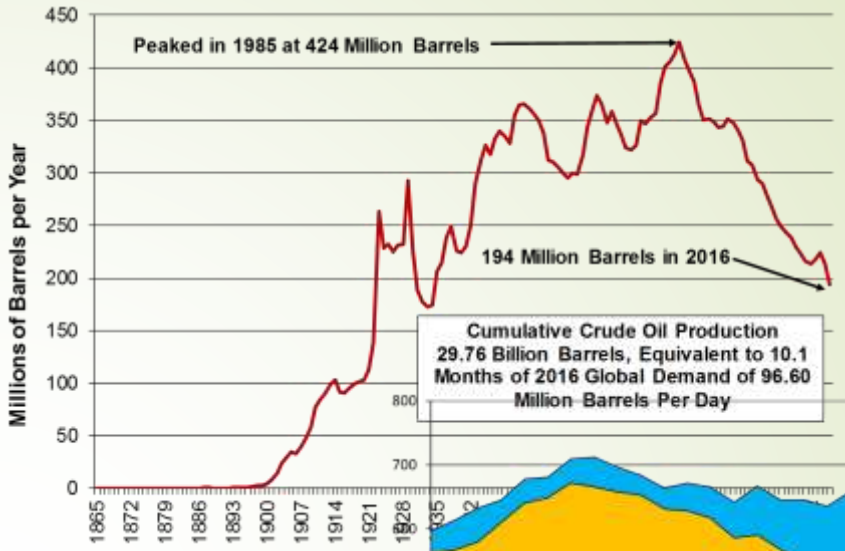
- NFO spills are more challenging than floating spills.
- NFO spills are a low risk.
- There is room for improvement.

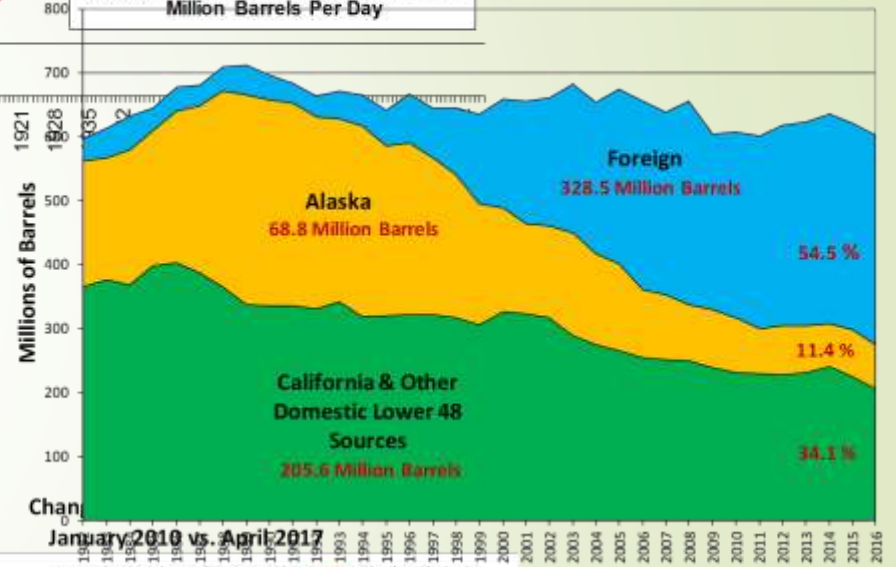


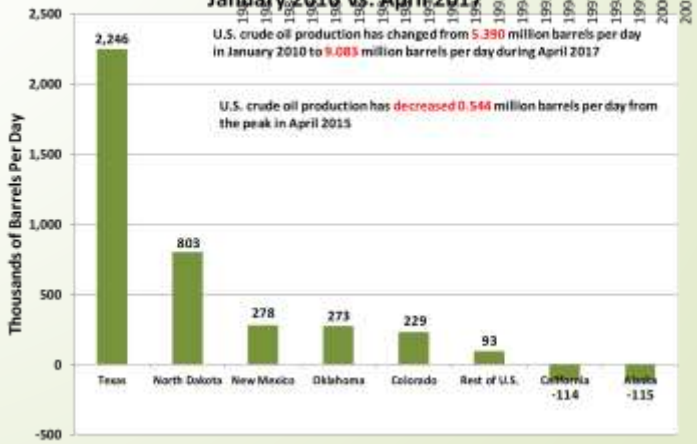
# CONCLUSIONS

What we CAN do:

- Tighter regulations
- Improved shipment data
- Responder training
- Response exercises.



# CONCLUSIONS

Data gaps

- Few spill responses to draw information from
- Chemical assays not immediately available
- Highest risk locations - planning

# MORE INFORMATION

https://www.wildlife.ca.gov/OSPR/Public-Meetings/Technical-Advisory-Committee/Non-Floating-Oils

AGENDA – links to PowerPoint presentations

SUMMARY REPORT – one-page summaries

WORKSHOP VIDEOS – link to YouTube