Navigating risk and resilience: The decision to allow salmon to spawn after a fuel spill

Fuel spills can harm any environment they are spilled into. However, when a spill occurs in a creek just before a salmon spawning season, there are additional concerns and decisions a response must consider to best protect these environmentally and culturally beloved species. This is what happened on July 18, 2025, when a tanker truck accident spilled approximately 2,798 gallons of gasoline and 172 gallons of diesel into Indian Creek near Port Angeles, WA.

The following summary outlines the collaborative decision-making process that led to the **decision to keep Indian Creek open for the salmon run**. It highlights expert input, ecological tradeoffs, the importance of ongoing monitoring, and the rapid, aggressive, and well-coordinated response that informed the final decision

Background

In the wake of the spill into Indian Creek—an important tributary to the Elwha River—Unified Command assembled a group of experts from the Lower Elwha Klallam Tribe and local, state, and federal agencies to consider a complex and time-sensitive problem: should salmon be allowed to swim upstream to spawn in a potentially contaminated creek?

Indian Creek is a sensitive fish habitat. Initial sampling and Shoreline Cleanup Assessment Technique (SCAT) surveys showed varying levels of fuel contamination downstream of the spill site and into the Elwha River. As the response progressed, the level of contamination was reduced due to cleanup operations and natural evaporation of the gasoline. However, the response was up against a deadline—adult Chinook and Pink salmon are expected to enter Indian Creek in late August to spawn through October.

Early in the response, the Environmental Unit began considering mitigation actions to reduce impacts to spawning fish in Indian Creek and the Elwha River. Mainly, should the salmon be allowed to migrate upriver toward the spill and potentially interact with the contaminated area? Or should the plan involve blocking the salmon from spawning in Indian Creek this year to minimize the risk of contamination to the fish and their eggs, but lose out on vital habitat and spawning opportunities?

Understanding the risks: Effects and toxicity of gasoline

The toxicity of gasoline and diesel stems from a range of chemical compounds, especially mono-aromatic hydrocarbons (like benzene, toluene, ethylbenzene, and xylene—collectively known as BTEX) and polycyclic aromatic hydrocarbons (PAHs). These substances can harm organisms through direct contact, inhalation, or ingestion. Toxicity can be acute, causing immediate damage through exposure in the water column or ingestion, or chronic, resulting from prolonged contact with contaminated water, sediments, or food. For salmon, early life stages—especially eggs and embryos—are particularly sensitive, with potential effects including metabolic disruption, reduced survival rates, and developmental abnormalities. Fortunately, gasoline—while highly toxic—is also highly volatile, meaning it tends to evaporate quickly under most environmental conditions, especially in the warm and breezy summers of Port Angeles. This factor, combined with ongoing cleanup and weathering processes, led to the conclusion that any remaining risk to spawning salmon could be addressed through targeted monitoring of embryo development in impacted areas.

Assembling a team of experts

Following the July 18, 2025, tanker truck accident that released gasoline and diesel into Indian Creek, emergency responders acted swiftly to control the source of the spill and begin cleanup. However, it quickly became clear that the more complex ecological impacts—especially those affecting the upcoming salmon run—required a broader coalition of experts.

The Unified Command brought together specialists from:

- The Lower Elwha Klallam Tribe (LEKT)
- National Oceanic and Atmospheric Administration (NOAA)
- U.S. Fish and Wildlife Service (USFWS)
- US Geological Survey
- National Park Service (NPS)
- Washington Department of Fish and Wildlife
- Washington Department of Ecology
- Environmental consultants from Polaris Applied Sciences and Landau Associates
- State government and county officials

Together, these technical specialists brought a wealth of knowledge about aquatic ecosystems, contaminant behavior, endangered species, and salmon biology, particularly in the context of the Elwha River, an area of rich cultural significance and also the focus of ongoing restoration efforts.

The central question: should fish be allowed to enter Indian Creek to spawn, or should access be blocked to prevent exposure to residual contaminants?

Considering the options

Three mitigation strategies were weighed, each with pros and cons summarized below. To support these decisions, responders conducted multiple rounds of water and sediment sampling, and reviewed decades of spawning data in Indian Creek.

Option 1: Leave Indian Creek open

- **Pros:** Salmon can access the full extent of their habitat. Avoids disruption of natural water flow.
- **Cons:** Risk of exposure to residual gasoline and diesel in sediments and the water column; cleanup efforts could disturb fish and habitat.

Option 2: Block fish entry at the confluence of Indian Creek and Elwha River

- **Pros:** Prevents exposure to contaminated areas; allows uninterrupted cleanup.
- **Cons:** Salmon lose critical spawning habitat; risk of harming fish already in the creek; disruption of stream flow.

Option 3: Block Indian Creek further upstream at Lake Aldwell Road

- **Pros:** Allows some access to spawning grounds while minimizing contamination exposure.
- **Cons:** Still limits habitat; cleanup activity could impact downstream fish; logistical complexity.

Making the decision

After extensive discussion around the options, risks, and tradeoffs, a strong consensus emerged—**Indian Creek should remain open to the upcoming salmon spawn.** All parties supported this decision, understanding that it would be backed by careful monitoring and a readiness to adapt or reconsider the above options if new data warranted it.

Key reasons supporting this decision included:

- **Success of response and natural cleanup action:** The risk of contamination decreases with time. With each passing day, more contamination is removed from the environment by response crews and from natural dispersal and evaporation.
- **Higher survival rates in Indian Creek:** Historically, survivability of Chinook salmon embryos in Indian Creek is in the thousands per female, compared to hundreds per female in the Elwha River.
- **Biological effects monitoring:** Trustees are developing studies to assess the biological effects of this spill on salmon development. This could include placement of egg boxes of hatchery embryos in impacted and unimpacted areas of Indian Creek to detect signs of contamination through biological effects—an early indicator more sensitive than water chemistry alone.
- **Balancing the tradeoffs:** In every spill response, the Environmental Unit assesses each cleanup tactic by measuring the benefits it hopes to achieve versus the potential environmental harm of deploying the tactic. Sometimes, the best option to protect a sensitive environment is to let nature take the lead.

Ongoing monitoring plan

The decision to leave Indian Creek open came with a commitment to a science-led, adaptive monitoring approach to any lingering contamination and its effect on salmon. Key to the development and execution of the monitoring plan is the Natural Resource Damage Assessment and Restoration (NRDAR) process. NRDAR brings together experts from tribes and local, state and federal resource agencies to evaluate environmental impacts and long-term restoration needs after a spill. The NRDAR process is already well underway for this incident, and their work will include assessing appropriate ways to monitor the incoming salmon in Indian Creek and assess damage caused by any lingering contamination from the fuel spill. More info on NRDAR is linked below.

Looking ahead

The decision to leave Indian Creek open reflects a careful balance between ecological risks and biological benefits. It shows how cross-agency collaboration, Tribal environmental expertise and leadership, and real-time science can guide high-stakes decisions in the dynamic environment of a spill response.

By trusting salmon to do what they've done for millennia—return, spawn, and renew—the Unified Command is choosing resilience, supported by science.

Want to learn more?

- Response Website - PetroCard Indian Creek Spill 2025
- Elwha River Restoration - Lower Elwha Klallam Tribe
- Elwha River Restoration - U.S. National Park Service
- How Spills Affect Fish – National Oceanic and Atmospheric Administration (NOAA)
- NRDAR Process
    - https://www.doi.gov/restoration
    - https://ecology.wa.gov/spills-cleanup/contamination-cleanup/natural-resource-damage-assessment-and-restoration
    - https://oceanservice.noaa.gov/facts/nrda.html