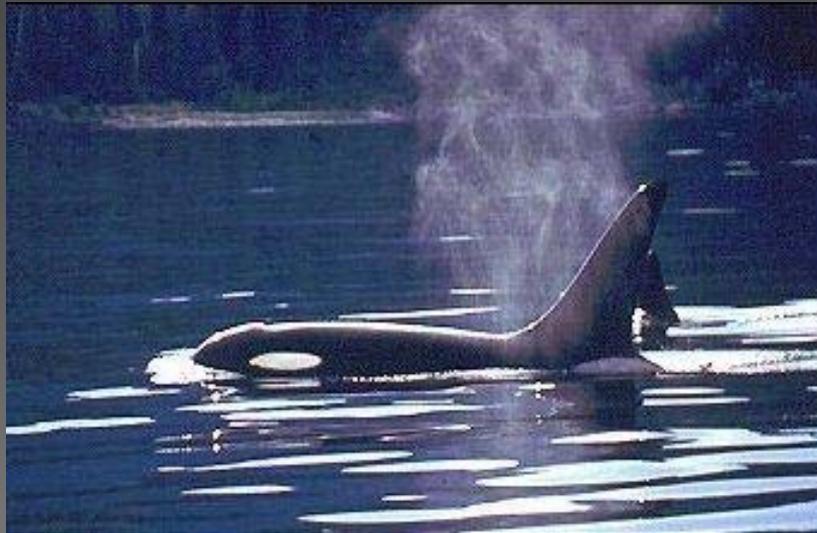


Pesticides and the ESA



Southern resident killer whale

The Endangered Species Act

Section 2: Findings and Purposes

Section 3: Definitions

Section 4: Listing, Critical Habitat Designation, Recovery, Monitoring

Section 5: Land Acquisition

Section 6: Financial Assistance to States and Territories

Section 7: The Role of Federal Agencies

Section 8: International Cooperation

Section 8A: Convention Implementation

Section 9: Unlawful Activities

Section 10: Exceptions, including Permits

Section 11: Penalties and Enforcement

Findings and Purposes: Section 2

Findings

- Some species of fish, wildlife and plants are now extinct “as a consequence of economic growth and development untempered by adequate concern and conservation.”
- Other species are in danger of extinction.

Purposes

“... to conserve endangered and threatened species and the ecosystems on which they depend.”

Interagency Cooperation: Section 7(a)(1)

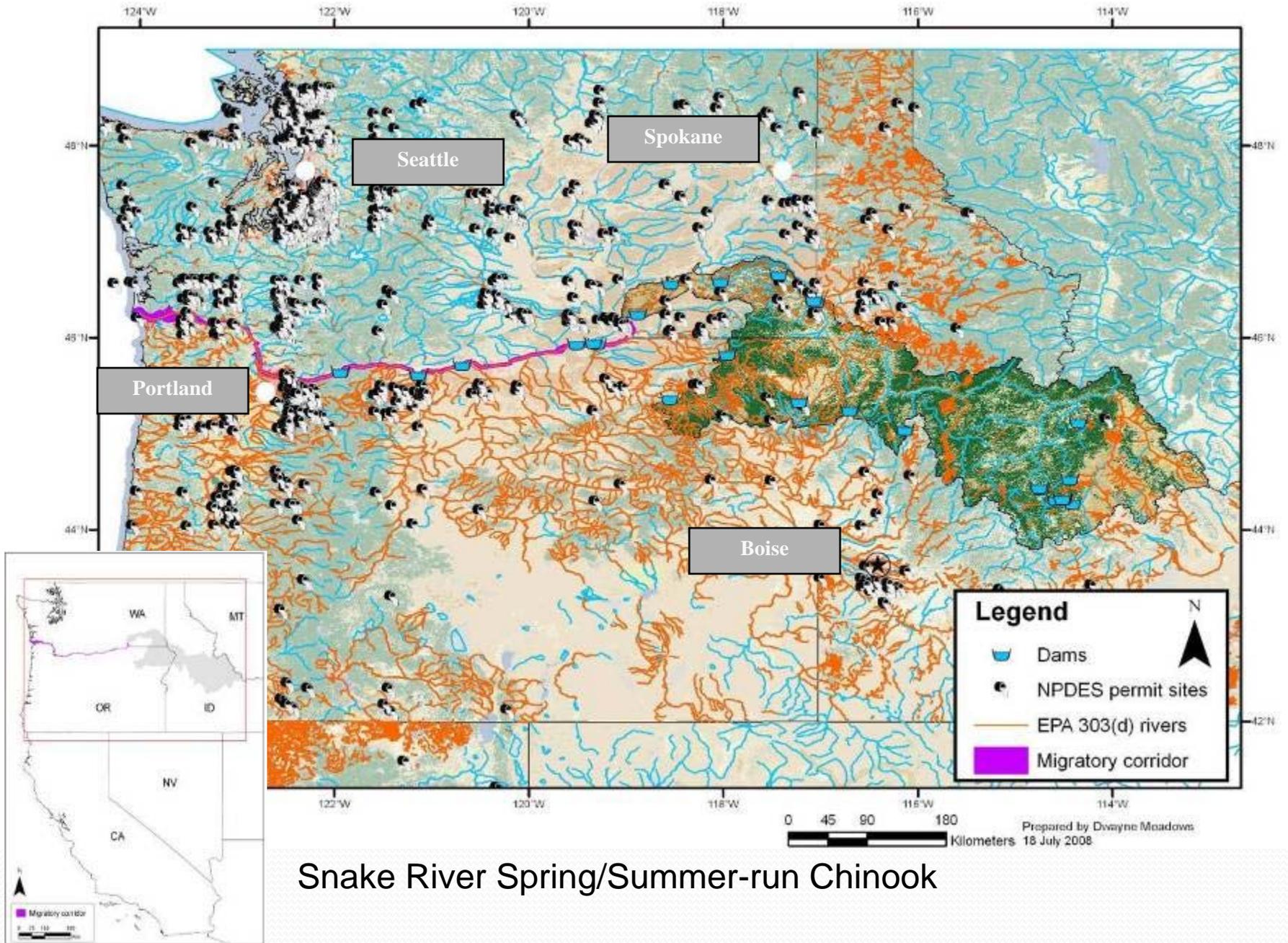
- Requires Federal agencies to conduct programs to conserve endangered and threatened species



Coho salmon



Winged mapleleaf



Snake River Spring/Summer-run Chinook

Interagency Cooperation: Section 7(a)(2)

- Requires federal agencies to insure that any action authorized, funded, or carried out is not likely to:
 - Jeopardize T/E species
 - Result in destruction or adverse modification of designated critical habitat



Endangered Species Act

Section 7: Interagency Cooperation

Pesticide Actions subject to Section 7

1. Authorizing the use of pesticides
2. Funding pesticide use
3. Using pesticides

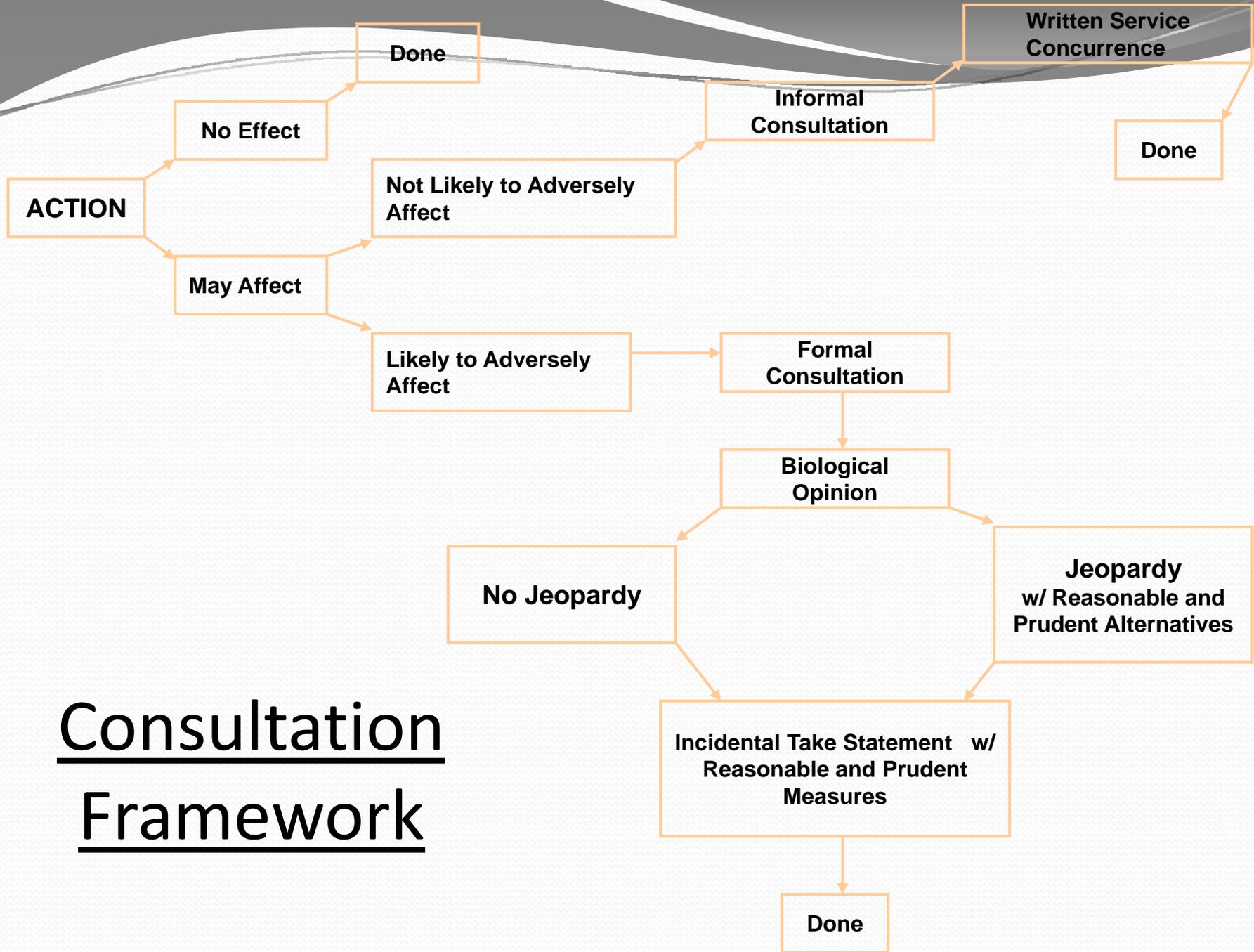


Entities Involved in Consultations

Action Agency: Federal agency that authorizes, funds, or carries out action

Consulting Agency: Depend on jurisdiction
NMFS- Marine species
USFWS-Freshwater and terrestrial species

Applicants: Designated by Action Agency



Consultation Framework

Scope of Effects

Informal consultations

Purpose: Insure no jeopardy
/adverse modification

Product: NLAA concurrence /
non-concurrence

Scale: individual organisms,
critical habitat, duration of
project

Screening assessment: If
NLAA then no jeopardy

Endangered Species Act definitions

ESA Consultation Handbook

- Not likely to adversely affect (NLAA) – effects on listed species are expected to be *discountable*, or *insignificant*, or *completely beneficial*.
- Discountable – Extremely unlikely to occur... can't measure or detect
- Insignificant – should never reach the scale where *take* occurs.

Endangered Species Act definitions

ESA Consultation Handbook

- Take- “to *harass, harm, pursue...*”
- Harm – “any significant habitat modification or degradation that results in death or injury... significantly impairing behavioral patterns such as breeding, feeding, or sheltering”
- Harass – “...to significantly disrupt normal behavior patterns which include but are not limited to, breeding, feeding or sheltering”

Scope of Effects (continued)

Informal consultations

Purpose: Insure no jeopardy /adverse modification

Product: NLAA concurrence / non-concurrence

Scale: individual organisms, critical habitat, duration of project

Screening evaluation: If NLAA then no jeopardy

Formal consultations

Purpose: Insure no jeopardy /adverse modification

Product: **Biological Opinion**

Scale: individual organisms, critical habitat, population, **species**

Comprehensive evaluation: includes quantification of amount and extent of take

How Does USFWS/NMFS Reach Conclusions in a Biological Opinion?

Endangered Species



Consultation Handbook

*Procedures for Conducting
Consultation and Conference
Activities Under Section 7 of the
Endangered Species Act*

U.S. Fish & Wildlife Service
and
National Marine Fisheries Service



March 1998
Final

http://www.nmfs.noaa.gov/pr/pdfs/laws/esa_section7_handbook.pdf

FIFRA: EPA's Authorization of Pesticide Use



EPA Pesticide Actions Subject to Consultation

Registration actions under FIFRA



- Section 3 - New pesticide products
 - New uses of registered products
- Section 4 - Reregistration/ Registration review of pesticides
- Section 18 - Emergency exemption requests, including crises
- Section 24(C) - Special Local Needs registrations

Registered pesticides ~1150

Pesticide	Target species
Insecticides	Insects
Herbicides	Plants
Rodenticides	Rodents
Avicides	Birds
Molluscicides	Molluscs
Lampricides	Lamprey
Miticides	Mites
Nematocides	Nematodes
Piscicides	Fishes
Fungicides	Fungi

308 threatened, 1009 endangered (4/2009)

GROUP	ENDANGERED		THREATENED		TOTAL LISTINGS
	U.S.	FOREIGN	U.S.	FOREIGN	
 MAMMALS	69	256	18	20	358
 BIRDS	75	179	15	6	275
 REPTILES	13	66	24	16	119
 AMPHIBIANS	14	8	11	1	34
 FISHES	74	11	66	1	151
 SNAILS	24	1	11	0	26
 CLAMS	61	2	8	0	71
 CRUSTACEANS	19	0	3	0	22
 INSECTS	47	4	10	0	61
 ARACHNIDS	12	0	0	0	12
 CORALS	0	0	2	0	2
ANIMAL SUBTOTAL	409	527	162	44	1,142
 FLOWERING PLANTS	572	1	148	0	716
 CONIFERS	2	0	1	2	5
 FERNS AND OTHERS	26	0	2	0	28
PLANT SUBTOTAL	600	1	146	2	749

EPA Screening for risk to listed species

- EPA assesses risk to nontarget species during the pesticide registration process
- Standard assessment procedures are used to identify potential risk to categories of species, including endangered species.
- Estimated Exposure/Lab Toxicity = Risk Quotient (RQ)
- RQ Vs Numeric Threshold for Listed species (LOC)

Identifying Risk to Listed Species

- EPA utilizes a screening assessment with standardized methods to identify potential risk to categories of listed species:

e.g. No acute concerns for reptiles if estimated pesticide residues on terrestrial plants and insects < 1/10 the avian LC₅₀.



FIFRA Standard

- Registration Threshold: “no unreasonable adverse effects on the environment”
- Management decisions by EPA involve negotiation with pesticide registrants and other stakeholders to balance economic benefits with risk to man and the environment

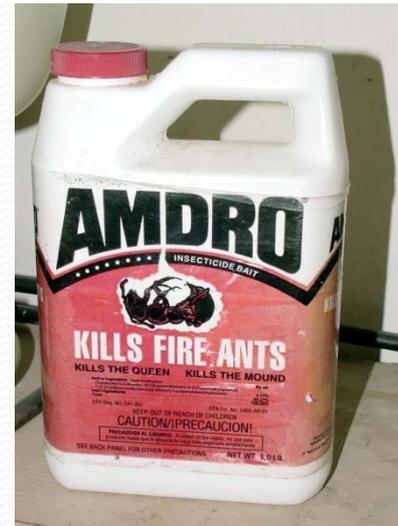


Modification of general label requirements

- Negotiations over pesticide label restrictions (risk/benefit considerations) may or may not result in management decisions that reconcile exceedence of thresholds for listed species. Frequently, they do not.

Sample Pesticide Label¹

<p>(1) Precautionary Statements</p> <p>Wear chemical-resistant gloves and long-sleeved clothing when applying this product.</p> <p>Environmental Hazards</p> <p>Toxic to bass, but not toxic to blue-gills. Do not contaminate water.</p> <p>Storage and Disposal</p> <p>Store in secure place where product will not freeze. Dispose of excess material in an approved waste-disposal facility.</p> <p>It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.</p> <p>General Use Pesticide</p>	<p>For sale to and application only by certified applicators or persons under their direct supervision.</p> <p>RELIABLE</p> <p>Active ingredient Sacroin Phall (SePh) 20%</p> <p>(2) Common Name Sechall</p> <p>Inert ingredient Water 80%</p> <p>HERBICIDE</p> <p>KEEP OUT OF REACH OF CHILDREN</p> <p>(3) DANGER—POISON</p> <p></p> <p>Physical or Chemical Hazards</p> <p>Can cause corrosion to iron tanks.</p> <p>(4) Statement of Practical Treatment</p> <p>If swallowed, do not induce vomiting. SEE A DOCTOR</p> <p>If inhaled, get to fresh air.</p> <p>If on skin, wash with soap and water.</p> <p>If in eyes, flush with water. Call 562-8731 in the event of an emergency.</p> <p>Mfg. by: Buckeye Chemical Works Columbus, Ohio</p> <p>Est. No. 292-0111 EPA Reg. No. 292-1 Net Contents 2lb.</p>	<p>(5) Directions for Use</p> <p>For Corn: Apply at a rate of 1lb. material per acre. Do not apply to soybeans. May be used as a general purpose weed control around grain bins, farm buildings, and fence rows. Will control annual grasses and annual broadleaves. Use at a rate of 5lbs. material per acre for general weed control. Apply with water only in at least 20 gallons per acre.</p>
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MEMO:
499,99 B.C.
poison spray =
woolly mammoth no
make babies



History of Consultations on FIFRA Actions

SATURDAY NIGHT FEVER



History of EPA Consultation on FIFRA Registrations

- 1970: EPA took over registration of pesticides from Department of Agriculture
- 1973: ESA requires federal agencies to insure their actions are not likely to jeopardize the continued existence of Threatened or Endangered Species
- EPA recognized their authorization of pesticide use “may affect” listed species and began case-by-case consultations with USFWS starting in 1977¹

¹EPA 1991. Request for formal consultation with USFWS on 31 pesticides. February 26, 1991a letter from James Aker, Chief of Ecological Effects Branch/EFED/OPP/USEPA to William Knapp, Chief Division of Habitat Conservation USFWS.

History of Pesticide Consultations

- Over 70 case-by-case consultations with the USFWS
 endrin, creosote, compound 1080, strychnine
- EPA requests for consultations, typically for single pesticide and limited number of new uses.
- EPA found this to be an inadequate process that was slow and did not consider older pesticides and uses.
- Potential for market inequities among registrants of different chemicals

¹EPA 1991. Request for formal consultation with USFWS on 31 pesticides. February 26, 199a letter from James Aker, Chief of Ecological Effects Branch/EFED/OPP/USEPA to William Knapp, Chief Division of Habitat Conservation USFWS.



History of Pesticide Consultations

- 1980's: crop-based “cluster consultations”
- Results:
 - accelerated review of larger number of chemicals
 - increased consistency across chemicals
 - eliminated market inequities among chemicals with similar uses¹
- USFWS Biological Opinions (1982-1985)
 - Corn, Sorghum, Cotton, Forestry uses, Mosquito larvicides

¹EPA 1991. Request for formal consultation with USFWS on 31 pesticides. February 26, 199a letter from James Aker, Chief of Ecological Effects Branch/EFED/OPP/USEPA to William Knapp, Chief Division of Habitat Conservation USFWS.

History of Pesticide Consultations

- 1988/89: re-initiation of “cluster consultations” for 109 pesticides for effects on aquatic species
 - listing of new species
 - Availability of new data
 - Changes in pesticide use
- USFWS BO finalized

History of Pesticide Consultations

- Cluster approach discontinued in 1989: “because it was not considered sensitive to pesticide users and provoked a significant adverse reaction from congress and other”¹
- They will instead take a species-based approach, initially focused on those most vulnerable to pesticides threats and subject to existing Opinions
- The next step will to evaluate pesticides used at sites where sensitive species are distributed

¹EPA 1991. Request for formal consultation with USFWS on 31 pesticides. February 26, 199a letter from James Aker, Chief of Ecological Effects Branch/EFED/OPP/USEPA to William Knapp, Chief Division of Habitat Conservation USFWS. ALSO SEE 1991 REPORT TO CONGRESS



1990's

Nirvana???.

Nevermind!

History of Pesticide Consultations

- 1990's: consultation with USFWS on 31 pesticides
 - Which present the greatest risk to
 - Aquatic species (spotfin chub)
 - Terrestrial species (San Joaquin kit fox)
 - 16 vertebrate control agents, 14 insecticides, 1 herbicide

The Consultation from “Hades”

- **Part I - Effects of 16 Vertebrate Control Agents on T&E species**

- BO issued in 1993
- 189 jeopardy calls (out of 246 cases)



- **Part II - Effects of 15 Chemicals on T&E species**

- Final draft completed in 1996
- 1572 jeopardy calls (2330 cases)





The new
millennium

Caught In A Bad
Romance

Litigation-
driven
Consultation

Litigation driven lawsuits

The slam-dunk case:

1. NGO sues EPA for failure to consult on the registration of pesticide X
2. EPA has not consulted
3. EPA knows it will lose this lawsuit, and settles
 - settlement agreements with timelines for completion of biological assessments
 - injunctions prohibiting use of pesticides



Federal Register

Thursday,
August 5, 2004

Part III

**Department of the
Interior**

Fish and Wildlife Service

**Department of
Commerce**

National Oceanic and Atmospheric
Administration

50 CFR Part 402

Joint Counterpart Endangered Species Act
Section 7 Consultation Regulations; Final
Rule

August 5, 2004

Joint Counterpart ESA Section 7 Consultation Regulations

Gave EPA authority to:

- Make a "NLAA" without concurrence from Services
- Make Jeopardy conclusions with Service concurrence

September 2004: The inevitable lawsuit

Earthjustice sues FWS and NMFS on behalf of a coalition of 8 plaintiffs:

- Self-consultation inconsistent with Section 7
- Cannot insure that ERA's will meet ESA standards
- August 24, 2006:
 - NLAA provisions ruled unlawful
 - EPA retains ability to make Jeopardy calls, RPA/RPMs with Service Review



“...there is overwhelming evidence on record that without a Service check, EPA risk assessments (leading to pesticide registrations) would actually result in harm to listed species.”

Lawsuits involving Species Under USFWS Jurisdiction

1. Center for Biological Diversity/ Save Our Springs Alliance
- Barton Springs Salamander - 6 pesticides
2. NRDC – 21 species – Atrazine
3. Center for Biological Diversity – California red-legged
frog – 66 pesticides
4. Center for Biological Diversity –
11 species in San Francisco Bay –
41 pesticides



California Red-legged Frog
artist's interpretation

EPA's evaluation of Atrazine effects to the Alabama Sturgeon and Dwarf Wedgemussel

Improved upon earlier assessments

Failed to consider

- formulations (inerts, other active ingredients)
- tank mixtures
- environmental mixtures
- sublethal effects (olfaction, behavior, histology, endocrine disruption)

Modeling inadequate

- not predict worst-case concentrations in waters
- underpredicted concentrations in low-flow habitats
- effects to aquatic plant community likely underestimated



Dwarf Wedgemussel
Endangered



non-concurrence letter

EPA's evaluation of Metolachlor and Diazinon effects to the Barton Springs Salamander



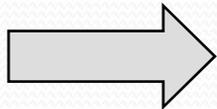
Barton Springs Salamander
Endangered

Failed to consider

- formulations (inerts, other a.i.'s)
- tank mixtures
- environmental mixtures
- all potential use over time
- several studies from the open literature

Modeling inadequate

- not predict worst-case concentrations in waters
- underpredicted concentrations in low-flow habitats



non-concurrence letter

USFWS January 2009

Insufficiency letter to EPA

Requested for all of the remaining consultations:

1. Full description of the action, including list of products and the chemicals contained therein
2. Exposure analysis
3. Estimate of concentrations from all authorized uses



Peregrine Falcon

Lawsuits involving Species Under NMFS Jurisdiction



*Threatened
Loggerhead Turtle*

Informal:

Sept 2006 - April 2007: EPA effect determinations for shortnose sturgeon, loggerhead turtle, green turtle, Kemp's ridley turtle, leatherback turtle associated with atrazine use in Chesapeake Bay region.

Formal:

2002 – 2012: EPA registration of 37 active ingredients – threatened and endangered Pacific salmonids

Batch 1: chlorpyrifos, malathion, diazinon (Nov 2008)

Batch 2: carbofuran, carbaryl, methomyl (April 2009)

Batch 3: azinphos methyl, dimethoate, phorate, methidathion, naled methyl parathion, disulfoton, fenamiphos, methamidophos, phosmet, ethoprop, bensulide (August 2010)

Batch 4: 2,4-D, triclopyr BEE, diuron, linuron, captan, chlorothalonil (June 2011)

Batch 5: oryzalin, trifluralin, molinate, thiobencarb, propargite, fenbutatin-oxide, diflubenzuron, 1,3-D, lindane, racemic metolachlor, bromoxynil, prometryn, pendimethalin (April 2012)

Pacific Salmonid Lawsuit History

- Ruling against EPA for failure to consult on 54 a.i.'s
- Order for injunctive relief (no spray buffers)
- NCAP threatens suit against NMFS for unreasonable delay in consultation/ agree to consultation schedule
- NMFS begins completing opinions/ Pesticide registrant sue NMFS on grounds that conclusions arbitrary and capricious
- NGOs sue EPA on for failure to implement Reasonable and Prudent Alternatives



Megalawsuit

- Jan 2011- CBD and PANNA suit against EPA
- Suit alleges:
 - EPA Failed to consult with FWS and NMFS on actions that may affect listed species
 - EPA Failed to meet obligations of previous consultations
- Suit includes
 - Several hundred pesticides
 - Approximately 200 listed species

Megalawsuit (continued)

- Plaintiffs seeking:
 - Declaration that EPA violating Sect 7(a)(2)
 - Order to begin or reinitiate consultation
 - Order restricting use where pesticides may affect listed species
- EPA and Plaintiff negotiations continue

Risk Reduction - EPA's Endangered Species Protection Program



Crested Caracara, *threatened*

1988 ESA Amendment

- Public Law 100-478, Section 1010
- Congress requires EPA report on ways to implement labeling program to:
 - Conserve listed species
 - Minimize impacts to pesticide users
- Report Delivered to Congress May 1991¹
- Endangered Species Protection Plan (ESPP)

¹EPA 1991. Endangered Species Protection Program As It Relates To Pesticide Regulatory Activities. Report to Congress. EPA 540-09-91-120. May 1991.

History of ESPP

Interim Phase 1988 - 2005

- ESPP outlines “county bulletin program”
- Two ways to reduce risk through labeling
 - Changes to the general use restrictions on the label that apply to regardless of location relative to listed species
 - Geographic specific restrictions



Geographic Specific Requirements

- Work with states to establish “county bulletins” where species specific protections needed
- Initially these were paper bulletins that listed all special chemical restrictions at the county scale
- The objective: minimize burden to agriculture and other pesticide users



Nene – Hawaiian goose

County Bulletin Example

Saline County, AR

Table of Pesticide Active Ingredients

Active Ingredient	Code
CHLORPYRIFOS	
Alfalfa	43
PROPICONAZOLE	1

Arkansas fatmucket



Limitations On Pesticide Use

Code	Limitations
1	Do not apply this pesticide within 20 yards from the edge of water within the shaded area shown on the map for ground applications , nor within 100 yards for aerial applications .
43	Do not apply this pesticide within 100 yards of water within the shaded area shown on the map for ground applications , nor within 1/4 mile for aerial applications .

Interim Phase 1988-2005

Report Card – Pesticide Consultations

- Label modifications
- 1989 and 1993: EPA consultations with USFWS
- RPAs and RPMs never fully implemented
- No consultations occur with NMFS on marine or anadromous species

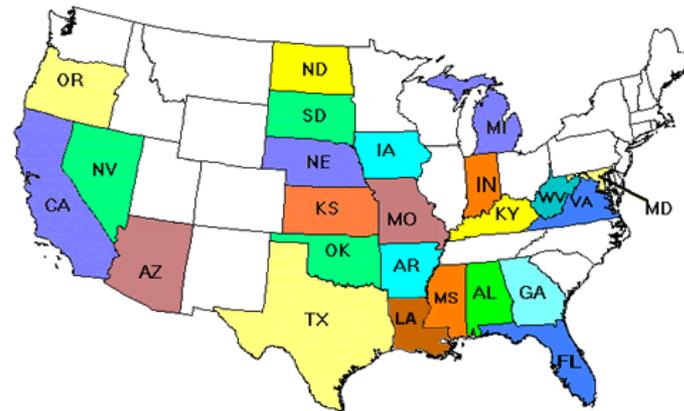


Hawaiian Monk Seal

Interim Phase 1988-2005

Report Card – Pesticide Mitigation

- Although EPA identified potential harm to one or more categories of listed species through its screening assessments....
- Bulletins were not developed for most counties and species
- “Restrictions” were voluntary and not a requirement



History of ESPP

Implementation Phase: 2005 - Present

- 2005: EPA announced commencement of “field implementation” of their ESPP
- EPA would start making Bulletins enforceable by referencing them on labels.
- Restrictions would be available online through new website: Bulletins Live!



Chinook salmon

Pathway to FIFRA enforceable restrictions for Endangered Species

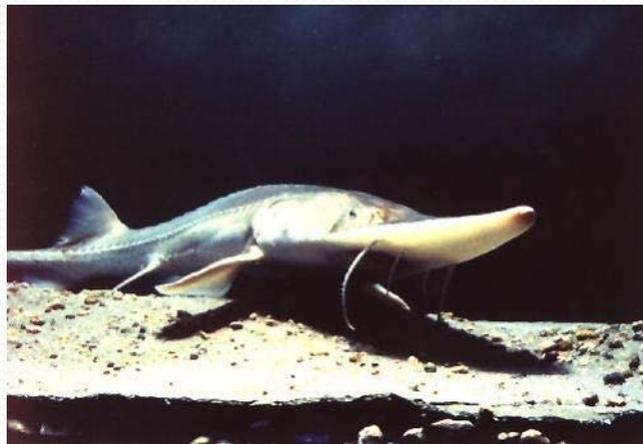
- Migrate existing voluntary bulletins to enforceable ESPP bulletins pending review
- Create new bulletins based on need identified through product re-registration/registration review and Section 7 consultation with the Services.



Green Turtle / Honu

Re-registration/ Registration Review

- EPA registration review process involves reassessing need for changes to registration at 15 yr intervals
- According to the process, EPA considers screening level assessment and considers need for species specific assessments and consultation with the Services



Pallid sturgeon

Outcome of EPA species-specific assessments

If EPA determines that a pesticide :

- will have "no effect" on a listed species and designated critical habitat- no consultation is required
- “may affect” but is not likely to adversely affect”- EPA can submit a request for concurrence with the Services
- “may affect and is likely to adversely affect” – formal consultation with the Services is required



Green turtle

If mitigation is needed to address endangered species concerns:

- EPA may require changes to the use conditions specified on the label of the product.
- When such changes are necessary only in specific geographic areas rather than nationwide, EPA may implement these changes through geographically-specific Endangered Species Protection Bulletins.



Elkhorn Coral



Bulletins Live!

Protecting Endangered Species





Bulletins Live!

Protecting Endangered Species

[Main](#) > [Wisconsin](#) > Choose a county:

Adams
Ashland
Barron
Bayfield
Brown
Buffalo
Burnett
Calumet



Continue ->

Directions: Click on the county name in which your pesticide will be applied to view the appropriate Endangered Species Protection Bulletin.

Status of ESPP Bulletins

- Few exist, none for NMFS listed species!
- Voluntary bulletins have not been reassessed
- Several pesticide consultations are currently underway. Some may result in protections to species from ESPP Bulletins?
- 2009 Bulletin- methoxyfenozide restrictions in some WI and MI counties

Karner blue butterfly



Take home message

- Land managers and pesticide users should not assume pesticide use according to current labeling will not adversely affect listed species or their habitat
- Through screening level risk assessments and species specific assessments EPA has determined that labeled use of many currently registered have the potential to affect listed species or their designated critical habitat
- Consultations have provided RPAs that have not been implemented
- There are currently few enforceable bulletins
- Existing voluntary bulletins are incomplete



Mariana Fruit Bat

Questions



EPA 1991 REPORT TO CONGRESS ON ESPP

- As a result of cluster consultations, EPA developed implementation plan to protect endangered species in 1986.
- The plan required label modifications that referred that limited use in pesticides in certain counties.
- May 1997- EPA issued notices requiring registrants to modify labeling.
- October 1987- EPA invited states to develop alternative plans, subject to approval by EPA & FWS
- EPA intended labeling would go into effect in the 1988 growing season.
- Jan 1988- EPA announced they were rescinding requirements for label modifications and needed more time to develop an endangered species plan because:
 - Map inaccuracies for species distributions
 - Need for more public review and comment
 - Need for education and training programs
 - State initiated plans required more time for coordination among different groups
- March 1988 EPA published plan seeking public comment
- July 1989- EPA published Revised ESPP
- “It is anticipated that the FR Notice describing the final program will be published in 1991.”
- UPDATE: 2005 EPA announces commencement of implementation phase of ESPP