

RECLAMATION

Managing Water in the West

Odessa Subarea Special Study

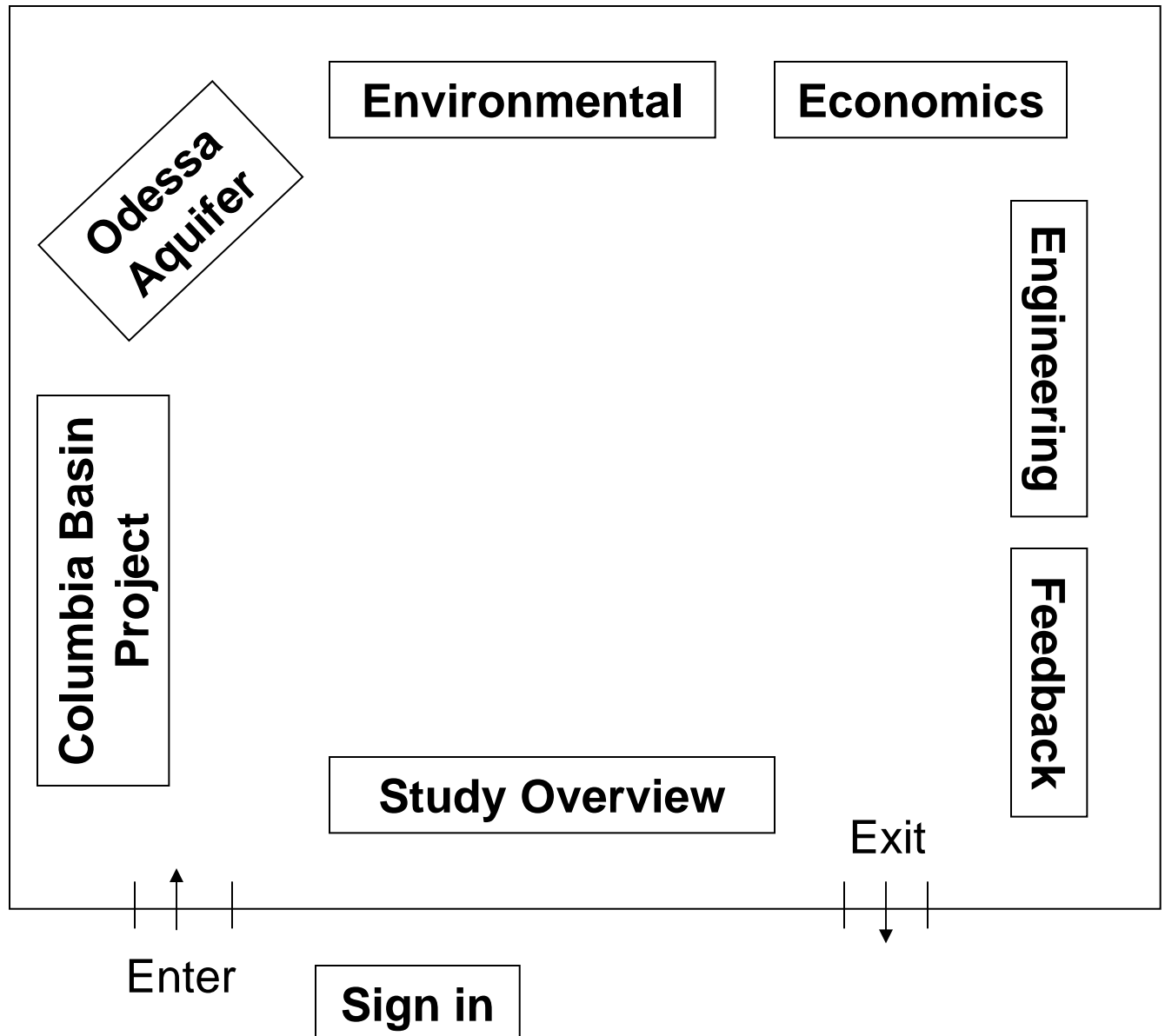
Columbia Basin Project

Open House

February 22, 2006

Big Bend Community College

Moses Lake, Washington



Station	Purpose	Relevant Handout Page
Sign In	Receive an information packet and an orientation of the open house layout; sign up to receive future information about the study	n/a
Study Overview	Receive information about the study scope, requirements, steps, and time lines; meet the study managers	1-3
Columbia Basin Project	Learn about the Columbia Basin Project infrastructure and operations	n/a
Odessa Aquifer	Learn about the Odessa Subarea aquifer and Reclamation and Ecology's efforts to develop a groundwater model	4
Environmental	Learn about the environmental requirements and procedures associated with the study; provide input on the environmental issues that Reclamation should address	5-7
Economics	Learn about the economic analyses Reclamation must conduct	8
Engineering	Discuss possible study options with the engineers	n/a
Feedback	Provide feedback on the study issues Reclamation should consider; have a one-on-one dialogue with Reclamation managers	n/a

Study Purpose and Scope

The Odessa Subarea Special Study (Study) will investigate the possibility of continuing development of the Columbia Basin Project to deliver project water to lands currently using groundwater in the Odessa Ground Water Management Subarea (Odessa Subarea). The Study will not address the full development of the Project. Reclamation has not identified specific alternatives, but will focus on options that:

- reduce irrigation use of the Odessa Subarea aquifer;
- maximize the use of existing Project infrastructure;
- do not preclude full development of the Columbia Basin Project in the future;
- are economically justified, financially feasible, and environmentally acceptable; and
- can be studied with available funding.

Reclamation is partnering with the State of Washington on this Study.

Study Area

The Study will focus on lands currently irrigated with groundwater in Adams, Grant, and a small portion of Franklin and Lincoln Counties. The Study area is within the Columbia Basin Project boundary and is generally defined by the area bounded on the west by the Project's East Low Canal, on the east by the City of Lind, and extending north to Wilson Creek and south to the Connell area.

Study Approach and Time Line

Reclamation will conduct numerous technical studies as we investigate alternatives and select a preferred alternative. The Study is anticipated to take about five years to complete. During this time, Reclamation and partners will begin to identify and evaluate engineering concepts, develop and evaluate detailed alternatives, and conduct environmental and economic analyses to select a preferred alternative.

The Study is organized into four phases. The *Odessa Subarea Special Study - Plan of Study* (February 2006) report provides information about specific activities anticipated to occur during each phase. Copies of the report can be obtained at:

http://www.usbr.gov/pn/programs/ucao_misc/odessa/index.html.

PHASE 1: ORGANIZE STUDY

Spring 2005 – Winter 2006

Reclamation began organizing the Study in 2005 which included identifying issues to address, study expertise required, study requirements, schedules, and funding options. This information is documented in the *Odessa Subarea Special Study - Plan of Study* (February 2006).

PHASE 2: PRE-PLAN FORMULATION

Fall 2005 – Late Spring 2007

Reclamation began the technical studies associated with this phase late in 2005. Activities center on developing baseline technical information and preliminary engineering concepts and ideas. Some of the technical studies that will occur over this period include:

Engineering Studies –Reclamation will use a process called the Project Alternative Solutions Study (PASS) to efficiently generate and evaluate engineering concepts. The PASS process involves two teams -- an Objectives Team and the Technical Team. The Objectives Team is comprised of individuals representing stakeholder interests in the Study area and has the role of developing criteria, objectives, and factors of acceptance for the concepts that will be considered. The Objectives Team will meet in the Spring 2006.

The Technical Team develops and evaluates alternatives based on the guidance provided by the Objectives Team. This Team will generate concepts based upon a review of previous investigations as well as ideas provided by the public at the February 2006 Open House and other public forums. Using the criteria developed by the Objectives Team, the Technical Team will evaluate these engineering concepts and identify those that merit further investigation by Reclamation. A report documenting the PASS process is anticipated in the Fall 2006.

Reclamation will conduct an appraisal-level study of concepts identified in the PASS process to determine what concepts merit further study at the more detailed feasibility-level analysis. Appraisal studies are preliminary surveys of problems, needs, and conceptual solutions to determine which of any potential workable alternatives should receive further study.

Surface and Ground Water Hydrology - Reclamation is collecting available information to understand the current aquifer condition and the extent of aquifer decline. We are also working with the Washington Department of Ecology to develop a groundwater model.

Reclamation will describe the current hydrologic conditions of the Columbia River basin and determine the availability of water from the Columbia River. This will entail updating the Columbia River water assessment completed in 2004 (a component of the Yakima River Basin Water Storage Feasibility Study).

Reclamation will use its Columbia Basin Irrigation Project RiverWare (CBIP-RW) model to assess the impacts and ability of Columbia Basin Project infrastructure to deliver water to the Odessa Subarea.

Economic Studies - In selecting a preferred alternative for this Study, Reclamation must determine that it is economically and financially feasible. The economic feasibility of an alternative is determined through a benefit-cost ratio analysis and financial feasibility is determined through payment capacity analyses. Reclamation will use guidelines contained in the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*, also referred to as Principles and Guidelines or P&Gs, to conduct a benefit-cost analysis. Reclamation will begin components of these analyses this year by developing initial irrigation benefits and irrigation payment capacity estimates.

PHASE 3: PLAN FORMULATION

Late Spring 2007 – Fall 2008

Activities in this phase will focus on conducting detailed engineering studies of alternatives identified as the most viable in the appraisal-level studies conducted earlier.

PHASE 4: FEASIBILITY-LEVEL ANALYSIS/ ENVIRONMENTAL COMPLIANCE

Fall 2007- Summer 2010

Phase 4 activities will occur simultaneously with some Phase 3 activities. The feasibility-level study includes data and analysis at a level of detail that allows decision makers to understand the potential risks and benefits associated with alternatives and assist in selecting a preferred alternative.

The feasibility-level study will include preparation of a combined environmental impact statement (EIS), as required by the National Environmental Policy Act (NEPA), and feasibility-level planning report. This document will describe the alternatives considered, the analysis of these alternatives, and the selection of an agency preferred alternative. The planning report documents the planning and economic studies that will be conducted to evaluate the financial and economic feasibility of alternatives, including the Principles and Guidelines analysis. Consultation under the Endangered Species Act may require preparation of a biological assessment.

SELECTION OF PREFERRED ALTERNATIVE

Reclamation will select a preferred alternative that meets the following criteria:

- Is technically viable
- Protects Indian Trust Assets
- Complies with NEPA, ESA, and other environmental regulations
- Is socially and environmentally acceptable
- Is economically justified
- Is financially acceptable
- Is acceptable to the public.

FOR MORE INFORMATION

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Odessa Groundwater Management Subarea Aquifer Characterization and Groundwater Flow Model Development

The Bureau of Reclamation has been assembling all of the available studies and groundwater data that have been completed for the Columbia Plateau and Odessa Groundwater Management Subarea. These include studies by the Washington Department of Ecology, U.S. Geological Survey (USGS), the Columbia Basin Groundwater Management Area (GWMA), Washington State University, and others.

Mapping of groundwater level declines has been accomplished with the use of a computer Geographic Information System. This mapping allows us to determine which areas have the greatest declines and helps to analyze the trends and distribution of those declines. We are working with the USGS to collect current water level information for the study area, since a comprehensive well measurement program has not been accomplished for 20 years. The USGS intends to measure approximately 200 well water levels during the next few months.

A numerical model (computer simulation) is being developed to aid in our understanding of groundwater flow in the Odessa Subarea. The model will utilize a software package called MODFLOW, which was developed by the USGS and is the recognized standard used in the groundwater industry. The model requires a large amount of data to understand all facets of recharge and discharge from the aquifer. We are currently collecting and assembling these data.

The model will simulate flow in a 3-dimensional framework (e.g., vertical flow between aquifers as well as lateral flow). This is essential in order to understand how various alternative actions might affect the aquifers at different depths. In addition, the model will be used to answer questions, such as:

- how would groundwater levels be affected due to converting groundwater irrigated acreage to surface water-irrigated acreage,
- how would artificial aquifer recharge activities impact groundwater levels, and
- how does groundwater pumping from one aquifer unit affect head conditions in other units above and below it?

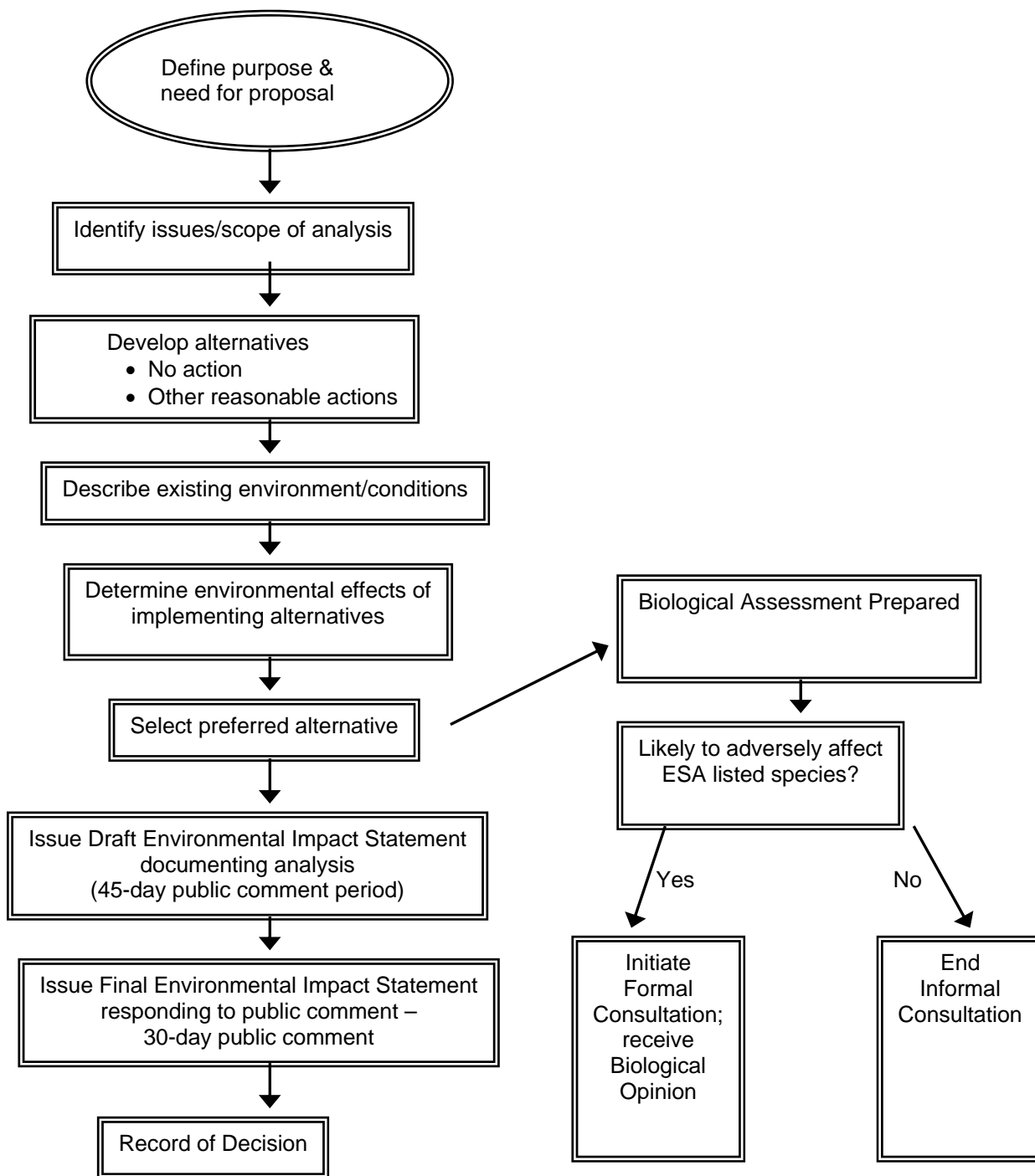
The model will address these questions in the context of long-term impacts of changes in irrigation practices.

For more information about groundwater studies, please contact:

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National Environmental Policy Act Environmental Review Process



Threatened and Endangered Species Information

Columbia River Salmon and Steelhead Evolutionarily Significant Units (ESUs) Listed as Threatened or Endangered by the National Marine Fisheries Service



Chinook Salmon

Upper Columbia River Spring-run ESU – Endangered
Lower Columbia River ESU – Threatened
Snake River Spring/Summer-run ESU – Threatened
Snake River Fall-run ESU – Threatened
Upper Willamette River ESU – Threatened



Steelhead

Upper Columbia River ESU – Threatened
Middle Columbia River ESU – Threatened
Lower Columbia River ESU – Threatened
Snake River Basin ESU – Threatened
Upper Willamette River ESU – Threatened



Chum Salmon

Columbia River ESU – Threatened



Coho Salmon

Lower Columbia River ESU – Threatened



Sockeye Salmon

Snake River ESU – Endangered

Species Listed as Threatened or Endangered by the US Fish and Wildlife Service



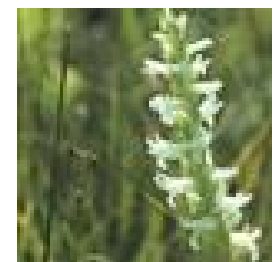
Pygmy rabbit – Endangered



Bull trout – Threatened



Bald eagle – Threatened

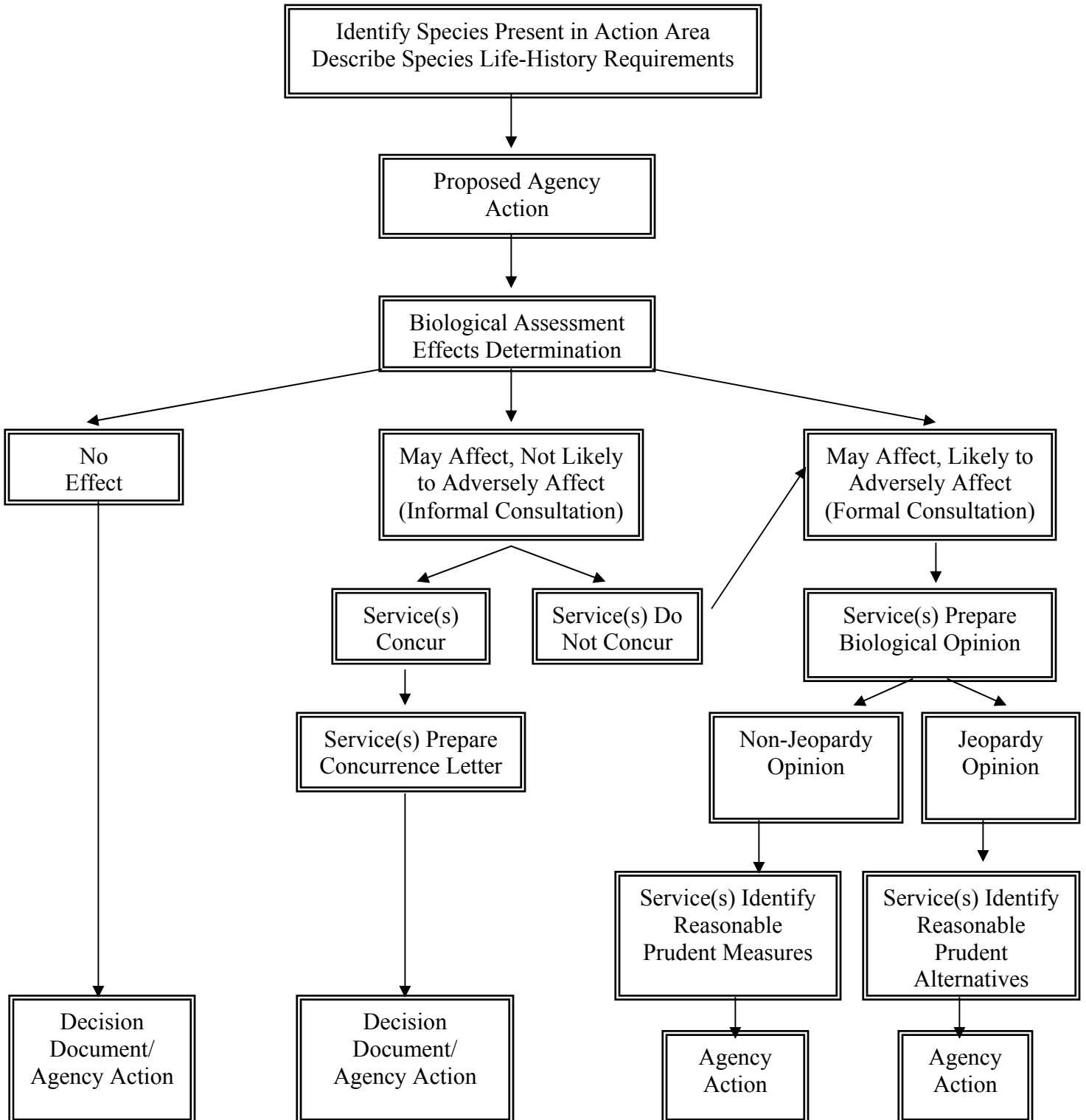


Ute ladies'-tresses – Threatened



Spalding's silene – Threatened

Endangered Species Act – Action Agency Consultation Process: An Overview



Economic and Environmental Principles and Guidelines for Water and Related Resources Implementation Studies (P&Gs)

Reclamation is authorized to continue development of the Columbia Basin Project as long as the development is economically and financially feasible. Reclamation traditionally determines economic feasibility through benefit-cost analysis and financial feasibility through payment capacity analyses. In other words, the benefits must exceed the costs and the beneficiaries must be willing and able to repay reimbursable construction costs and annual operations and maintenance costs. In the Odessa Subarea Special Study, Reclamation will use Principles and Guidelines (P&Gs) established for Federal water resources planning studies to conduct the benefit-cost analysis. The major steps of this process are:

1. Specify problems and opportunities associated with the Federal objective and State and local concerns.
2. Inventory, forecast, and analyze water and land conditions relevant to identified problems and opportunities.
3. Formulate Alternative Plans using criteria of completeness, effectiveness, efficiency, and acceptability.
4. Evaluate effects of Alternative Plans using four “accounts” that attempt to quantify information for comparison purposes.
 - NED (National Economic Development) – compares total benefits to total costs (Federal and non-Federal) by alternative. It is required in Federal analyses and focuses on impacts to the nation and considers changes in the economic value of the national output of goods and services of each alternative.
 - EQ (Environmental Quality) – displays nonmonetary effects on significant natural and cultural resources
 - RED (Regional Economic Development) – estimates both the positive and negative effects on the local economy that result from each alternative plan. Effects are measured as changes in regional economic activity (regional income and employment).
 - OSE (Other Social Effects) – displays effects of each alternative from perspectives that are relevant to the planning process, but are not reflected in the other three accounts.
5. Compare Alternative Plans using a “with project” and “without project” analysis.
6. In most cases, the plan selected is to be the alternative with the greatest net national economic benefit, consistent with protecting the environment.