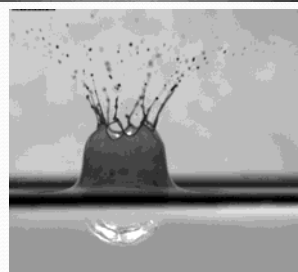
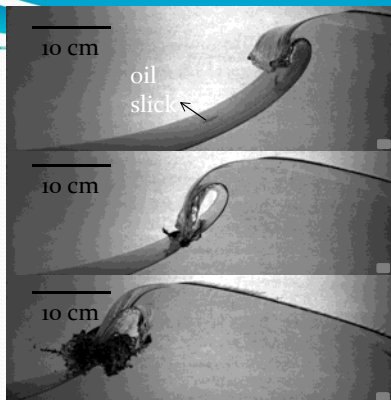


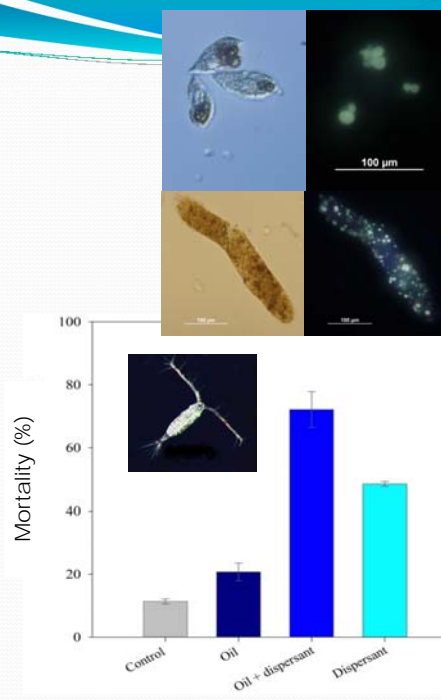
Physical processes enhance breakup of oil treated with dispersants

- surface waves and rain drops striking oil slicks produce micron sized droplets in air and water
- Biological activity such as feeding currents and swimming behavior also break up dispersant treated oil
- Aerosols may be health hazard to humans and wildlife



Dispersed oil: Protozoa and copepods ingest small oil droplets

- Dispersed oil in size range of food for zooplankton, and readily consumed by protozoa and metazoans
- Ingested toxic PAHs readily absorbed and concentrated in crustacean zooplankton
- Volume of oil where toxic thresholds exceeded relatively small, and zooplankton reproduce rapidly



Smaller drops rise slowly and degrade faster

- More surface area for loss of soluble compounds
- More surface area for bacterial colonization – studies of chemotaxis of oil degrading bacteria using microfluidics and holography
- Bacterial films modify surficial properties of oil droplets

