

MEMORANDUM | January 23, 2014

TO U.S. Fish and Wildlife Service (Service)
FROM Industrial Economics, Incorporated (IEc)
SUBJECT Screening Analysis of the Likely Economic Impacts of Critical Habitat Designation for the Sharpnose Shiner and Smalleye Shiner

On August 6, 2013, the Service published a proposed rule to designate critical habitat for the sharpnose shiner (*Notropis oxyrhynchus*) and smalleye shiner (*N. buccula*) (hereafter, “shiners”).¹ As part of the rulemaking process, the Service must consider the economic impacts, including costs and benefits, of the proposed rule in the context of two separate requirements:²

- **Executive Order (EO) 12866 *Regulatory Planning and Review***, which directs Agencies to assess the costs and benefits of regulatory actions and quantify those costs and benefits if that action may have an effect on the economy of \$100 million or more in any one year; and
- **Section 4(b)(2) of the Endangered Species Act (the Act)**, which requires the Secretary of the Interior to consider economic impacts prior to finalizing a critical habitat designation.³

This memorandum provides information to the Service on the potential for the proposed critical habitat rule to result in costs exceeding \$100 million in a single year. If costs do not exceed this threshold, EO 12866 suggests that a qualitative assessment may be sufficient. This memorandum also identifies the geographic areas or specific activities that could experience the greatest impacts, measured in terms of changes in social welfare, to inform the Secretary’s decision under section 4(b)(2).⁴

¹ Proposed Critical Habitat Designation Rule, 78 FR 47612. August 6, 2013.

² Additional laws and executive orders require the consideration of the distribution of impacts on vulnerable subpopulations, such as small entities and state or local governments. These requirements for distributional analysis are beyond the scope of this memorandum.

³ Published September 20, 1993. As affirmed by *Executive Order 13563: Improving Regulation and Regulatory Review*. January 18, 2011.

⁴ The discipline of welfare economics focuses on maximizing societal well-being. (Just, R.E., D.L. Hueth, and A. Schmitz. 2004. *The Welfare Economics of Public Policy: A Practical Approach to Project and Policy Evaluation*. Edward Elgar Publishing: Northampton, MA.) It measures costs and benefits in terms of the opportunity costs of employing resources for the conservation of the species and individual willingness to pay to conserve those species. Opportunity cost is the value of the benefit that could have been provided by devoting the resources to their best alternative uses. Opportunity costs differ from the measurement of accounting costs (e.g., actual expenses). Welfare economics is recognized by the U.S. Office of Management and Budget (OMB) as the appropriate tool for valuing the costs and benefits of proposed regulatory actions. (U.S. Office of Management and Budget. 2003. *Circular A-4*.)

To prepare this assessment, we rely on: (1) the Proposed Rule and associated geographic information systems (GIS) data layers; (2) the Service's incremental effects memorandum, described in greater detail later in this memorandum; (3) the results of the Service's outreach efforts to other Federal agencies concerning the likely effects of critical habitat; and (4) public comments submitted on the Proposed Rule.

FINDINGS OF THE SCREENING ANALYSIS

Critical habitat designation for the shiners is unlikely to generate costs exceeding \$100 million in a single year. This is a result, in part, of the low levels of economic activity in the remote, sparsely-populated areas proposed for critical habitat. The population of all 11 counties containing proposed critical habitat totals less than 53,000. Data limitations prevent the quantification of benefits.

Section 7 Costs

The economic cost of implementing the rule through section 7 of the Act will most likely be limited to additional administrative effort to consider adverse modification. This finding is based on the following factors:

- The proposed designation occurs in extremely remote areas supporting little economic activity; and
- All proposed units are considered occupied; thus, the presence of the shiner, when the listing is finalized, provides significant baseline protection.

The additional administrative cost of addressing adverse modification during the section 7 consultation process ranges from approximately \$410 to \$5,000 per consultation, depending upon the type of consultation. Based on a review of the consultation history for the shiners, no more than two formal consultations, 28 informal consultations, and 16 technical assistances are expected annually. Thus, the incremental administrative burden resulting from the designation is likely to be less than \$84,000 in a given year.

In some cases, proposed critical habitat may provide new information to project proponents who otherwise would not have consulted with the Service, thus resulting in incremental economic impacts. We cannot predict where or when these situations may occur, but anticipate that consultations of this nature will be infrequent.

Other Costs

The designation of critical habitat is not expected to trigger additional requirements under state or local regulations nor is the designation expected to have perceptual effects on markets.

Section 7 and Other Benefits

Additional section 7 efforts to conserve the species are not predicted to result from the designation of critical habitat. Thus, the designation is unlikely to measurably increase the probability that the species will be conserved, and benefits are unlikely to exceed \$100 million in a given year.

Geographic Distribution of Costs

Due to data availability limitations, we are unable to assign costs to specific units. Rather, we provide estimates of potential costs across the entire proposed critical habitat designation. We note that of the 11 counties where critical habitat is located, Young County contains more than one-third of the overall human population. Thus, the amount of economic activity generated in this area may be larger than in the more remote counties. In addition, the U.S. Army Corps of Engineers and the City of Lubbock, TX, identified specific dam and reservoir projects in Subunit 1 (the Cedar Creek Reservoir) and Subunit 6 (Lake Alan Henry Reservoir).

SECTION 1. BACKGROUND

The sharpnose and smalleye shiners are small minnows native to streams originating from the Brazos River in north central Texas. The shiners typically live no more than three years and breed only twice.⁵ The Service has proposed to list the species as endangered under the Act and designate critical habitat for the species.⁶

The proposed critical habitat rule would designate approximately 623 river miles (1,002 river kilometers) of critical habitat across six subunits. In addition, a 30-meter (98-foot) lateral extent beyond the river channel (i.e., 30 meters each direction from the bankfull width of the river channel) is being proposed for designation as critical habitat. All subunits are occupied by the species. The designation spans 11 Texas counties: Crosby, Garza, Kent, Fisher, King, Stonewall, Knox, Haskell, Baylor, Throckmorton, and Young Counties. The river channels proposed as critical habitat are considered State-owned, while nearly all of the proposed critical habitat extending laterally from the river channel is privately owned.⁷ Exhibit 1 provides an overview of the proposed critical habitat units. Exhibit 2 provides an overview map of the proposed designation. The Service has not explicitly identified any areas for potential exclusion in the proposed rule.⁸

EXHIBIT 1. SUMMARY OF PROPOSED CRITICAL HABITAT UNITS FOR THE SHINERS

SUBUNIT NUMBER	UNIT NAME	RIVER MILES (KILOMETERS)
Subunit 1	Upper Brazos River Main Stem	203.1 (326.8)
Subunit 2	Salt Fork of the Brazos River	171.0 (275.1)
Subunit 3	White River	25.1 (40.3)
Subunit 4	Double Mountain Fork of the Brazos River	149.0 (239.8)
Subunit 5	North Fork Double Mountain Fork of the Brazos River	67.5 (108.6)
Subunit 6	South Fork Double Mountain Fork of the Brazos River	6.9 (11.1)
Total		622.5 (1,001.9)

Source: Proposed Critical Habitat Designation Rule, 78 FR 47612. August 6, 2013.

Review of the Service’s incremental effects memorandum and discussion with the Service identified the following economic activities that may affect the shiners and their habitat: (1) Water management, including flood control and drought protection operations; (2) In-stream projects; (3) Transportation activities, including bridge construction; (4) Oil and natural gas exploration and development; and (5) Utilities projects, including water and sewer lines.⁹

⁵ U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for Sharpnose and Smalleye Shiners. September 12, 2013.

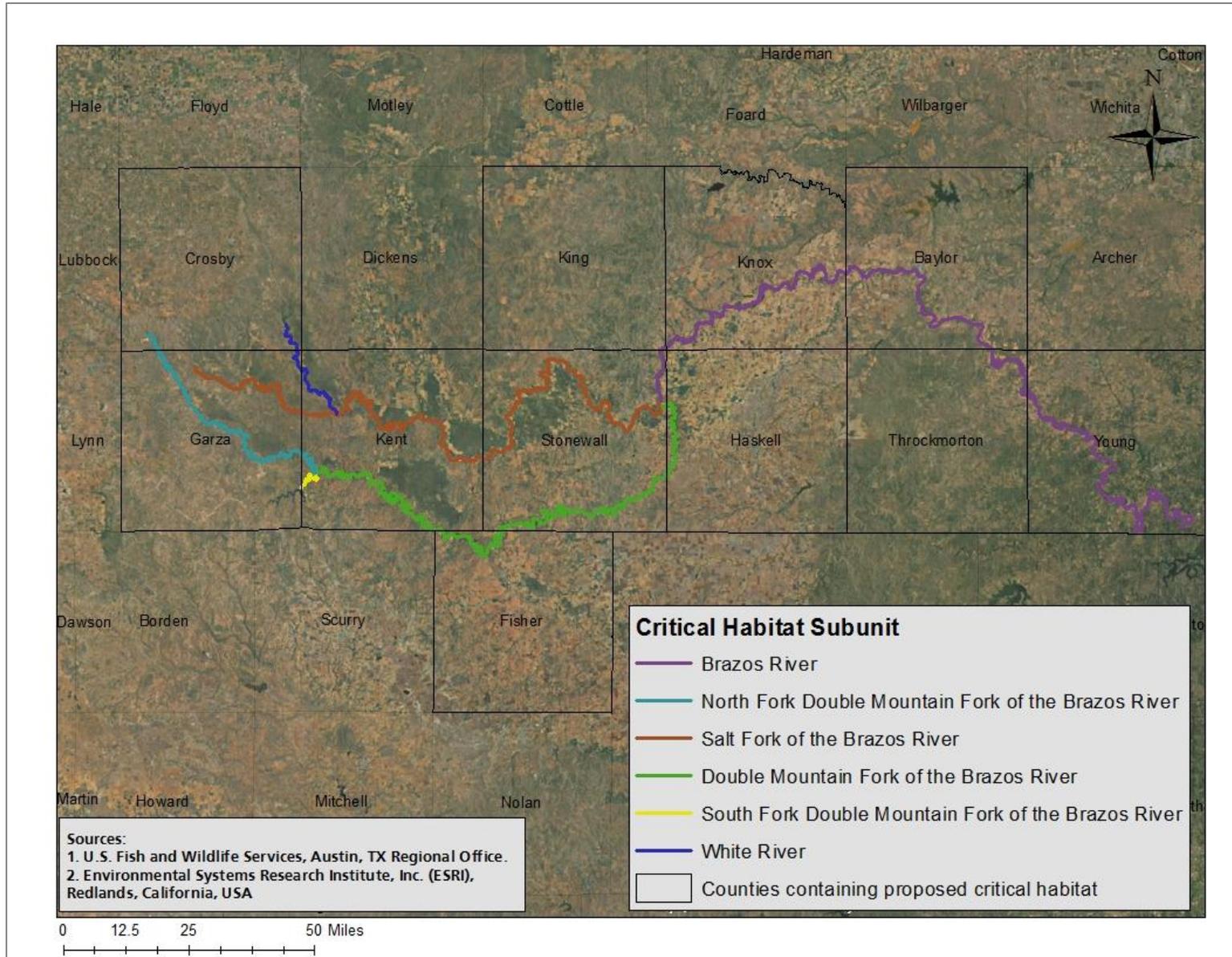
⁶ Proposed Critical Habitat Designation Rule, 78 FR 47612. August 6, 2013.

⁷ *Ibid.*

⁸ *Ibid.*

⁹ U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for Sharpnose and Smalleye Shiners. September 12, 2013; Personal communication with the Service on November 1, 2013; Personal communication with the Service on January 10, 2014.

EXHIBIT 2. OVERVIEW OF PROPOSED SHINERS CRITICAL HABITAT



SECTION 2. FRAMEWORK

Guidelines issued by the U.S. Office of Management and Budget (OMB) for the economic analysis of regulations direct Federal agencies to measure the costs and benefits of a regulatory action against a baseline (i.e., costs and benefits that are “incremental” to the baseline). OMB defines the baseline as the “best assessment of the way the world would look absent the proposed action.”¹⁰ In other words, the baseline includes any existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users affected by the designation of critical habitat. The baseline includes the economic impacts of listing the species under the Act, even if the listing occurs concurrently with critical habitat designation. Impacts that are incremental to the baseline (i.e., occurring over and above existing constraints) are those that are solely attributable to the designation of critical habitat. This screening analysis focuses on the likely incremental effects of the critical habitat designation.

We consider incremental effects of the designation in two key categories: 1) those that may be generated by section 7 of the Act; and 2) other types of impacts outside of the context of section 7:

- **Incremental section 7 impacts:** Activities with a Federal nexus that may affect listed species are subject to section 7 consultation to consider whether actions may jeopardize the existence of the species, even absent critical habitat.¹¹ As part of these consultations, critical habitat triggers an additional analysis evaluating whether an action will diminish the recovery potential or conservation value of the designated area. Specifically, following the designation, Federal agencies must also consider the potential for activities to result in the destruction or adverse modification of critical habitat. These consultations are the regulatory mechanism through which critical habitat rules are implemented. Any time and effort spent on this additional analysis, as well as the costs and benefits of implementing any recommendations resulting from this review, are economic impacts of the critical habitat designation.
- **Other incremental impacts:** Critical habitat may also trigger additional regulatory changes. For example, the designation may cause other Federal, State, or local permitting or regulatory agencies to expand or change standards or requirements. Regulatory uncertainty generated by critical habitat may also have impacts. For example, landowners or buyers may perceive that the rule will restrict land or water use activities in some way and therefore value the use of the land less than they would have absent critical habitat. This is a perceptual, or stigma, effect of critical habitat on markets.

¹⁰ OMB, “Circular A-4,” September 17, 2003, available at http://www.whitehouse.gov/omb/circulars_a004_a-4. Circular A-4 provides “guidance to Federal Agencies on the development of regulatory analysis as required under Section 6(a)(3)(c) of Executive Order 12866...” (p. 1)

¹¹ A Federal nexus exists for activities authorized, funded, or carried out by a Federal agency.

SECTION 3. SECTION 7 COSTS OF THE CRITICAL HABITAT RULE

In this section, we discuss the likelihood that the designation of critical habitat will result in incremental costs through the section 7 consultation process. In the baseline, section 7 of the Act requires Federal agencies to consult with the Service to ensure that their actions will not jeopardize the shiners. Once critical habitat is designated, section 7 also requires Federal agencies to ensure that their actions will not adversely modify critical habitat. Thus, a key focus of this screening analysis is whether the designation of critical habitat would trigger project modifications to avoid adverse modification that would be above and beyond any modifications triggered by adverse effects to the species itself.

Incremental costs associated with section 7 consultations for the shiners are likely limited to administrative costs. This conclusion is based on the fact that the concurrent listing of the shiners provides substantial baseline protection, described below:

- **All projects with a Federal nexus will be subject to section 7 requirements regardless of whether critical habitat is designated.** All proposed units are considered occupied. Therefore, any activities with a Federal nexus will be subject to section 7 consultation requirements regardless of critical habitat designation. Based on its past experience, the Service believes it is highly unlikely that any project would result in adverse effects to critical habitat without also adversely affecting the species. As a result, critical habitat is not expected to result in additional consultations beyond those required due to the presence of the species.¹²

The potential exists for the designation of critical habitat to provide new information to project proponents about the need to conserve the species and its habitat. Some portions of the streams proposed for critical habitat may become temporarily dry at certain points of the year. In this case, absent critical habitat, project proponents may not realize that they need to consult with the Service on projects in these areas. Critical habitat may, therefore, provide new information to project proponents on the need to consult with the Service. Should this occur, the costs associated with these consultations and any project modifications would be incremental. However, the Service expects consultations resulting from improved awareness of the species due to the designation of critical habitat to occur infrequently, and the Service expects that consultations of this nature would be increasingly infrequent over time.¹³

- **Possible project modifications are unlikely to be affected by the designation of critical habitat.** The Service also believes that it is highly unlikely that a project could result in a finding of adverse modification without also resulting in a jeopardy finding. In other words, the Service does not expect that a consultation for the shiners would result in a biological opinion requesting reasonable and prudent measures to minimize incidental take of the species and, at the same time, requesting a unique set of reasonable and

¹² U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for Sharpnose and Smalleye Shiners. September 12, 2013; Personal communication on November 1, 2013.

¹³ U.S. Fish and Wildlife Service. Personal communication on November 1, 2013.

prudent alternatives to avoid adverse modification.¹⁴ Therefore, the Service expects that it is highly likely that any project resulting in a determination of adverse modification would also result in a determination of jeopardy for the species.¹⁵

The Service anticipates that project modifications recommended to avoid adverse modification will be the same as those needed to avoid jeopardy. Specifically, the Service states: “We anticipate that the measures to remove jeopardy and adverse modification would likely have some overlap because the impacts in either case will most likely be affecting the persistence, development, and recycling of habitat. In a scenario where a section 7 consultation may result in both jeopardy and adverse modification findings under each different standard, it is difficult to predict what different conservation measures by the Federal agency might be required to avoid both jeopardy and adverse modification.”¹⁶

Thus, based on the substantial baseline protections afforded the shiners and the close relationship between adverse modification and jeopardy in occupied habitat, we do not forecast any incremental costs associated with project modifications. When section 7 consultations occur, costs are likely to be limited to the additional administrative effort to consider adverse modification during the consultation process.¹⁷

MAGNITUDE OF ADMINISTRATIVE COSTS

In the following section, we provide information on the likely intensity of consultation activity to gauge the likely magnitude of administrative costs. Areas proposed for critical habitat designation are remote and experience low levels of economic activity. The population of all eleven counties containing proposed critical habitat totals only 52,613.¹⁸ These counties contain only 26,870 housing units, 20,217 of which are occupied.¹⁹ Because these areas are so remote, we anticipate low levels of consultation due to the designation of critical habitat.

We considered three primary data sources in this evaluation: 1) the historical consultation rate within the counties containing proposed shiner critical habitat, 2) information Federal agencies provided to the Service regarding specific projects that may require future consultation, and 3) public comments. In sum, we anticipate that incremental administrative costs are unlikely to exceed \$84,000 in a given year.

¹⁴ *Ibid.*

¹⁵ *Ibid.*

¹⁶ *Ibid.*

¹⁷ As discussed in the next section, our research suggests the additional per-consultation administrative effort is likely to be minor. Thus, these efforts are unlikely to result in measurable time delays.

¹⁸ Census 2010. Young County, Texas contains more than one third of the population of the 11 counties (18,550). King and Kent Counties, Texas each contain fewer than 1,000 people.

¹⁹ Census 2010.

Estimation Using County Consultation History

We expect no more than 45 consultation actions annually (whether formal, informal, or technical assistance) for the shiners.²⁰ Because the shiners are not yet listed under the Act, no consultations have been conducted for the species. However, as candidate species for listing, the Service customarily provides technical assistance on the shiners for projects occurring within the counties where critical habitat is proposed to avoid further impacting the species.²¹ We forecast consultations in proposed shiner critical habitat based on the historical rate of assistance efforts for the shiners within the counties containing proposed critical habitat.²² The Service believes that the data on assistance efforts for the shiners “are of reasonable quantity and quality to adequately assess consultation trends in the areas proposed as critical habitat for these species.”²³ Note that the county-level data on assistance efforts for the shiners capture all activities with a Federal nexus, including those on state and private lands both within the river itself and the lateral extent being proposed for designation as critical habitat. Thus, the forecast number of consultations also includes activities with a Federal nexus in all of these areas.

Since 2007, in counties containing proposed critical habitat, the Service has provided assistance on the shiners 110 times for a range of activities, primarily utility line installation and maintenance, water supply management, wind and nuclear energy production, and oil and gas production and transmission. A small number of assistance efforts occurred on projects related to residential and commercial development, recreation, transportation, military operations, and internal Service efforts on invasive species control and restoration. The Service classified 75 percent of these assistance efforts as informal and 25 percent as technical assistance. Exhibit 3 presents the assistance efforts by activity and by type of effort.

²⁰ Technical assistance efforts consist of informal phone calls or written communication between project proponents and the Service. Technical assistance may occur before the consultation process begins, and often addresses the need for consultation for a particular project. Federal agencies, or their designated representatives, may request informal consultation with the Service and, based on information gathered during consultation, make a determination of effect to listed species and critical habitat. If the federal agency determines the project is not likely to adversely affect listed species or critical habitat, written concurrence from the Service is required. If the federal agency determines that a project is likely to adversely affect listed species or critical habitat, formal consultation is required. During formal consultation, which lasts up to 90 days (with an additional 45 days for the Service to prepare its biological opinion), the Service and the agency continue to share information about the proposed project and the affected species. The Service prepares a biological opinion stating whether the proposed activity would result in jeopardy to listed species and/or adverse modification to critical habitat. Source: U.S. Fish and Wildlife Service, Midwest Region. *Section 7 Consultation: A Brief Explanation*. Accessed on January 13, 2014, at <http://www.fws.gov/midwest/endangered/section7/section7.html>; and personal communication with the Service on January 22, 2014.

²¹ U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for Sharpnose and Smalleye Shiners. September 12, 2013.

²² The Service is in the process of changing how it defines the section 7 range (i.e., the geographic area within which the Service indicates Federal agencies should consider impacts to listed species) for the shiners. Instead of using the counties containing critical habitat, it plans to define the range based on HUCs. This change would decrease the size of the range and may decrease the number of consultations expected in the future (Personal communication with the Service on November 1, 2013).

²³ U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for Sharpnose and Smalleye Shiners. September 12, 2013.

EXHIBIT 3. HISTORICAL ASSISTANCE EFFORTS SINCE 2007 IN 11 COUNTIES CONTAINING PROPOSED CRITICAL HABITAT, BY ACTIVITY AND TYPE OF EFFORT

ACTIVITY	INFORMAL CONSTULATIONS	TECHNICAL ASSISTANCE	TOTAL
Utilities ¹	24	12	36
Water ²	26	0	26
Energy ³	6	14	20
Development ⁴	7	1	8
Other ⁵	5	0	5
FWS ⁶	4	0	4
Recreation ⁷	4	0	4
Transportation ⁸	3	1	4
Military ⁹	3	0	3
Total	82	28	110

Source: U.S. Fish and Wildlife Service. Personal communication on November 1, 2013.

Notes:

1. "Utilities" projects included water line, sewer line, electric transmission, and telecommunications infrastructure projects.
2. "Water" projects refer to water supply management efforts.
3. "Energy" projects include oil and gas production and exploration, wind farm activities, and one project involving a nuclear power plant.
4. "Development" projects include residential and commercial construction projects.
5. "Other" projects include FEMA disaster relief efforts, shoreline improvements, and landfill projects.
6. "FWS" projects reflect the Service's internal consultations on its restoration and conservation efforts.
7. "Recreation" projects include trail and campground maintenance and installation.
8. "Transportation" projects include bridge and road construction.
9. "Military" projects refer to consultations on military operations.

Below, Exhibit 4 presents assistance efforts by type on a year-by-year basis since 2007.

EXHIBIT 4. HISTORICAL ASSISTANCE EFFORTS SINCE 2007 BY YEAR, BY TYPE OF EFFORT

YEAR	INFORMAL CONSTULATIONS	TECHNICAL ASSISTANCE	TOTAL
2007	2	4	6
2008	11	16	27
2009	28	6	34
2010	13	1	14
2011	10	1	11
2012	7	0	7
2013	11	0	11
Total	82	28	110

Source: U.S. Fish and Wildlife Service. Personal communication on November 1, 2013.

In addition to reviewing the consultation record, we spoke to Service biologists in the Arlington, TX Field Office about the frequency of future shiners consultations. Because the shiners are not yet listed under the Act, no formal consultations have occurred for these species. However, based on the Service's review of the consultation history, the Service believes that only two projects since 2007 may have required formal consultation.²⁴ Assuming that both of these formal consultations may occur in one year and using the highest annual number of informal consultations and technical assistances reflected in the consultation history, we anticipate no more than two formal consultations, 28 informal consultations, and 16 technical assistance efforts annually. Because we use the highest annual number of informal consultations and technical assistances reflected in the consultation history, this consultation rate may overstate impacts of critical habitat.

Results of Federal Agency Outreach and Information from Public Comments

In the process of developing the Proposed Rule, the Service requested information from Federal agencies that may have activities within the proposed designation regarding ongoing and planned activities. We use this information to develop an understanding of the general level of activity in the areas proposed as critical habitat. The U.S. Army Corps of Engineers (the Corps) was the only Federal agency to submit information in response to the Service's outreach. However, other Federal, State, and local entities submitted public comments on the Proposed Rule. These entities include: the Federal Energy Regulatory Commission (FERC), the USDA Natural Resources Conservation Service (NRCS), the Texas Department of Transportation (TDOT), and the City of Lubbock, TX.

The Corps provided information on one project—construction of the Cedar Creek Reservoir—near proposed critical habitat that may have significant impacts on flows in the Clear Fork Brazos River.²⁵ Because this branch is upstream of the Brazos River, the possibility exists for this project to impact flows to portions of critical habitat in the mainstem Brazos River (Subunit 1) in Young County, TX.

The public comment FERC submitted states that no current or pending hydropower projects exist in the Brazos River upstream of Possum Kingdom Lake or in the Upper Brazos River Basin, where shiners critical habitat has been proposed.²⁶ One previously planned dam project in Young County, TX is currently being decommissioned and its operational equipment permanently disabled. Therefore, we do not anticipate future consultations related to FERC-regulated hydropower projects.

Past NRCS activities in the region containing proposed critical habitat for the shiners include:

- Providing funding to private landowners under the Environmental Quality Incentives Program (EQIP), Wildlife Habitat Incentives Program (WHIP), and

²⁴ U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for Sharpnose and Smalleye Shiners. September 12, 2013.

²⁵ Personal communication with the Service on October 23, 2013.

²⁶ Creamer, Allan. Federal Energy Regulatory Commission. Public comment submitted on October 7, 2013.

Conservation Stewardship Program (CSP) – conservation practices that have been applied under these programs include brush management, prescribed grazing, range planting, and residue and tillage management;

- Assisting landowners in identifying and addressing resource concerns through the Conservation Technical Assistance Program (CTA); and
- Helping local organizations and governments plan and implement watershed improvement projects under the Watershed Protection and Flood Prevention Act (PL-566) and the Flood Control Act of 1944 – NRCS does not currently anticipate any future projects in the region under PL-534 or PL-566.²⁷

As NRCS practices are conservation-oriented, they are unlikely to negatively impact shiner habitat. Therefore, if they occur, consultations on these projects are not expected to result in substantial project modifications.

Since 2007, in the counties containing critical habitat, the Service has conducted three informal consultations and one technical assistance effort with transportation agencies. In its public comment, TDOT expressed concerns that the designation of shiners critical habitat would increase costs associated with modifications to transportation projects to avoid adverse modification of critical habitat.²⁸ We do not anticipate future project modifications associated with the designation of critical habitat. As stated above, we base this assertion on the fact that the entirety of proposed critical habitat is considered occupied by the species, and project modifications necessary to avoid a jeopardy determination will likely be sufficient to avoid adverse modification. Therefore, we expect future impacts to transportation projects to be limited to the administrative cost of consultations.

The City of Lubbock, TX submitted a public comment expressing concerns about possible impacts of shiner critical habitat on its water management activities.²⁹ Lubbock, a regional commercial center, supports a population of more than 200,000.³⁰ The City of Lubbock draws water from three primary sources, including: surface water from Lake Alan Henry in Garza County, TX; groundwater from Bailey and Roberts Counties, TX; and water supply purchased from the Canadian River Municipal Water Authority, which also draws water from Roberts County, TX. Of these, only Lake Alan Henry occurs near proposed critical habitat.

Lake Alan Henry is a dammed reservoir directly upstream of the South Fork Double Mountain Fork Brazos River (Subunit 6) in Kent and Garza Counties, TX. Significant withdrawals from the reservoir may impact downstream flows in the South Fork Double Mountain Fork Brazos River Subunit. Should this occur, the City of Lubbock may be required to consult the Service on the impact of its water management activities if a Federal nexus is associated with its activities or if the City wishes to seek a Section 10 Habitat Conservation Plan for possible take of the listed species. As stated above, the entirety of proposed critical habitat is considered occupied by the species, and

²⁷ Salinas, Salvador. State Conservationist, Natural Resources Conservation Service. Public comment submitted on August 29, 2013.

²⁸ Swonke, Carlos. Director of Environmental Affairs, Texas Department of Transportation. Public comment submitted on October 7, 2013.

²⁹ Spear, Aubrey. Director of Water Resources, City of Lubbock. Public comment submitted on October 7, 2013.

³⁰ Census 2010.

project modifications necessary to avoid a jeopardy determination will likely be sufficient to avoid adverse modification. Therefore, incremental impacts associated with such water management actions are likely to be limited to administrative costs of consultation.

In summary, the information provided by Federal agencies in response to Service outreach and by the public during the comment period identified two specific projects that may require consultation. We assume that these consultations are reflected in the future rate of consultation derived above from the consultation history for the shiners. In addition, TXDOT, which historically has conducted less than one consultation per year in this area, raised concern that its consultation activity may increase. NRCS also expressed a similar concern; however, neither agency provided specific information regarding why the consultation rate may increase and how many consultations might occur.

Summary of Administrative Impacts

The administrative costs of the consultations discussed above are likely to vary depending on the specifics of the project. We previously reviewed consultation records and participated in discussions with multiple Service field offices to identify a range of estimated administrative costs of consultation. Exhibit 5 presents the average costs used in this analysis. It suggests that the incremental costs to consider adverse modification during technical assistance totals approximately \$410 across all parties (2013 dollars). Similarly, the incremental costs for informal and formal consultations total \$2,400 and \$5,000, respectively. These estimates assume that consultations would occur even in the absence of critical habitat due to the presence of the listed species, and the amount of administrative effort needed to address critical habitat during this process is relatively minor.

Applying these unit cost estimates to the annual estimate of consultations derived above (i.e., 2 formal consultations, 28 informal consultations, and 16 technical assistances), this analysis conservatively estimates that considering adverse modification in section 7 consultation is unlikely to result in incremental costs of more than \$84,000 (2013 dollars) in a given year. Because we use high-end estimates of consultations and technical assistances, this estimate is more likely to overstate than understate actual incremental costs.

EXHIBIT 5. RANGE OF INCREMENTAL ADMINISTRATIVE CONSULTATIONS COSTS (2013\$)

CONSULTATION TYPE	SERVICE	FEDERAL AGENCY	THIRD PARTY	BIOLOGICAL ASSESSMENT	TOTAL COSTS
ADDITIONAL EFFORT TO ADDRESS ADVERSE MODIFICATION IN A NEW CONSULTATION					
Technical Assistance	\$140	n/a	\$260	n/a	\$410
Informal	\$610	\$780	\$510	\$500	\$2,400
Formal	\$1,400	\$1,600	\$880	\$1,200	\$5,000

Source: IEc analysis of administrative costs is based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2013, and a review of consultation records from several Service field offices across the country conducted in 2002.

Notes:

1. Estimates are rounded to two significant digits and may not sum due to rounding.
2. Estimates reflect average hourly time required by staff.

GEOGRAPHIC DISTRIBUTION OF ADMINISTRATIVE COSTS

Due to data availability limitations, we are unable to assign costs to specific units. Rather, we provide estimates of potential costs across the entire proposed critical habitat designation. Because we do not anticipate incremental costs associated with project modifications, the magnitude of section 7 costs is tied to the number of projected consultations. We note that of the 11 counties where critical habitat is located, Young County contains more than one-third of the overall human population. Thus, the amount of economic activity generated in this area may be larger than in the more remote counties. In addition, specific projects have been identified in Subunits 1 and 6.

SECTION 4. OTHER COSTS OF THE CRITICAL HABITAT RULE

This section discusses the potential for incremental costs to occur outside of the section 7 consultation process. These types of costs include triggering additional requirements or project modifications under state laws or regulations, and perceptual effects on markets. These types of costs may occur even when activities do not have a Federal nexus for consultation.

The Service does not expect Texas State agencies to alter land use regulations due to the designation of critical habitat.³¹ Additionally, because of the rural nature of the proposed critical habitat area and the limited demands on the land, we do not anticipate any perceptual effects on markets.

SECTION 5. SECTION 7 AND OTHER ECONOMIC BENEFITS

The primary intended benefit of critical habitat is to support the conservation of threatened and endangered species, such as the shiners. Quantification and monetization of species conservation benefits requires information on: (1) the incremental change in the probability of shiner conservation that is expected to result

³¹ Personal communication with the Service on November 1, 2013.

from the designation; and (2) the public's willingness to pay for such beneficial changes.³²

As described in this memorandum, additional efforts to conserve the shiners are not predicted. Thus, benefits of the designation are unlikely to exceed \$100 million in a given year.

SECTION 6. SUMMARY

In conclusion, the section 7-related costs of designating critical habitat for the shiners are likely to be limited to additional administrative effort to consider adverse modification in consultation. This finding is based on several factors, including:

1. Project modifications requested to avoid adverse modification are likely to be the same as those needed to avoid jeopardy in occupied habitat; and
2. All proposed units are considered occupied, providing significant baseline protection.

The incremental administrative burden resulting from the designation is unlikely to exceed \$100 million in a given year based on the number of anticipated consultations and per-consultation costs. Little economic activity is expected to occur in the areas proposed for critical habitat, as they are extremely remote. Furthermore, the designation of shiners critical habitat is unlikely to trigger additional requirements under state or local regulations. Finally, costs resulting from increased consultations due to improved awareness of the species due to the designation of critical habitat are expected to occur infrequently.

Additional efforts to conserve the shiners are not predicted. If, however, the designation of critical habitat causes changes in future land use, benefits to the species and environmental quality may occur. Due to existing data limitations, we are unable to assess the possible magnitude of such benefits.

In summary, critical habitat for the shiners is unlikely to generate costs exceeding \$100 million in a single year. The designation is unlikely to measurably increase the probability that the species will be conserved; thus benefits are also unlikely to exceed this threshold.

³² The actions undertaken to achieve conservation can also generate other types of environmental improvements. Estimation of the value of these additional benefits requires quantification of the physical changes and information about the public's willingness to pay for such improvements.