

1. This section provides an overview of the framework for the analysis, a description of the information services and methodology used to determine potential economic impacts from the proposed designation of critical habitat for the wintering piping plover, and a discussion of the likely economic costs and benefits associated with this proposed designation.

3.1 FRAMEWORK FOR ANALYSIS

1. This economic analysis examines the impacts of restricting specific land uses or activities within areas designated as critical habitat. The analysis evaluates impacts in a "with" critical habitat designation versus a "without" critical habitat designation framework, measuring the net change in economic activity. The "without" critical habitat designation scenario, which represents the baseline for analysis, includes all protection already afforded to the piping plover under state and Federal laws, such as the National Environmental Policy Act and the coastal development restrictions. The focus of this economic analysis is to determine the impacts on land use modifications and activities from the designation of critical habitat that are above and beyond the impacts due to listing.

3.1.1 Methodological Approach

1. Listed below are the four questions that were posed to identify economic impacts from the proposed critical habitat designation:
 1. **What land uses and activities exist within the proposed critical habitat designation?** As noted above, potential impacts on critical habitat lands were identified through phone conversations with Service staff, state and local land management agency staff, and private landowners. In addition to considering direct impacts on lands, the analysis considers the potential for indirect impacts that may affect lands (see Question 4).
 2. **Does the land use or activity involve a "Federal nexus"?** Critical habitat designation can only affect land uses and activities undertaken by state and other governments and private parties when a "Federal nexus" exists (i.e., the activities or land uses of concern involve Federal permits, Federal funding, or other Federal

action). Activities on the part of state and other governments as well as private entities that do not involve a Federal nexus are not affected by critical habitat designation. For federally-managed land, critical habitat designation may restrict land uses and other actions that may adversely modify critical habitat.

3. Would the land use or activity face modifications or costs under the proposed critical habitat designation;? Would these be above and beyond existing modifications or costs under the ESA listing of the piping plover?

As noted above, the baseline for analysis includes all modifications on land use existing prior to the designation of critical habitat, including listing modifications. Only impacts from modifications above and beyond this baseline are considered. Determinations of whether a land use or activity would face additional modifications or costs under the proposed critical habitat designation are based on discussions with the Service. Those land uses and activities that either the Service or other stakeholder suggested would be subject to additional modifications under the proposed critical habitat designation are evaluated to determine the potential national economic efficiency effects and regional economic impacts.

4. Would the land use or activity be subject to other indirect effects under the proposed critical habitat designation, based on perceptions of potential modifications rather than actual modifications on planned activity?

No matter what the actual scale and scope of requirements imposed on activities within the boundaries of critical habitat is, landowners and land managers may perceive or expect that more significant requirements arising from the delineation of critical habitat boundaries. Land managers may modify their activities based on the heightened awareness of the species and the importance of the habitat for that species. This may have a variety of indirect economic effects. In addition, landowners and managers with property within critical habitat boundaries may be uncertain about whether their property constitutes critical habitat. These perceptions may result in losses in economic value and may cause increased costs to property owners to mitigate these losses during the period following critical habitat designation, before markets incorporate information regarding actual modifications on activities. For example, the value of property within the extent boundary of the critical habitat designation may be perceived to be lower (or higher) than properties outside the boundaries of the designation due to uncertainties or misperception about the effect of critical habitat.

3.1.2 Categories of Economic Impact

- The focus of this economic analysis is to determine the costs and benefits to land uses and activities from the designation of critical habitat that are above and beyond those that result from listing. Exhibit 3-1 outlines the categories of costs and benefits considered in this analysis.

Exhibit 3-1		
GENERIC CATEGORIES OF POTENTIAL ECONOMIC IMPACTS DUE TO CRITICAL HABITAT DESIGNATION		
	Categories of Potential Costs and Benefits	Examples
Costs	Costs associated with technical assistance or section 7 consultations: <ul style="list-style-type: none"> ⌄ increased technical assistance ⌄ new consultations ⌄ reinitiated consultations ⌄ extended consultations 	Administrative costs (e.g., costs of phone calls, letter writing, meetings, travel time) and specialist consultant costs (e.g., fees biologists, surveyors or legal counsel).
	Costs of modifications to projects, activities, and land uses.	Opportunity costs associated with seasonal project changes (e.g., limiting activity to non-breeding seasons), relocation or redesign of project activities (e.g., moving construction further away from a streambed), and/or cessation of certain activities (e.g. camping).
	Costs associated with uncertainty and perceptions of critical habitat effects: <ul style="list-style-type: none"> ⌄ changes in property values ⌄ project delays ⌄ legal costs 	Transitory decline in value of properties within critical habitat, based on the public's perception that critical habitat will result in project modifications; legal suits brought against development in critical habitat areas.
Benefits	Benefits associated with reduction in uncertainty and with perceptions of critical habitat effects.	Transitory increases in value of existing residential properties within critical habitat, based on the public's perception that critical habitat will slow development.
	Recreational and other use benefits.	Improvements to wildlife viewing and the opening of eco-tourism ventures.
	Non-use benefits.	Enhancements to resource preservation (increased biodiversity, ecosystem health) and existence values.

- This analysis recognizes that, even in cases in which consultations would be expected in the absence of critical habitat, there are several scenarios that could involve additional consultation costs. For example, (1) some consultations that have already been “completed” may need to be reinitiated to address critical habitat if the project is not completed; and (2) consultations taking place after critical habitat designation may take longer because critical habitat issues will need to be addressed. The economic impact of critical habitat designation can go beyond the direct costs

of consultations and project modifications. For example, even in units for which critical habitat designation is not expected to impose further project modifications beyond those required by the listing of the piping plover, government and private landowners may nonetheless incur costs resulting from critical habitat designation above and beyond those attributable to the listing of the piping plover as a threatened species. These costs might include the value of time spent in conducting section 7 consultations beyond those associated with the listing of the piping plover, and/or delays in implementing public and private development activities with a Federal nexus, which may result in losses to individuals and society, among other costs.

1. This report assumes that the designation of critical habitat may trigger greater awareness on the part of -- and provide additional information to -- Federal action agencies, state agencies, local municipalities, and private landowners. This may in turn result in increased requests for consultation, and ultimately, increased costs associated with project modifications than would have occurred strictly under the listing.

1. Technical assistance offered by the Service represents another potential source of costs. Technical assistance typically consists of guidance provided by the Service to other Federal agencies, state agencies, local municipalities, and private landowners. In general, technical assistance is provided to owners of land without a Federal nexus, but it may also be provided to owners of land for which a clear Federal nexus exists. Guidance consists of responding to inquiries regarding the presence or absence of listed species or critical habitat within an area or questions about whether proposed land uses are likely to adversely affect listed species or critical habitat. If the Service feels that proposed actions or projects on private land with a Federal nexus may adversely affect listed species or critical habitat, the Service typically issues a letter suggesting approaches to avoid take (or other adverse impacts). However, such assistance programs are an ongoing part of Service duties in the field offices that manage this designation. The minor costs of such assistance in this region is thus attributable to the listing of multiple species and not linked to a specific critical habitat designation. Thus, no cost estimates for technical assistance are provided in this report.

3.1.3 Information Sources

1. This analysis relies on interviews with, and information provided by, various stakeholders. Interviews with Service personnel, including regional administrative staff and field biologists were conducted as well as interviews with personnel at various Federal and state agencies. References for specific interviews are provided within footnotes to the text. Comments received from stakeholders after the draft economic analysis was made public also provided additional information used in development of this report.

1. A review of past consultations from respective field offices of the Service, as well as

information from various stakeholders, was used to estimate the number of formal consultations that might result from critical habitat designation. Administrative costs for conducting these formal consultations were calculated for the entire listing area, using a cost model that has been applied to a number of critical habitat economic analyses.

1. Costs associated with any modifications to activities that may occur over the next ten years as a result of critical habitat are highly variable and uncertain. This variability and uncertainty is associated with (1) whether the modification would have been required in the baseline; (2) the type of modification, if any, that would be required; and (3) case and site specific conditions, among other factors. Specifically, the Service believes that, for all proposed units, any costs that are incurred are most likely attributable to the listing of the species, due to the fact that they consider all units to be occupied. However, various Federal action agencies may view the designation of critical habitat as providing new information and requirements. Thus, this analysis considers upper-bound cost estimates, reflecting the assumption that some additional impacts may be experienced as a result of critical habitat designation.

1. Instead of attempting to cost-out each potential project modification, this analysis follows a case-study approach intended to provide reasonable upper-bound cost estimates for potential activities. The analysis uses a sampling of case studies provided by commenters and interviews with stakeholders with projects that had the requisite Federal nexus for our analysis. These case studies are intended for use by the Service in understanding the potential economic impact of critical habitat designation in a given unit, recognizing that (1) these costs may be attributable to critical habitat designation (i.e., not to the listing or other baseline requirement), and (2) the described modifications may not be required.

3.2 POTENTIAL CONSULTATION COSTS DUE TO CRITICAL HABITAT

1. The proposed designation of critical habitat for wintering piping plovers includes Federal, state, and private lands. Critical habitat designation may modify land uses, activities, and other actions on federally-managed land that threaten to adversely modify habitat. For activities and land uses on state, and private lands to be affected by critical habitat designation, a Federal nexus must exist (i.e., the activities or land uses involve a Federal permit, Federal funding, or require Federal actions). Activities on state and private lands that do not involve a Federal nexus are not affected by the designation of critical habitat.

1. This section first discusses the types of impacts that potentially could be incurred by Federal, state, and private land owners and managers as a result of the critical habitat designation for the piping plover. To the extent that available information allows, the analysis then provides examples of actual activities in which these entities are involved, and describes whether they are likely to experience these impacts.

1. Potentially affected stakeholders have varying opinions as to the number and type of additional consultations and modifications that might result from critical habitat designation. For example, stakeholders may hold different opinions as to: whether or not the consultations would occur in the baseline (i.e., under the listing); whether any project modifications would be required at all; and the types of project modifications that would be required.. This analysis uses the information provided by all stakeholders to present a range of potential costs of the proposed designation.

3.2.1 Cost Categories for Section 7 Consultations on Critical Habitat

1. Parties involved in section 7 consultations include the Service and the Federal agency involved in the proposed activity. In cases where the consultation involves an activity proposed by a state or local government or a private entity (the "applicant"), the Federal agency with the nexus to the activity serves as the liaison with the Service.
1. To initiate a formal consultation, the relevant Federal agency submits to the Service a consultation request with an accompanying biological analysis of the effects of the proposed activity. This biological analysis may be prepared by the relevant Federal agency, the state, county, or municipal entity whose action requires a consultation, or an outside party hired by the agency or landowner. Once the Service determines that these documents contain sufficient detail to enable a assessment, the Service has 135 days to consult with the relevant Federal agency and render its biological opinion. During the consultation, parties discuss the extent of the impacts to the species and its critical habitat and propose ways to avoid and minimize impacts. Some applicants incur costs to prepare analyses as part of the consultation package. These costs vary greatly depending on the specifics of the project. In most cases, these costs are attributable to the fact that a species has been added to the list of threatened and endangered species rather than the designation of critical habitat.
1. The Service asserts that economic costs and benefits from a critical habitat designation incremental to the listing are largely those which occur on unoccupied lands. This proposal only includes occupied lands; however, the ongoing or planned activities on occupied lands may trigger re-initiations of previous consultations conducted under the listing. In addition, the designation of critical habitat may provide action agencies and other parties with additional information concerning plovers that may lead to consultations that would not have occurred in the absence of the designation.
1. In addition, both public and private entities may experience delays in projects and other activities that have a Federal nexus due to critical habitat designation. Regardless of funding (i.e., private or public), projects and activities are generally undertaken only when the benefits exceed the costs, given an expected project schedule. If costs increase, benefits decrease, or

the schedule is delayed, a project or activity may no longer have positive benefits, or it may be less attractive to the entity funding the project. For example, if a private entity undertaking a residential development must delay groundbreaking as result of an unresolved section 7 consultation attributable to the designation of critical habitat, the developer may incur additional financing costs. Delays in public projects, such as construction of a new park, may impose costs in the form of lost recreational opportunities. The magnitude of these costs of delay will depend on the specific attributes of the project, and the seriousness of the delay. However, most of these delays will be attributable to the effects of listing of the species and not the designation of critical habitat.¹

3.2.2 Consultation Cost Estimates

1. Estimates of the cost of an individual consultation were developed from a review and analysis of historical section 7 files from a number of Service field offices around the country. These files addressed consultations conducted for both listings and critical habitat designations. Cost figures were based on an average level of effort for consultations of low, medium, or high complexity, multiplied by the appropriate labor rates for staff from the Service and other Federal agencies. These estimates take into consideration the level of effort of the Service, the Action agency, and the applicant during formal consultations, as well as the varying degrees of complexity of consultations. Costs associated with these efforts are based on estimates of administrative effort in issuing a biological opinion, such as time spent in meetings, preparing letters, and making phone calls. The consultation cost estimates presented here are a mid-range estimate and the full range of unit cost estimates could be one-half to twice of this value.

1. Exhibit 3-2 presents cost estimates for formal consultations by region over the next ten years that might result from critical habitat designation. While the Service believes, for all proposed units, that these consultations would have occurred regardless of the designation of critical habitat for the piping plover (i.e., these forecast consultations are due to the listing of the species), various Federal action agencies may view the designation of critical habitat as providing new information and requirements. Thus, these estimates of the number and cost of future consultations should be interpreted as upper-bound estimates of the likely cost of the designation. These estimates are based on information from a variety of stakeholders. The allocation of cost to various parties is based on the activity type and the relevant land-owners for each unit. Informal consultations and technical assistance offered by the Service are considered ongoing listing program efforts whose implementation will not change subsequent to critical habitat designation. Furthermore, costs associated with such efforts are relatively small as compared to formal consultations. Hence only formal consultation costs are provided in this table.

¹ Developers will likely be aware of the potential impact of critical habitat designation on project scheduling.

1. It is important to note that the geographic expanse of critical habitat designation does not imply a concomitant rise in consultation activity. For example, while there are 37 critical habitat units in Texas, only four formal consultations are expected following critical habitat designation in the next ten years. Much of this is related to the land ownership as well as the extent of development activity in particular areas. Residential development on barrier islands in this region is restricted by various baseline regulations, and the physical limitations of construction in a coastal environment.

Exhibit 3-2

**PROJECTED FORMAL CONSULTATION COSTS WITHIN CRITICAL HABITAT
DESIGNATION FOR THE PIPING PLOVER WINTERING HABITAT (2001 - 2010)^a**

Critical Habitat Units	Consultations (2000-2010)	Activity Codes*	Nexus Code**	The Service Cost	Federal Action Agency Cost	Third Party Cost	Total
AL2-3	4	1,2,3	A, C, E	\$12,400	\$16,400	\$2,900	\$31,700
FL2-3	4	6,7	B, G	\$12,400	\$16,400	\$11,600	\$40,400
FL5-11	15	4,6,7	B, E, F	\$46,500	\$61,500	\$43,500	\$151,500
FL15 - 22	8	2	A	\$24,800	\$32,800	\$23,200	\$80,800
FL25	2	2	A	\$6,200	\$8,200	\$0	\$14,400
FL 33-36	3	2	A	\$9,300	\$12,300	\$8,700	\$30,300
GA1, 2	4	1,5	A	\$12,400	\$16,400	\$11,600	\$40,400
GA14	1	1,5	A	\$3,100	\$4,100	\$2,900	\$10,100
LA4,5 or 7	1	1	A	\$3,100	\$4,100	\$0	\$7,200
MS2-11	25	1,2,5,6,8	A, H	\$77,500	\$102,500	\$14,500	\$194,500
MS-13-15	6	2,6	A, D	\$18,600	\$24,600	\$17,400	\$60,600
NC1-5	30	1,2,5,7	A, H	\$93,000	\$123,000	\$29,000	\$245,000
NC6-10	20	1,2,5,7	A, H	\$62,000	\$82,000	\$20,300	\$164,300
NC11-18	30	1,2,5,7	A, H	\$93,000	\$123,000	\$29,000	\$245,000
SC3	2	2	A	\$6,200	\$8,200	\$0	\$14,400
SC5-6	3	1	A	\$9,300	\$12,300	\$2,900	\$24,500
SC13	2	1	A	\$6,200	\$8,200	\$0	\$14,400
SC15	1	1	A	\$3,100	\$4,100	\$0	\$7,200
TX37	2	1,5	A	\$6,200	\$8,200	\$5,800	\$20,200
TX3,5	2	1,5	A	\$6,200	\$8,200	\$5,800	\$20,200
Total	165			\$511,500	\$676,500	\$229,100	\$1,417,100

Sources: Consultation estimates based on data obtained from U.S. Fish and Wildlife staff.

Cost estimates obtained from internal IEC analysis.

*Activity codes:

1. Beach nourishment
2. Dredging and disposal
3. Disaster Relief
4. Shore stabilization
5. Commercial and residential development
6. Oil and gas exploration and drilling
7. Recreational activities
8. Highway Construction

**Nexus Code

- A. Army Corps of Engineers
- B. Minerals Management Service
- C. GSA
- D. Federal Energy Regulatory Commission
- E. Federal Emergency Management Agency
- F. Department of Defense
- G. National Park Service
- H. Coastal Zone Management Funds

^a. Based on a review of data on past consultations from respective field offices of the Service, as well as information from various stakeholders; the number of projected formal consultations reported are the total number of such consultations expected to occur with the critical habitat designation over the next 10 years.