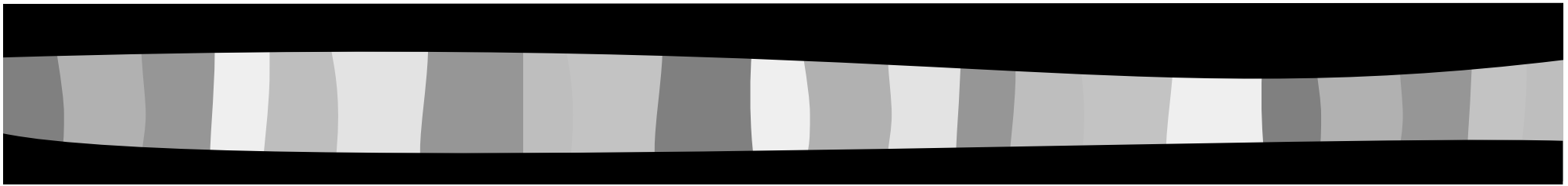


# Oil-Hungry Microbes



A lesson in bioremediation by  
Brad Cranston  
RET 2006  
Carlisle Public Schools

QuickTime™ and a  
decompressor  
needed to see this picture.



## Why consider bioremediation?

- There are 36,000 hazardous waste sites in the US. Treatment will cost about \$1,000 per person.
- Oil spills are a major concern. They are extremely damaging to the environment, costly to clean and as the world uses greater and great quantities, they will be even more damaging.
- Mechanical methods of cleanup, such as skimming and containment, 1) treat no more than 30% of the spill, 2) are limited by factors such as weather and terrain and 3) are extremely costly.
- Bioremediation -- using living organisms that eat pollution to treat contaminated areas -- is a low cost and environmentally-friendly solution.



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## Teaching 80 middle school kids something about bioremediation

- Introductory PowerPoint slides
  - Exxon Valdez video segment (teachsdomain.org)
  - Damage to environment
  - Petrophiles
- Lab activity - students will...
  - Design and perform an experiment to test effectiveness of a bacterial and fungal strain of oil-eating microbes on treating an "ocean" and "shoreline" spill
  - Monitor the degradation over several days
  - Be assessed by reporting their results and answering analysis questions
  - Pool class data and discuss results as a group



## Acknowledgements

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## Pedagogy... Yeah, I said it.

### Goals...

- Examine physical characteristics of oil before/after treatment
- Compare oil-degrading ability of a bacteria and fungal strain
- Compare bioremediation of "ocean" and "shoreline" spills
- Compare pros and cons of bioremediation and mechanical methods of cleanup
- Learn about short and long-term consequences of oil spills on aquatic environment