

주제발표 3

**미국 대규모 유류유출사고에  
따른 정부정책 및 환경보건지식**  
: 미국 엑손발데즈호 및 멕시코만 사례

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# Tale of Two Oil Disasters

Riki Ott, PhD

15 Sept. 2017

10-year memorial of  
*Hebei Spirit* Oil Spill

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a project of Earth  
Island Institute



**1989**



1989 Dave Janka

## Questions

- What have we learned about harm from oil?
- How can we mitigate harm in future spills?

## BP Deepwater Horizon

- 6,300 tons dispersants
- tons of oil in air
- millions of people exposed
- exposures extended

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**2010**



## Disaster response comparison



### Health Hazard Evaluation

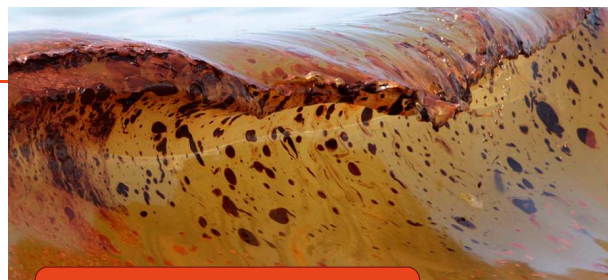
- ✧ Illnesses: natural causes
- ✧ No follow up

### Hazardous waste work

- ✧ BP downgraded

### Inadequate training

- ✧ EV – 4 hours (std. 40)
- ✧ BP – initially 4 hours



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2010 Rip Kirby



water safe and  
beaches open...  
**swim at own risk**



2010 Riki Ott

**public misinformed**



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Photos: 2010 Rip Kirby

**oil + dispersant = DEADLY**

mutagens • carcinogens  
teratogens • neurotoxins  
hemolysis • systemic poisons



### Dispersants

- ✧ target same organs as oil
- ✧ facilitate movement of oil into bodies
- ✧ an acceptable human health risk trade-off?

NOAA et al., 2012, Dispersant Initiative Report  
[https://crrc.unh.edu/sites/crrc.unh.edu/files/media/docs/Workshops/dispersant\\_future\\_11/Dispersant\\_Initiative\\_FINALREPORT.pdf](https://crrc.unh.edu/sites/crrc.unh.edu/files/media/docs/Workshops/dispersant_future_11/Dispersant_Initiative_FINALREPORT.pdf)

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## from Gulf Stream into Blood Stream



### Volatile solvents profile, whole blood – MetaMetrix

- ✧ more oil in blood than 95% to 100% of the U.S. population

### Medical community

- ✧ treated people for biological agents, NOT chemical agents
- ✧ NO written diagnosis of chemical illness

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## common symptoms for many causes

Antigen (foreign substance)

A	<b>Reaction!</b>	B	C
Allergen (natural)		Non-allergen (natural)	Non-allergen (man-made)
<ul style="list-style-type: none"> <li>• food</li> <li>• pollen</li> <li>• plants</li> <li>• feathers</li> <li>• pet dander</li> <li>• smoke</li> <li>• bee &amp; snake venom</li> </ul>	<ul style="list-style-type: none"> <li>• Cough</li> <li>• Cold/flu</li> <li>• Eye &amp; nose irritation</li> <li>• Sore throat</li> <li>• Headache</li> <li>• Dizziness</li> <li>• Skin rash</li> </ul>	<ul style="list-style-type: none"> <li>• bacteria</li> <li>• parasites</li> <li>• viruses</li> <li>• mold spores (fungi)</li> </ul>	<ul style="list-style-type: none"> <li>• oil-chemical pollutants</li> <li>• transplanted tissue cells</li> <li>• blood transfusions</li> <li>• pharmaceutical drugs</li> </ul>

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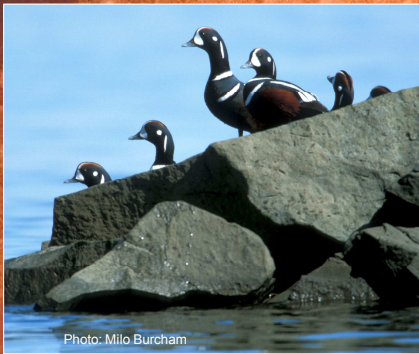


Photo: Milo Burcham

## Ecosystem lessons

- ◇ embryo toxicity
- ◇
- ◇
- ◇
- ◇
- ◇




2009 Dave Janka



Photo: Milo Burcham

Photo: Prince William Sound Aquaculture Corporation


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Coastal Care

## Ecosystem lessons

- ◇ marine snow moves oil down
- ◇
- ◇
- ◇
- ◇
- ◇



Photos: NOAA



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## collaborating evidence of harm

**< 1–20 ppb PAHs**  
can cause harm

- ✧ 1,000 times lower than current laws
- ✧ laws do not protect from oil exposures

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## community harm... & healing

### Financial stress & untreated trauma

- ✧ Suicides
- ✧ Domestic violence
- ✧ Divorces
- ✧ Substance abuse

## 1993 – Fishermen's blockade of Valdez Narrows



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## mitigation: do NO more harm

### Ecosystem harm

- ✧ NO toxic dispersants or agents
- ✧ funds for pre- & post-studies

### Human harm

- ✧ evidence-based research
- ✧ evacuate coastal populations
- ✧ community right-to-know
- ✧ treat contract workers like employees

### Community harm

- ✧ support Peer Listening Circles
- ✧ fund through lease sales



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## selected resources

Government Accountability Project (GAP), 2013, *Deadly Dispersants* and 2015 Addendum.

<http://whistleblower.org/gulftruth>

Kirby, 2012, Persistency of PAHs.

[http://surfrider.org/images/uploads/publications/Corexit\\_Connections.pdf](http://surfrider.org/images/uploads/publications/Corexit_Connections.pdf)

Litz J et al., 2014, Review of cetacean UME. [http://www.int-res.com/articles/dao\\_oa/d112p161.pdf](http://www.int-res.com/articles/dao_oa/d112p161.pdf)

NIOSH, 1991, EVOS Health Hazard Evaluation (HHE); 2011, BP Deepwater Horizon HHE.

<https://www.cdc.gov/niosh/hhe/reports/pdfs/1989-0200-2111.pdf>

<https://www.cdc.gov/niosh/hhe/reports/pdfs/2010-0115-0129-3138.pdf>

NOAA et al., 2012, Dispersant Initiative Report.

[https://crrc.unh.edu/sites/crrc.unh.edu/files/media/docs/Workshops/dispersant\\_future\\_11/Dispersant\\_Initiative\\_FINALREPORT.pdf](https://crrc.unh.edu/sites/crrc.unh.edu/files/media/docs/Workshops/dispersant_future_11/Dispersant_Initiative_FINALREPORT.pdf)

Peterson et al., 2003, Long-term Ecosystem Responses to EVOS.

[https://www.afsc.noaa.gov/publications/misc\\_pdf/peterson.pdf](https://www.afsc.noaa.gov/publications/misc_pdf/peterson.pdf)

Picou & PWSRCAC, 2011, Peer Listening Training Manual GOM.

<http://www.stevenpicou.com/pdfs/peer-listener-training-manual-gulf-of-mexico.pdf?id=593>

PWS RCAC, 2004, Coping with technological disasters. <http://www.pwsrca.org/programs/oil-spill-prevention/coping-with-technological-disasters/>

Schwacke LH et al., 2014, Dolphins in Barataria Bay.

<http://pubs.acs.org/doi/full/10.1021/es403610f#showRef>

Short, 2017, Advances in understanding accidental oil spills in U.S.

<https://www.ncbi.nlm.nih.gov/pubmed/28695263>

Short et al., 2017, 2010 Gulf menhaden and BP disaster.

<https://link.springer.com/content/pdf/10.1007%2Fs00244-017-0374-0.pdf>

Venn-Watson S et al., 2015, Dolphin UME. doi:10.1371/journal.pone.0117248

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## environmental health literacy



2015 © Julie Dermansky

[www.ALERTproject.org](http://www.ALERTproject.org)

### TOXIC TRESPASS program

- ✧ trainer's manual
- ✧ learning guide



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## public data: exposure app



<http://theexposureapp.com>  
[www.theRisingFilm.tv](http://www.theRisingFilm.tv)

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## Respirator statements

- Unified command is not providing respirators for beach clean-up teams or near-shore water operations.
- Air sampling offshore has shown no indications of volatile organic compounds (VOCs) or other contaminants that require respirators in
- If you wear a respirator, your **job** will be **terminated**.



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