



BLACK

THE LEGACY OF THE EXXON VALDEZ

WAVE

A DOCUMENTARY FILM OF THE TWENTY-YEAR STRUGGLE FOR JUSTICE
FOLLOWING THE EXXON VALDEZ OIL SPILL IN PRINCE WILLIAM SOUND

Teaching Guide

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for Ultimate Civics, a project of Earth Island Institute

Distributed by: Bullfrog Films, Oley, PA 19547

Available in two versions: 99 minutes and 52 minutes on same DVD

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Please make as many copies of the
Student Handout as you need

INTRODUCTION & CURRICULUM

BLACK WAVE is a general audience, feature documentary film – the story of the *Exxon Valdez* oil spill told from the perspective of people living in the community of Cordova, Alaska, a small coastal fishing town in Prince William Sound. The spill caused a delayed collapse of the sound’s ecosystem and the town’s economy. Filmed on location in Alaska and other locations as the story ripples out (Washington, DC; Dallas, TX; etc.), **BLACK WAVE** weaves personal stories of fishing families and sick cleanup workers with parallel explanations by wildlife biologists, chemists, sociologists, and lawyers. Ultimately, the Cordova people warn this spill was not only an environmental disaster – it was a democracy crisis with broad ramifications for all Americans. Educators particularly interested in the parallel story of sick humans and sick wildlife, scientific advances, and industry spin are recommended to use the longer version of this film. For grades 9 through 12, the following applications are suggested (correlates with Current Knowledge Standards):

Sciences: Life Sciences & Nature of Science

- Introduction to Prince William Sound as healthy marine ecosystem, food web relationships, Pacific salmon life cycles
- Introduction to ecotoxicology (nature and effect of poisons [crude oil] on marine ecosystem)
- Scientists learn oil is more toxic to life than previously thought, advancing science (paradigm shift in oil eco-toxicology: understanding cause and pathways of harm from cellular level to population level)
- Scientists disagree over oil damage to Prince William Sound, introducing concepts of scientific controversy and abuse of science

Economics

- Cordova people learn that the legal system cannot make their damaged community “whole” (as Exxon promised to do) because the system only counts things of economic value and it discounts things of social and environmental value that contribute to quality of life
- Cordova people learn the state and national opportunity costs of the oil spill cleanup in terms of generating economic activity (\$2.5 billion overall) come at the expense of lifestyles, local economies, and quality of life
- The community dives into a downward economic spiral from spill-related fishery failures and uncompensated debt accruing on property devalued by spill (i.e., commercial fishing permits)

Health (longer version)*

- Cleanup workers are not warned of hazardous nature of crude oil and not adequately trained to prevent injury on the job
- Chemical-induced illnesses are not recognized by federal laws (supposedly) protecting worker health and safety
- Same chemicals – polycyclic aromatic hydrocarbons (PAHs) that made cleanup workers sick made fish and other wildlife sick: outdated federal laws do not recognize new science and toxic nature of PAHs



Social Studies (Family/Consumer Sciences)

- Dependence of fishing community on healthy marine ecosystem
- Spill-related ecosystem collapse causes economic collapse and community dysfunction
- Sociologists learn “technological” (man-made) disasters like oil spills and adversarial litigation create mental and emotional trauma, resulting in social dysfunction and the need for individual and social healing – and advancing science (paradigm shift in sociology: understanding, mitigating harm, and speeding recovery in technological disasters)

Civics

- Cordova people learn judiciary system is biased and tilted to advantage wealth and power, and “Equal protection under the law” is enshrined in theory, but not practice
- Cordova people learn when rule of law breaks down because of wealth imbalance, individual rights, communities, and the environment are vulnerable to corporate greed
- Cordova people learn of systemic failure of American government established by Constitution to uphold core values and principles of democracy
- Cordova people recognize importance of upholding core values to protect democracy
- Cordova people start to turn social conflict over spill impacts into social change to restrict corporate power and reclaim democracy

Life Skills: Thinking & Reasoning

- Individuals driven by passion, reason, and moral sensibilities become (non-elected) community leaders and spokespersons, advocating social, economic, and environmental justice
- Cordova people apply problem-solving techniques in suggesting how lessons from the spill apply to all Americans; e.g., the need to account for the high cost of oil use in terms of human health and environmental health (risk of pollution is borne disproportionately by few whereas benefit is shared by many); the need to



LESSON PLAN & LEARNING OBJECTIVES

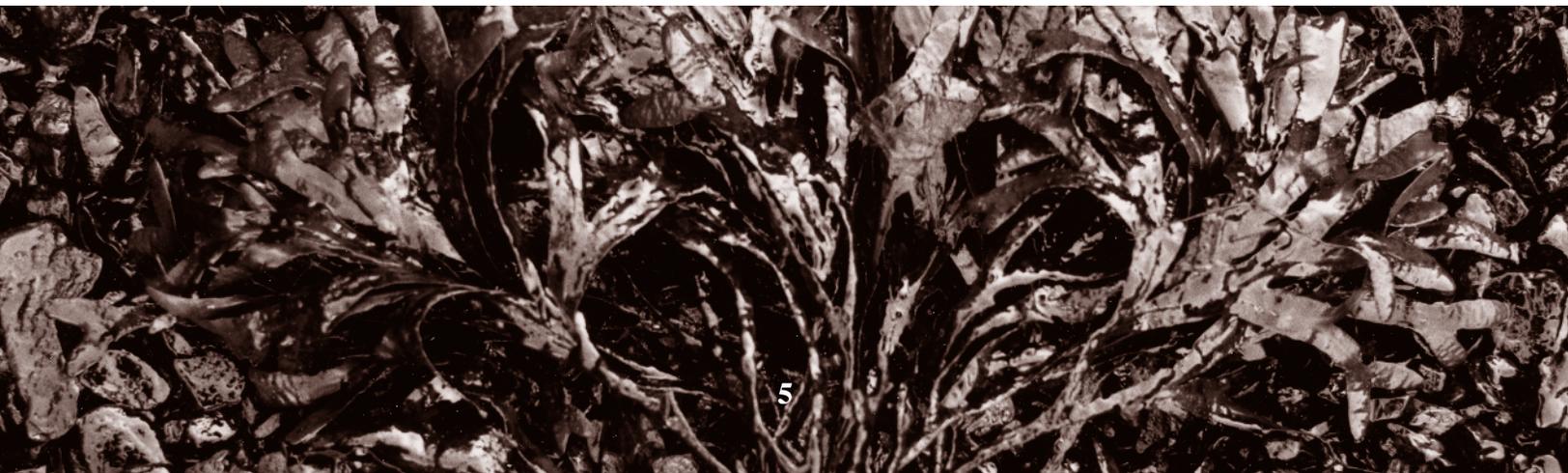
These suggestions are offered independently of any specific curriculum. Students should be able to:

- Locate Prince William Sound, Cordova, Valdez, and Bligh Reef on a map.
- State the circumstances of the *Exxon Valdez* oil spill: what (corporation), who (captain), where, when, and how.
- State the consequences of the *Exxon Valdez* oil spill to: the environment, community, fishermen, and corporation.
- Understand concept of scientific advances and explain why the science of ecotoxicology advanced after *Exxon Valdez* oil spill.
- Describe why ecosystem collapse was delayed until three to four years after spill.
- Describe how ecosystem collapse is related to collapse of local economy.
- Understand the concept of social wealth and describe its role in healthy – and unhealthy – communities, families, and individuals.
- Describe how legal system failed to deliver justice to fishermen and other people harmed by spill.
- List the special qualities that led Riki Ott to become a community activist.
- State the contributions of other fishermen and their families as community spokespersons.
- State the contributions of the researchers and lawyers to explaining why the legal system failed to deliver justice.
- Describe how the legal system fails to deliver “equal treatment under the law” and what this means for other communities in America.
- Describe how Congress and policy-makers can make decisions to benefit the national or state interest that put local communities at risk.



Teacher Preparation

- Obtain a map of Prince William Sound (see page 10).
- Select KEY CONCEPTS applicable to your curriculum.
- Select VOCABULARY terms requiring discussion or study.
- Prepare comments on PARTICIPANTS appropriate to your class. (See Review Question #5). Consider opportunity to discuss relevant careers.
- Select REVIEW QUESTIONS appropriate to your curriculum.
- Evaluate the IMAGES exercise for your class.



Previewing Orientation

- Read or paraphrase the FILM SUMMARY.
- Locate Cordova, Valdez, Bligh Reef, and Knight Island on the MAP.
- Announce LEARNING OBJECTIVES, or what you expect students to learn from the film.
- Introduce the film PARTICIPANTS.
- Define any VOCABULARY terms needing introduction.

Postviewing Review & Followup:

- Ensure “social wealth,” “toxicology,” “polycyclic aromatic hydrocarbons,” and “debt” are understood.
- Review additional VOCABULARY terms if necessary.
- Review contributions of the film participants. (Review Question #5.)
- Reinforce learning objectives using REVIEW/DISCUSSION QUESTIONS.

FILM SUMMARY

In the early hours of March 24, 1989, the supertanker *Exxon Valdez* runs aground in Alaska. It discharges millions of gallons of crude oil. The incident becomes the biggest environmental catastrophe in North American history.

In a flash, dramatic images shoot across the planet. They show thousands of carcasses of seabirds and sea otters covered in oil. A thick black tide rises and covers the beaches of once-pristine Prince William Sound. For twenty years, Riki Ott and the fishermen of the little town of Cordova, Alaska, have waged one of the longest legal battles in U.S. history against the world’s most powerful oil company – ExxonMobil. They tell us all about the environmental, social, and economic consequences of the black wave that changed their lives and their community forever.

Shockingly, the U.S. legal system can treat any community in America the same way it treated Cordova. It doesn’t have to be an oil spill. It doesn’t have to be ExxonMobil. Every community in America is vulnerable to corporate greed. Who’s next?

This is the legacy of the *Exxon Valdez*.



STORY LINE & KEY POINTS

1. Riki Ott's interest in toxicology (marine oil pollution), commercial fishing job, and passion for her community and Prince William Sound leads her to become an activist.
2. Riki's efforts to understand what happened to the Sound and her community follows the basic process of scientific inquiry: observation, theory, model, gather evidence (or experiment), proof.
3. Riki sought cooperation and support of sick cleanup workers, people harmed emotionally and financially by the spill, biologists, sociologists, and lawyers to help advance scientific understanding of toxicology, disaster trauma, and litigation trauma.
4. The *Exxon Valdez* oil spill was the most comprehensively studied oil spill in history: as a result, oil was discovered to cause long-term harm to wildlife and ecosystems.
5. Science knowledge is not all equal: Wealthy corporations can and do conduct biased science to downplay risks of their enterprise and to minimize cost of damages after accidents.
6. Cordova is a fishing community: its economy is directly linked to the health of the Prince William Sound ecosystem. Harm to the ecosystem caused harm to the town's economy.
7. Collapse of the local economy created more financial and emotional trauma: this caused widespread social dysfunction in individuals, families, and the community.
8. The legal system cannot meet its premise of "Equal treatment under law." This allows wealthy corporations to pass off costs of risky behavior to people, communities, and the environment.
9. If the American government, including the legal system and laws, are not working to uphold the values and principles of American democracy, it is the people's duty to restore its functions to protect individual rights and the common good.

CORRELATIONS TO NATIONAL STANDARDS

This teaching guide corresponds with Current Knowledge Standards & Benchmark Database. www.mcrel.org/compendium/browse.asp (accessed December 2010)

Science: Life Sciences & Nature of Science

- Std. 5 Introduction to ecotoxicology – nature and effect of poisons (crude oil, especially polycyclic aromatic hydrocarbons) on wildlife.
- Std. 6 Introduction to Prince William Sound as healthy marine ecosystem, food web relationships, Pacific salmon life cycles. Fishermen observe and scientists prove that crude oil is linked to ecosystem collapse.
- Stds. 11, 12 New observations, inquiry, study, and results leads to new scientific knowledge.
- Std. 13 Introduces concept of scientific ethics. Contrasts unbiased science, field evidence, and observations with biased science. Questions ethics of for-profit studies to “prove” a desired outcome.

Economics

- Std. 2 Compare and contrast oil-based economy with fishing-based economy, including incentives for pursuing career in oil industry or commercial fishing (i.e., money versus quality of life).
- Std. 6 Cordova people learn that all industries are not equal in terms of government support. The government contrived to push through the Trans-Alaska Pipeline despite the risk to the environment and fishing-based economies by overturning a U.S. Supreme Court court decision.

The legal system allowed Exxon to profit while injured parties (commercial fishermen and others) lost money or went bankrupt.

- Std. 9 Cordova people learn the national economy (Gross Domestic Product) grows, in part, by consuming social and environmental wealth; i.e., local communities, worker health, and the Prince William Sound environment are “externalities” in GDP calculations.

Health (longer version only)

- Std. 1 Cleanup workers should have been taught by employer (Exxon) to protect their health from exposure to crude oil and chemical or biological cleanup products.
- Std. 2 Crude oil affected physical health of cleanup workers, while spill, disaster response (e.g., empty promises of environmental “clean up”, worker “safety” – no need for respirators, “compensation” – “we will make you whole,” etc.), and litigation stress affected mental health.
- Std. 3 Financial stresses from spill-related fisheries collapse and mounting debt caused individual, family, and community dysfunction.
- Std. 4 Mental and emotional trauma from man-made (technological) disasters can take longer to heal than trauma from natural disasters. Litigation contributes to mental and emotional trauma (manifested as suicides, divorces, depression).
- Std. 8 Introduces concepts of chemical illnesses from exposure to crude oil and oil spill cleanup products.

Family/Consumer Sciences (Social Sciences)

- Std. 2 Spill-related ecosystem collapse causes economic collapse and community dysfunction. Sociologists learn “technological” (man-made) disasters like oil spills create social dysfunction and need for social healing, advancing science.
- Std. 4 Conflicting stories of harm are held by Exxon, community, and scientists. Cooperative behavior (demonstrations) advocates rights and values.
- Std. 6 Fishing community depends on healthy marine ecosystem. Individual and group identity is linked to commercial fishing.

Civics

- Std. 1 Cordova people learn that America does not have a functioning democracy. All three branches of government are heavily influenced by money (i.e., more money, more influence).
- Std. 3 “Justice delayed is justice denied”: Cordova people learn what happens when the legal system fails to provide justice.
- Std. 8 Cordova people question whether corporate capitalism has undermined American constitutional government.
- Std. 13 Cordova people are forced to sue a large corporation to protect their basic claims for losses; two decades of court battles increase social conflict
- Std. 14 In an ideal Republic with a democratic process, the people rule and hold government and corporations accountable. Cordova people question whether America has a functioning democracy.
- Std. 15 Cordova people question whether large corporations (functioning legally as “Corporate Persons”) have hijacked democracy and nullified the Constitution (i.e., rule by ‘we the corporation’ or ‘we the people’?)
- Std. 25 Cordova people question whether the legal system should protect non-economic wealth (social wealth such as quality time fishing as family, marriage, health) as well as economic wealth.
- Std. 27 Passion, compassion, and knowledge lead some Cordova people to work for common good.

Life Skills: Thinking & Reasoning

- Std. 1 Applies basic principles of presenting an argument to convince others that the oil spill caused long-term social, economic, and environmental harm – and that legal system failed to provide “equal treatment under law.”
- Std. 2 Applies logic and reasoning to develop understanding of scientific advances and the failure of the legal system and government to protect individuals, fishing industry, and community.
- Std. 3 Effectively identifies similarities in harm between wildlife and humans to advance science of toxicology. Effectively links harm to environment with harm to economy and community.
- Std. 4 Uses basic principles of scientific inquiry to advance theory that oil is more toxic than previously thought.
- Std. 5 Applies problem-solving techniques in suggesting how lessons from the spill apply to all Americans and what needs to be done to restrict corporate power and return rule to the people.

PARTICIPANTS & THEIR CONTRIBUTIONS

Evelyn Brown, PhD

Herring (fisheries) biologist formally with the Alaska Department of Fish and Game in Cordova, Alaska. Evelyn was the first – and for many years the only – herring biologist to warn of the deadly impact of the oil spill on young-of-the-year and juvenile herring and to predict that a population crash was likely.

John Devens

Former Mayor of Valdez, Alaska, during Exxon’s spill. After the spill, John publicly criticized the spill response launched initially by Alyeska, then Exxon.

Duane Gill, PhD

Sociologist formerly with Mississippi State University. Duane was co-principal (lead) investigator in the longest-running case study on disaster trauma in history: Cordova in the wake of the *Exxon Valdez* disaster. Gill helped develop and apply a trauma mitigation model for technological disasters.

Dan Lawn

Alaska Department of Environmental Conservation, District Office Supervisor at Port Valdez. Five years before the *Exxon Valdez* oil spill, Dan warned his supervisors that Alyeska (largely controlled by BP) had cut costs in favor of profits by reducing oil spill prevention and response equipment to where the oil companies were not prepared to handle a disastrous oil spill. After the spill, Dan became an outspoken government and oil industry critic as he fought tirelessly to improve spill prevention and response, including corporate culture.

Richard Nagel

Master captain and one of the supervisors on *Exxon Valdez* oil spill cleanup. Richard supervised crews that sprayed Inipol, a so-called bioremediation product (now discontinued) that was allegedly non-toxic to people. After the cleanup, Richard became sick with chemical-induced illnesses, and he worked to bring his plight and that of other sick cleanup workers to the attention of policy-makers. He died from his illnesses in July 2009.

Dave Oesting

Court-appointed lead counsel for 30,000 plaintiffs represented by 60 law firms in the consolidated proceedings of more than 250 lawsuits, both class actions and direct actions, filed on behalf of fishermen, processors, Alaska natives, landowners, businesses, and others injured as a result of the spill of the *Exxon Valdez* oil spill. Dave orchestrated the behind-the-scenes strategy that led to a jury verdict awarding plaintiff clients \$297 million

compensatory damages and \$5 billion punitive damages. Dave then developed strategies to defend the punitive award against legal attacks from ExxonMobil for 15 years. The corporation ultimately prevailed.

Brian O’Neill

Lead trial lawyer in the *Exxon Valdez* Case. Brian won the highest punitive damage award in history (at the time): \$5 billion dollars or one year’s net profit for Exxon in 1994. When this award was undermined by corporate abuses of the legal system, Brian advocated fixing the system so it could dispense justice irrespective of wealth as originally promised: “Equal treatment under law.”

Linden O’Toole

Former commercial fisherman and net hanger with her husband, Sam. Linden became a real estate agent after the spill to keep her family together and afloat financially. Overcoming her disaster trauma, she spoke publicly about economic and emotional hardships from Exxon’s spill and was selected by the legal council to tell Cordova’s story to the jury during the trial.

Malani O’Toole

One of the “spill children” who grew up in the shadow of disaster trauma. Malani is singer-song writer who shared Cordova’s spill trauma in a song she wrote at age 14 and recorded on her first CD *‘Til Now: “What Exxon Means.”*

Sam O’Toole

Commercial fisherman and former net hanger with his wife, Linden. Sam was recognized (and thanked) by other fishermen for his eloquence when speaking publicly about economic and emotional hardships caused by Exxon’s spill. In 2009, Sam finally achieved what he had lost as a result of the spill: he fished his own seine boat again with his daughter, Malani, as crew.

Riki Ott, PhD

Trained as a marine toxicologist with a specialty in marine oil pollution. After the spill, Riki dedicated her academic training to help the general public understand the effects of the oil spill on people, communities, and the ecosystem. She works as a community activist, advocating a cultural shift off fossil fuels and a constitutional amendment to restore a functioning democracy.

Ross Mullins

Commercial fisherman. Ross was one of the first Cordova fishermen to recognize the threat to fishermen posed by tanker traffic in Prince William Sound. Before the spill, he actively fought to keep oil tankers out of the Sound. After the spill, he suffered emotional and economic hardship, losing his family in a divorce and his herring business. He continues to work with scientists to restore Pacific Herring to Prince William Sound.

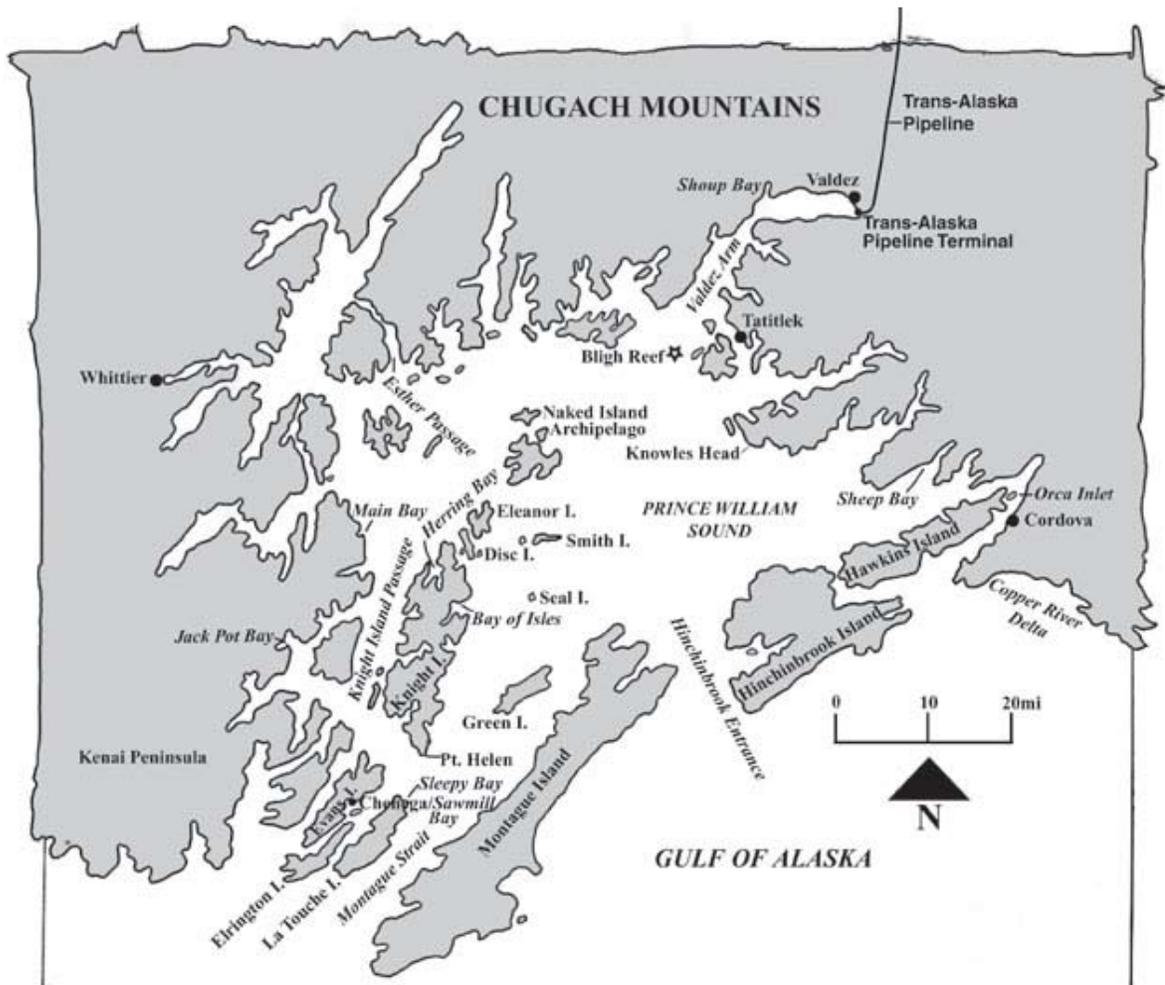
Merle Savage

Former *Exxon Valdez* cleanup supervisor. During the cleanup, Merle worried about the health impacts from oil exposure. After the cleanup, she became sick with chemical-induced illnesses. She wrote a book on her experience and works to bring this tragedy to the attention of policy-makers and the public.

Jeff Short, PhD

Formerly a research chemist at the National Marine Fisheries Service (NOAA) Auke Bay Lab in Alaska. Jeff was the leading chemist for the governments of Alaska and the United States for the natural resource damage assessment and restoration of *Exxon Valdez* oil spill. His work on persistence and effects of oil led to discovery that oil (PAHs) is 100 to 1,000 times more toxic to life than previously thought.

MAPS



From: Sound Truth and Corporate Myths (Dragonfly Sisters Press, 2004) by Riki Ott, PhD

VOCABULARY

activist: a person who is proactive toward making a difference in bringing political, social, economic, or environmental change

biologist: a person who studies organisms and their relationship to their environment

chemical-induced illness: sickness and negative health impacts caused by chemical exposure without adequate protection (exposure may occur at office, school, home, or other “environments” such as commuting in urban rush hour traffic; exposure may be high level and short duration or low level and long duration; individual sensitivities vary)

chemist: a person who studies the composition, structure, and properties of matter and its properties

class action: a lawsuit filed by one or more persons on behalf of themselves and all others who have been injured by the actions of another

climate change: change in the long-term average of a region’s weather; i.e., warmer or colder, wetter or drier; often used to refer to atmospheric warming, driven by accumulation of green house gases and atmospheric warming, co-incident with industrialized society, that threatens to destabilize Earth’s climate with dire consequences for all life on the planet

crude oil: a complex mixture of hydrocarbons with small amounts of other substances that is extracted from the earth; unrefined petroleum

deformity: a malformation, distortion, disfigurement, or structural change from normal

devalue: to lessen the value

disaster: a sudden, calamitous, and damaging or destructive event

drift gill net: a type of gill net that drifts with the tide or currents

dysfunction: abnormal or impaired function as in dysfunctional intra- or interpersonal behavior

ecology: the scientific study of the distributions, abundance, and relations of organisms and their interactions with each other within a common environment

economic depression: a severe downturn in the economy affecting the production, distribution, exchange, and consumption of goods that lasts several years

economic recession: a business cycle contraction or a general slowdown in economic activity (production, distribution, exchange, and consumption of goods) over a period of time

economy: the economic system of a country or other area; the capital, human, and land resources, and the economic agents, that socially participate in the production, exchange, distribution, and consumption of goods and services of that area.

ecosystem: the organisms living in a particular area that are interconnected and depend upon each other for survival

eco-toxicology: the study of toxic effects, caused by natural or synthetic pollutants, on ecosystems, including humans

environmental medicine: a multidisciplinary study of the effects of the environment on health and the effects of health on the environment; used to treat chemical-induced illness

fishing permit: a license to participate in a particular fishery and gear type in a specific management district (as in “She held a salmon seine permit for Prince William Sound”); the value of a commercial fishery limited entry permit fluctuates, depending on the health of the fisheries and market demand

fish processor: cannery; a factory or workshop where crews prepare raw seafood to can, flash freeze, fillet, or otherwise treat fish, shellfish, and other seafood for wholesale and retail markets

food web: a representation of the predator-prey relationships between species within an ecosystem or habitat

forage fish: usually high calorie, schooling small fish that support large, diverse assemblages of top predator species; “fuel for the food web”

gill net: a type of fishing net that is vertically suspended in the water and catches fish by entangling them in meshes

gillnetter: a boat or person engaged in fishing with a gill net

highliner: a commercial fisherman who catches consistently more fish than the average fisherman

larva: the early life form of a fish that at hatching must undergo fundamental changes or stages before becoming an adult

litigation: a legal action brought before a court of law in which a plaintiff, a party who claims to have been damaged from a defendant’s actions, seeks an equitable remedy

natural disaster: a flood, fire, tornado, hurricane, volcanic eruption, earthquake, landslide, tsunami, or other “act of God” that causes losses to the man-made environment, including human lives and buildings

net hanger: a person who builds new fishing nets by attaching lines and corks to webbing

pink salmon: (*Oncorhynchus gorbusha*) a species of anadromous fish; the smallest of the Pacific salmon that average 3 to 4 pounds and live for two years; also called “humpy” for the pronounced laterally flattened hump, which develops on the back of adult males before spawning

polycyclic aromatic hydrocarbons (PAHs): a family or “fraction” of hydrocarbons found in crude oil, coal, and tar sands, containing three or more (poly) benzene ring (cyclic) structures; PAHs are difficult for bacteria to degrade or break-down because of the double bond structure of the benzene ring; PAHs are one of the most widespread organic pollutants (e.g., they are produced when burning coal, oil, and gasoline, among

other things); some PAHs are carcinogenic, mutagenic (changes genetic material), and teratogenic (causes birth defects in mammals, including humans); they also are linked with respiratory problems, immune suppression, reproductive dysfunction (endocrine disruption), central nervous system problems, and liver, kidney, and blood problems

Post Traumatic Stress Disorder (PTSD): a severe mental disease that can develop after exposure to any event, which results in psychological trauma such as a war, an oil spill, or prolonged litigation

profit: the difference between a company's total revenue and its expenses; when expenses can be lowered (e.g., by not paying the full costs of environmental damage such as oil spill cleanup, or by reducing the number of claims or the amount of each claim in a lawsuit, or by not paying medical expenses for workers who became sick while working for the company), profit increases

protest: a declaration or act of disapproval or objection by either one concerned person or by a group or organization

seine, specifically, purse seine: a type of fishing net that is vertically suspended in the water, towed into a circle around a school of fish, then drawn closed at the bottom to form a bag that catches the fish; fish captured in the bag or "purse" are then transferred to a fish hold either by pumping the fish aboard or by bringing the entire bag aboard and releasing it directly into the hold

seiner: a boat or person engaged in fishing with a purse seine net

silver salmon: (*Ocorhynchus kisutch*) a species of anadromous fish; the second largest of Pacific salmon that average 7 to 11 pounds and live for two to four years; also known as "coho"

social wealth (social capital): relationships of trust between one or more persons that form the basis for marriage, families, friendships, businesses, trade and commerce among communities, states, and nations; connections within and between social networks that can affect productivity; also shared human values such as quality family time, good health, volunteerism, safe neighborhoods, etc. that contribute to quality of life but are not recognized as having economic value (in old-school economics)

sociologist: a person who studies institutions and the functioning of human society and interpersonal relationships of people as members of society to address social needs and problems

sockeye salmon: (*Oncorhynchus nerka*) a species of anadromous Pacific salmon that average 5 to 9 pounds and live for two to four years; also known as "red" salmon for the bright red color of its flesh and because it turns a bright red color when swimming upriver to spawn

spawn: to mass release and deposit eggs and sperm to propagate the species

spillionaire: a divisive label for a fisherman who made a lot of money on the oil spill cleanup; the term is thought to have derived from Exxon propaganda as most Alaska fishermen made more money commercial fishing (pre-spill) than working the cleanup

stress: a physical, chemical, or emotional factor that causes bodily or mental tension and may be a factor in disease causation

technological disaster: a catastrophic event caused by humans that results in toxic contamination of the environment such as an oil spill

toxic: poisonous

toxic tort: a special type of personal injury lawsuit in which the plaintiff claims that exposure to a chemical caused the plaintiff's injury or disease

toxicologist: a person who studies the nature and effects of poisons and their treatments, and with the problems involved (clinical, political, legal, industrial, etc.)

REVIEW/DISCUSSION QUESTIONS

Black Wave Review Questions Handout & Answer Key

1. Who was the Master Captain of the *Exxon Valdez*?

The Captain of the Exxon Valdez was Joseph Hazelwood.

2. Where did the *Exxon Valdez* run aground?

The Exxon Valdez ran aground in Bligh Reef.

3. What are PAHs? What harm do they cause to wildlife? To people?

Concepts 1, 2, 3 *PAHs stands for polycyclic aromatic hydrocarbons, a family or "fraction" of hydrocarbons found in crude oil that contain three or more (poly) benzene ring (cyclic) structures. PAHs are difficult for bacteria to degrade or break-down because of the double bond structure of the benzene ring. PAHs are cause cancer; they also are linked with respiratory problems, immune suppression, reproductive dysfunction (endocrine disruption), central nervous system problems, and liver, kidney, and blood problems.*

4. What is the "Valdez crud"?

Concept 3 *Exxon medical doctors referred to the epidemic of respiratory problems among cleanup workers as the "Valdez crud." Toxic torts and research revealed the "Valdez crud" was likely an indicator of chemical illnesses due to overexposure to oil and chemical cleanup products.*

5. What recourse did sick workers have after the cleanup?

Concepts 3, 4, 5 *There was never legal recourse for sick workers. Work-related chemical-induced illnesses were dismissed as colds and flu. People were left to pay their own medical expenses. Laws were never changed: chemical illnesses are still dismissed as colds.*

6. Which President signed legislation authorizing the construction of the Trans-Alaska Pipeline System?

Concepts 5, 6 *President Nixon signed legislation authorizing construction of the Trans-Alaska Pipeline System.*

7. Why did the *Exxon Valdez* crew members ask permission to deviate course?

The Exxon Valdez crew wanted to deviate course due to icebergs.

8. Why were the fishermen the first to respond to the spill?
 Concepts 5, 6 *The fishermen were the first to respond to the spill because Exxon did not have workers and equipment ready to be deployed during the first critical days of calm weather.*

9. How much of the oil spilled stayed in Prince William Sound?
 Concept 1 *Almost half of the oil that spilled was stranded on beaches in Prince William Sound.*

10. What was the first indicator of long-term ecosystem harm from the oil spill?
 Concept 1 *The first indicator of long-term ecosystem harm from the oil spill was the collapse of the Pink Salmon runs in the oiled regions of Prince William Sound in 1991, followed by the collapse of populations of Pacific Herring and Pink Salmon in 1992.*

11. What was the first indicator of long-term economic harm from the oil spill?
 Concept 2 *The first indicator of long-term economic harm from the oil spill was the collapse of the Pink Salmon and Pacific Herring populations.*

12. What was the first indicator of long-term community health impacts from the oil spill?
 Concept 4 *The first indicator of long-term community health impacts from the oil spill was Bobby van Brocklin's suicide in 1993.*

13. How are ecosystem, economic, and community health impacts related to each other and to the oil spill?
 Concepts 1–6 *The oil spill killed or impaired the young-of-the-year fish (eggs, larval, and juvenile stages). This harm was not evident until the young should have matured and returned as adults. Instead, the fish populations collapsed three and four years after the spill. The economy of the fishing community collapsed abruptly when the fish populations collapsed. The mounting debt from closed fisheries created financial stress that manifested as social dysfunction – suicides, divorces, and more, leading to a corrosive (dysfunctional) community. The long-term impacts were all caused by the technological disaster – the spill (i.e., absent the spill, none of this would have happened). ExxonMobil and the court system never recognized, or compensated, the people for these long-term impacts.*

Black Wave Discussion Guide

1. What are key attributes that define effective activists or spokespersons? (Concept 6)
2. Who should be in charge of the clean up – the federal government or the corporation that caused the harm? Who should perform the cleanup? How effective was Exxon's contingency plan? Who had responsibility for making sure the plan actually worked? (Concept 5)
3. Discuss the ethics of the cleanup: How much emphasis was placed on the health of the environment versus the health of the workers? The health of the environment versus public relations? (Concepts 1, 2, 3)
4. Discuss how community residents and scientists learned that oil is more toxic than previously thought. Discuss the concept of a paradigm shift in field of oil eco-toxicology. Discuss the relationship between science and public policy, and the ramification of a paradigm shift in science for public policies. (Concepts 1, 5)
5. Discuss how community residents and scientists learned that disaster trauma and litigation can lead to social trauma and community dysfunction. Discuss the concept of a paradigm shift in field of sociology: understanding of disaster trauma and mitigation. Discuss the relationship between science and public policy, and the ramification of a paradigm shift in science for public policies. (Concepts 4, 5)
6. Discuss Exxon's response to the ecosystem assessments conducted in Prince William Sound. Compare this to Exxon's response about climate change. (Concepts 1, 5, 6)

7. Discuss the impacts of the spill on fishing families and within the community. What were the economic impacts of the Pink Salmon and Herring run failures? What is the significance of the absence of images of oiled animals? (Concepts 2, 4, 5, 6)
8. In 1989 Exxon promised, “We will consider whatever it takes to make you whole.” The original \$5 billion punitive damage fine was eventually reduced to \$507 million in 2008. Exxon brought in a record of a \$40 billion profit the same year. Discuss the concept of “equal treatment under law” as it applies to the residents of Prince William Sound and Exxon. Discuss the concept of punitive awards in relation to wealthy corporations – and justice. (Concepts 5, 6)

IMAGE EXERCISES

As you share each image with your class, ask students to volunteer their associations or memories from the film.



photo by Linden O'Toole

photo by Riki Ott



B



photo by Robert Cornelier

photo by Dave Janka



D

A. The O'Toole family onboard their fishing boat B. *Exxon Valdez* oil spill cleanup workers in Prince William Sound C. Digging for oil on Knight Island, Prince William Sound, 17 years after the spill. D. Digging for oil on Smith Island, Prince William Sound, 19 years after the spill

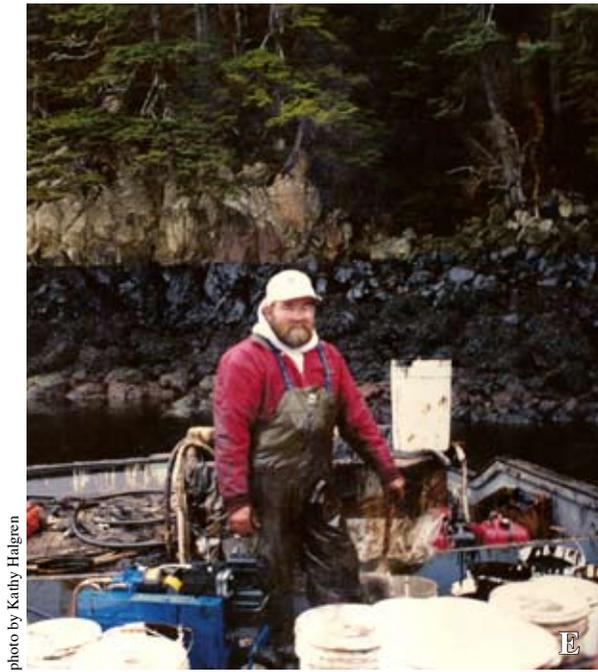
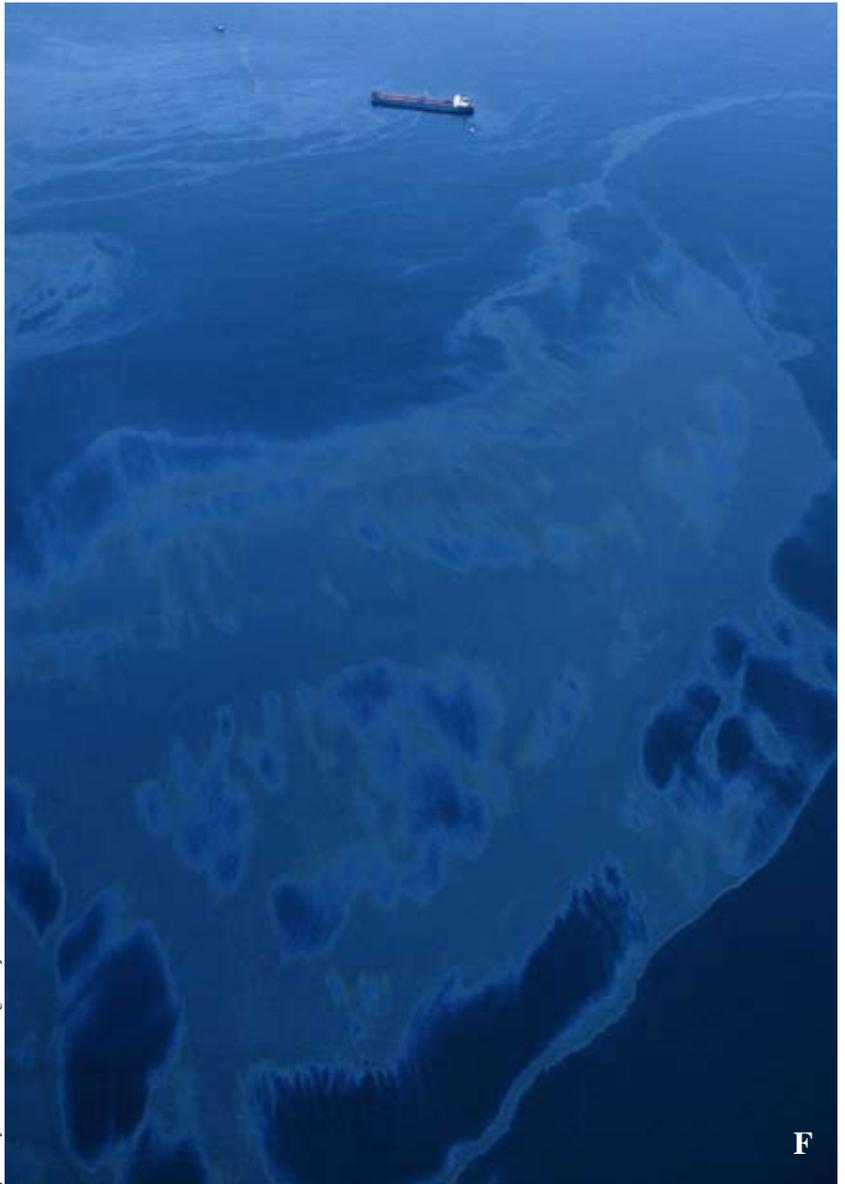


photo by Kathy Halgren

E



F



photo by Kathy Halgren

photo by Erik Hill/Anchorage Daily News

E

E. Local fishermen take action right after the spill – and collect more oil using buckets than Exxon F. *Exxon Valdez* aground on Bligh Reef, Prince William Sound

SUGGESTED READINGS & OTHER MATERIAL

- Bob Cavnar, *Disaster on the Horizon: High Stakes, High Risks, and the Story Behind the Deepwater Well Blowout* (Chelsea Green, 2010)
- Lee Drutman and Charlie Cray, *The People's Business: Controlling Corporations and Restoring Democracy* (Berrett-Koehler, 2004)
- Thom Hartmann, *Unequal Protection: The Rise of Corporate Dominance and the Theft of Human Rights* (Rodale, 2002)
- Bill McKibben, *Deep Economy: The Wealth of Communities and the Durable Future* (Time Books, 2007)
- Bill Moyer and others, *Doing Democracy: The MAP Model for Organizing Social Movements* (New Society Publishers, 2001)
- Ted Nace, *Gangs of America: The Rise of Corporate Power and the Disabling of Democracy* (Berrett-Koehler, 2003)
- Riki Ott, *Not One Drop: Betrayal and Courage in the Wake of the Exxon Valdez Oil Spill* (Chelsea Green, 2008)
- Riki Ott, *Sound Truth & Corporate Myth\$: The Legacy of the Exxon Valdez Oil Spill* (Dragonfly Sisters Press, 2004)
- Program on Corporations, Law & Democracy (Dean Ritz, editor), *Defying Corporations, Defining Democracy: A Book of History & Strategy* (Apex Press, 2001)
- Merle Savage, *Silence in the Sound* (PublishAmerica, 2003)
- Terry Tamminen, *Lives per Gallon: The True Cost of Our Oil Addiction* (Island Press, 2006)
- Yes! Magazine*: theme issues focus on stories of place and creative problem-solving on a variety of timely issues. Website is organized for teachers and students: www.yesmagazine.org.

DVDs

The Corporation

Bioneers plenary speakers (30 minute DVDs), motivational and inspirational speakers of all ages engaging as problem-solvers on variety of current issues (www.bioneers.org)

WHO TO CONTACT: QUESTIONS, ASSISTANCE & INFORMATION

Exxon Valdez Oil Spill Trustee Council

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www.evostc.state.ak.us/

Alaska Fisheries Science Center, NMFS (NOAA)

http://www.afsc.noaa.gov/ABL/Habitat/ablhab_oil.htm

Prince William Sound Regional Citizens' Advisory Council

www.pwsrcac.org

Prince William Sound Science Center

<http://www.pwssc.org>

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<http://na.oceana.org/en/about-us/people-partners/oceana-staff/jeffrey-short>