

*The Art and Science of the  
Endangered Species Act (ESA)*

**Endangered Species Act  
Implementation:  
Defining a Joint Agency Approach  
for the  
Fish and Wildlife Service and the  
National Marine Fisheries Service**

# *The Endangered Species Act*

**Provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved**

# *The Endangered Species Act*

## *Key Prohibitions*

- **Section 7** - Insure that action is **Not Likely to Jeopardize** species or result in **Adverse Modification** of critical habitat.
- **Section 9** - Do not **Take** listed species without authorization.

# *Jeopardy and Adverse Modification*

- **Jeopardize** - to reduce appreciably (quantifiably) the likelihood of both the survival and recovery of a listed species. Measured by reductions in reproduction, numbers, or distribution.
- **Adversely Modify** – to appreciably diminish the value of critical habitat for both the survival and recovery of a listed species.

# Take

- **Take** - to **harass, harm**, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.
  - **Harass**: an intentional or negligent act or omission which creates the likelihood of injuring wildlife by annoying it to such an extent as to **significantly disrupt normal behavioral patterns** which include, but are not limited to, breeding, feeding, or sheltering.
  - **Harm**: an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by **significantly impairing essential behavioral patterns**, including breeding, feeding, or sheltering.

# *ESA Consultation Process*

- ESA imposes a procedural obligation to consult on effects to species from proposed action, and provides analytical framework to measure those effects against the jeopardy standard
- **Biological Assessment:** Evaluates potential effects, determines if effects are adverse. Contents of BA may include Proposed Action, Species Status, Effects of action, Conclusions
- **Biological Opinion:** Evaluates potential effects of action, determines if jeopardy/adverse modification occurs, analyzes/authorizes incidental take.

# *Effects of the Proposed Action*

## *Biological Opinion*

- Discussion is usually an **argument, not a prediction** based on extensive data or modeling
- Discussion identifies the **known facts** and **uncertainties**, and assumptions needed to resolve uncertainties

# *Effects of the Proposed Action*

## *Biological Opinion*

- Incorporates **accepted biological and ecological principles** on population dynamics, population ecology, habitat relationships, and the risk facing small and declining populations.
- The effects analysis allows the Services to develop an analysis that **meets necessary regulatory timeframes** to make a decision (versus a long-term research program)

# *Properly Functioning Condition* *(PFC)*

- Sustained natural processes, not static characteristics.
- PFC is attained when a watershed's habitat forming-processes (e.g., riparian community succession, bedload transport, runoff pattern) function to maintain a healthy aquatic ecosystem.
- Necessary to the long-term survival of the species.

# *PFC Pathways and Indicators*

- Pathways are groups of ways in which actions can have potential effects on anadromous salmonids and their habitats.
- Indicators are metrics and descriptions of important environmental parameters and conditions.

<b>Pathway</b>	<b>Indicator</b>
Water Quality -----	Temperature; Sediment/Turbidity; Chemical Contamination/Nutrients
Habitat Access -----	Physical Barriers; Chemical Barriers
Habitat Elements -----	Substrate; LWD; Pool Frequency; Pool Habitat; Off- Channel Habitat; Refugia
Channel Condition & Dynamics -----	Width/DepthRatio; Streambank condition; Floodplain Connectivity
Watershed Conditions -----	Road Density & Location; Disturbance History; Riparian Reserves
Flow & Hydrology -----	Changes in Peak or Base Flows; Increase in Drainage Network

# *Environmental Baseline*

- Past and present impacts of all Federal, State, and private action in the Action Area
- Past and present impacts of other human activities in the Action Area
- Anticipated impacts of all proposed Federal actions in the Action Area that have already undergone formal or early section 7 consultation
- Includes recovery or restoration activities
- Should clearly identify how actions affect the status and trend of T/E species or critical habitat

# *Effects of the Proposed Action*

- **Direct Effects** - caused directly or immediately by proposed action
- **Indirect effects** - caused by or will result from the proposed action and are later in time, but are reasonably certain to occur
- **Interdependent actions** - actions that have no independent utility apart from the action being considered in the consultation
- **Interrelated actions** - actions that are part of a larger action and depend on the larger for their justification

# *Effects of the Proposed Action*

- **Cumulative effects** - future State, local, or private actions (i.e., those that require no Federal permits) that are reasonably certain to occur in the action area

# *Best Scientific and Commercial Data Available*

- ESA requires action and regulatory agencies to use “**Best Available Scientific and Commercial Data**” in:
  - Species Lists
  - Biological Assessment: Development of Action, Determination of Baseline, Effects Analysis
  - Biological Opinion: Effects Analysis, development of Incidental Take Statement, any Reasonable and Prudent Alternatives

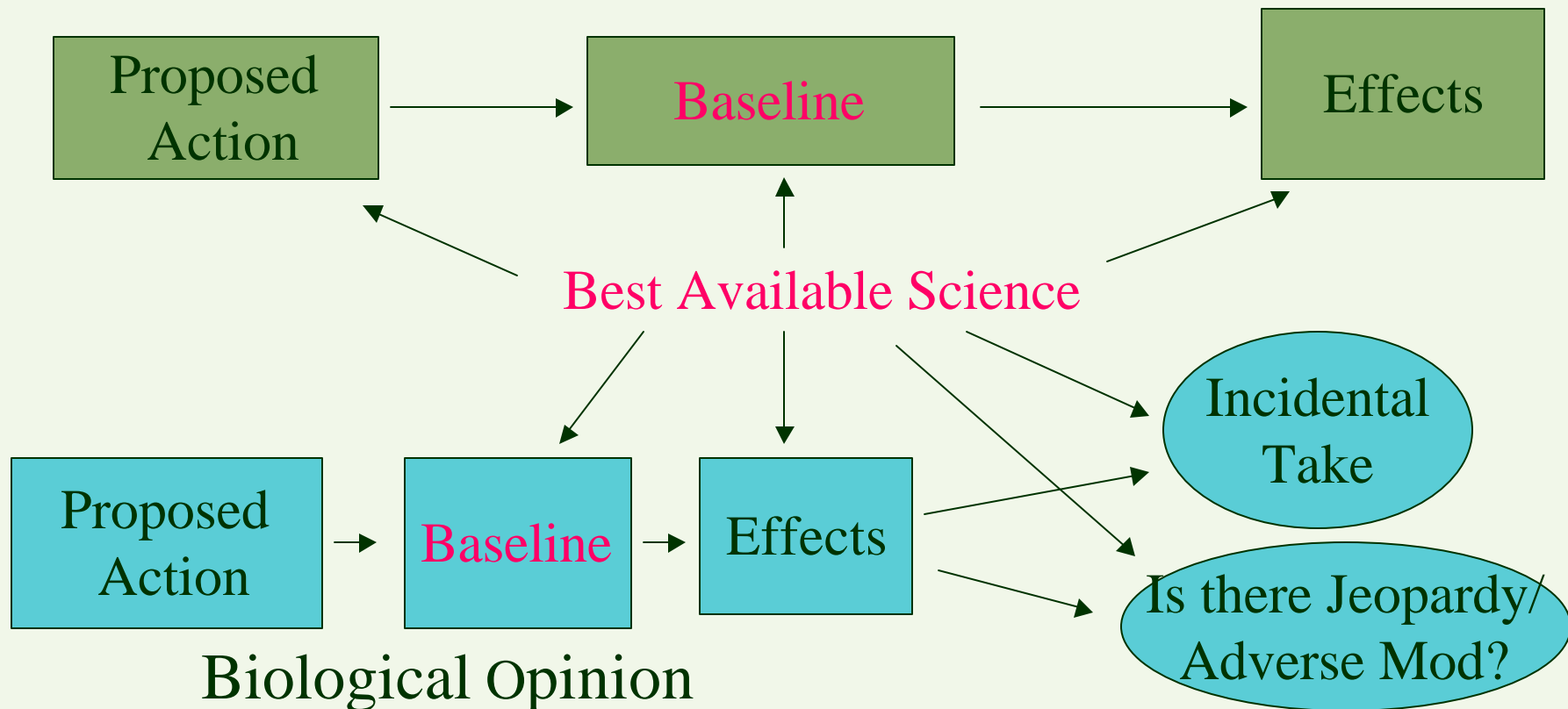
# *Best Scientific and Commercial Data Available*

- Data on the biology/ecology of the T/E species covered by the opinion
- Data on the behavior of similar species
- Data on population dynamics
- Data on dynamics of declining populations
- Data on the interactions between species and habitat
- Data to develop the environmental baseline

“Best data” do not need to be published, peer-reviewed, or the most recent

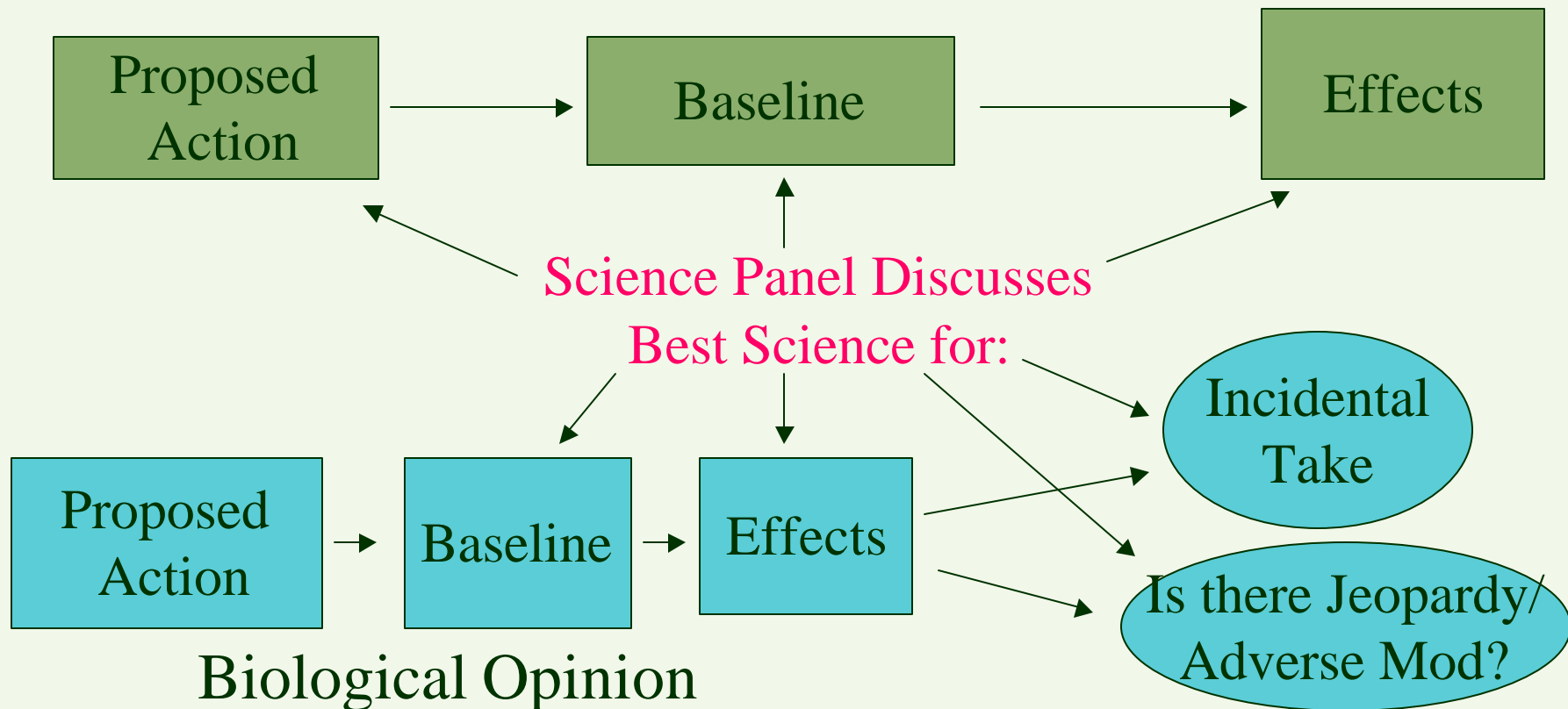
# Example Consultation Process

## Biological Assessment



# Reinitiation of ESA Consultation Science Panel Interface

## Biological Assessment



# *Federal Trust Responsibilities to Indian Tribes*

- Federal agencies - use their authorities to protect treaty rights uphold trust responsibilities (including the protection of salmon habitat in the Pacific Northwest)
- NMFS and FWS - Secretarial Order 3206 -- Work to ensure that Indian Tribes do not bear a disproportionate burden for the conservation of listed species