

Applied Response Technologies (ARTs)

Use in California

Jordan Stout

NOAA Emergency Response Division

Ellen Faurot-Daniels

OSPR Response Support Unit

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Overview

- ◎ Types of ARTs
- ◎ Regulations & policies for ART use
- ◎ Recent approvals in CA
- ◎ ARTs in a post-Deepwater Horizon world

Types of ARTs

1. *In-situ* Burn:

- ⦿ On land



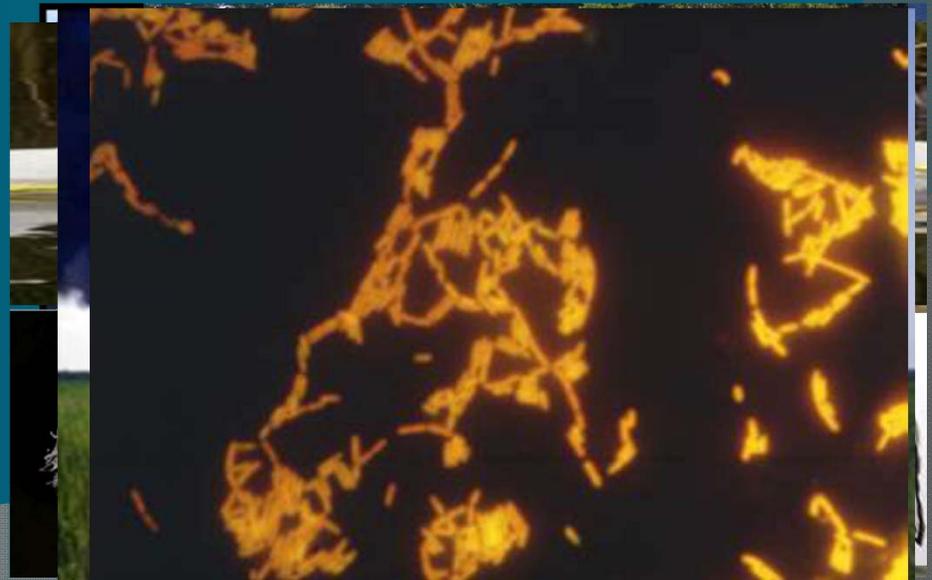
- ⦿ On water



Types of ARTs

2. Oil spill cleanup agents (OSCOs)

- ◎ Dispersants
- ◎ Surface washing agents
- ◎ Surface collecting agents (solidifiers & elasticity modifiers)
- ◎ Burning agents
- ◎ Bioremediants
- ◎ Sorbents
- ◎ Other OSCOs



Bioremediants

- ⦿ May involve addition of microbes, nutrients and/or oxygen
- ⦿ Good for sensitive and hard-to-treat (but otherwise stable) areas
- ⦿ Often not needed if natural processes are sufficient
- ⦿ Not an immediate response tool

Sorbents

- ⦿ May be synthetic, mineral or organic
- ⦿ Not all “natural” components are benign
 - ⦿ Peat moss can change pH of shallow receiving water
 - ⦿ Hay & other grass can carry non-native seed
 - ⦿ Mineral-based products, hay, straw & hair can sink (sinking agents are specifically prohibited)
 - ⦿ Particulates that break free can be consumed by wildlife

Other OSCAs

OSCAs not being discussed today:

- ◎ Emulsion breakers
- ◎ Oil spreaders
- ◎ Oil herders
- ◎ Other OSCAs not yet available and/or approved for use...

ART use

- ◎ National Contingency Plan (NCP), Subpart J (40 CFR 300.900) – All OSCAs must be either listed by EPA on the Product Schedule or exempted before use in a spill response. EPA gives a categorical exemption to sorbents.
- ◎ CA Government Code Section 8670.13.1 – All OSCAs must be licensed by OSPR before use in/on/near state waters (fresh or marine). No categorical exemption for sorbents.
- ◎ Regional Contingency Plan for RRT-9 – Policy & guidance to FOSCs for use of any ART (ISB or OSCA).

Recent ART approvals in CA

- ◎ *M/V COSCO BUSAN* (2007) – Shoreline cleaners for SF Bay shoreline
- ◎ Navy Region Southwest (2007) – Solidifier approval for pilot study
- ◎ *M/V DUBIA STAR* (2009) – Shoreline cleaner for vessel decontamination
- ◎ *M/V DA TENG* (2010) – Shoreline cleaner for vessel decontamination
- ◎ Lake Tahoe (2010) – Limited pre-approval to FOSCs of solidifier (sock & boom)
- ◎ Logging truck rollover (2011) – Shoreline cleaner for American River shoreline

Post-Deepwater research avenues & partners

NOAA / CRRC:

- Mostly dispersant & Gulf-related
- Other agencies, countries, industry & academia
- Focused on subsea, arctic
- Mostly dispersant, but interesting work in continuous flow tanks
- New dispersant formulas (e.g., gels, subsea, “non-toxic”)
- Oil herders & spreaders
- A little work on fire boom (for ISB) that can work in higher sea states

Post-Deepwater Horizon dispersant questions & context

- Most are focused on Gulf species & ecosystems
- Fate & effects of Corexit components
- Surface & subsea applications
- Fate of mid-water plume
- Did coastal environments and species truly benefit?
- How did other response decisions complement or confound?
- Multi-generation and/or sublethal effects (e.g., genotoxicity)
- Human health & safety
- Industry work on subsea and cold-water formulas, gel dispersants

The greatest need...

Risk Communication !!!

Further dispersant work in California?

- Narcotic effects of dissolved oil & dispersed oil fractions on abalone (spawning, foraging, predator avoidance)
- Effects (lethal, sublethal) on sexually mature Dungeness crab
- Effects on other endemic species (especially invertebrates & small fish) of concern, and as surrogates
- Continue/complete research on dispersant (as overspray) and dispersed oil effects on fur & feathers
- Other dispersant formulas
- More, and more specific, trade-off analyses for certain geographies

Further OSCA work?

Solidifiers & sorbents (loose/broadcast)

- ⦿ Ingestion potential for wildlife?
- ⦿ Ingestion concerns due to physical blockage?

Bioremediants

- ⦿ Treatment of recovered oily water waste?
- ⦿ Oiled wildlife rehab pool oil (from fish-feeding) treatment?

Bio-enzymatic cleaners

- ⦿ Rock, cobble and other hard surfaces?
- ⦿ Alternative to shoreline cleaners in some situations?

Surface washing agents

- ⦿ In-situ sand-cleaning systems?

And THEN ...

Similar to all the effort put into dispersants:

- ◎ Expand/increase access to best available ART science
- ◎ Conduct Net Environmental Benefit Analyses on other OSCAs and their uses
- ◎ Adapt our (USCG, EPA, OSPR, RRT) policies to reflect new OSCA science and best achievable protection

Questions?

For more info:

Jordan Stout

Jordan.stout@noaa.gov

510-437-5344 (office)

206-321-3320 (cell)

Ellen Faurot-Daniels

efaurotd@ospr.dfg.ca.gov

831-649-2888 (office)

831-233-0723 (cell)