

2. Biological Resources

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Biological resources are valued for their intrinsic, aesthetic, economic, and recreational qualities and include fish, wildlife, plants, and their respective habitats. Typical categories of biological resources include:

- terrestrial and aquatic plant and animal species;
- game and non-game species;
- special status species (state or federally-listed threatened or endangered species, marine mammals, or species of concern, such as species proposed for listing or migratory birds); and
- environmentally-sensitive or critical habitats.

2.1. Regulatory Setting

Exhibit 2-1 lists the primary statutes, regulations, Executive Orders, and other guidance related to biological resources. See Appendix B.2 for more detailed information about these requirements.

Exhibit 2-1. Statutes, Regulations, Executive Orders, and Other Requirements Related to Biological Resources

Statute, Executive Order, or other Guidance	Location in U.S. Code or <i>Federal Register</i>	Implementing Regulation	Oversight Agency^a	Summary^a
Bald and Golden Eagle Protection Act	16 U.S.C. § 668 et seq.	50 CFR part 22	USFWS	Protects bald and golden eagles from the unauthorized capture, purchase, or transportation of the birds, their nests, or their eggs.
Endangered Species Act	16 U.S.C. §§ 1531-1544	50 CFR parts 17 and 402	USFWS; NMFS	Requires all federal agencies to seek to conserve threatened and endangered species. Section 7(a)(2) requires federal agencies, in consultation with the Services (USFWS and/or NMFS), to ensure that any action the agency authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.
Fish and Wildlife Coordination Act	16 U.S.C. §§ 661-667d	Not applicable	USFWS	Requires that federal agencies consult with the USFWS, NMFS (in some instances), and appropriate state fish and wildlife agencies regarding the conservation of wildlife resources when proposed federal projects may result in control or modification of the water of any stream or other water body.
Magnuson-Stevens Fishery Conservation and Management Act	16 U.S.C. § 1801 et seq.	50 CFR part 600	NMFS	Governs the conservation and management of ocean fishing, including essential fish habitat.
Marine Mammal Protection Act	16 U.S.C. § 1361 et seq.	50 CFR parts 18 and 216	NMFS, USFWS	Protects all marine mammals and prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas.
Migratory Bird Treaty Act	16 U.S.C. § 703 et seq.	50 CFR part 21	USFWS	Protects migratory birds by prohibiting private parties (and federal agencies in certain judicial circuits) from intentionally taking, selling, or conducting other activities that would harm migratory birds, their eggs, or nests (such as removal of an active nest or nest tree), unless the Secretary of the Interior authorizes such activities under a special permit.

Statute, Executive Order, or other Guidance	Location in U.S. Code or <i>Federal Register</i>	Implementing Regulation	Oversight Agency ^a	Summary ^a
Executive Order 13112, <i>Invasive Species</i>	64 <i>Federal Register</i> 6183, (February 8, 1999)	Not applicable	Not applicable	Federal agencies whose actions may affect the status of invasive species are directed to use relevant programs and authorities, to the extent practicable and subject to available resources, to prevent the introduction of invasive species, and to provide for the restoration of native species and habitat conditions in ecosystems that have been invaded. Agencies are directed not to carry out actions that they believe are likely to cause or promote the introduction or spread of invasive species unless the benefits of such actions clearly outweigh the potential harm, and all feasible and prudent measures to minimize risk of harm are taken.
Executive Order 13186, <i>Responsibilities of Federal Agencies to Protect Migratory Birds</i>	66 <i>Federal Register</i> 3853, (January 17, 2001)	Not applicable	Not applicable	Directs federal agencies to take action to further implement the Migratory Bird Treaty Act.
Executive Order 13751, <i>Safeguarding the Nation from the Impacts of Invasive Species</i>	81 <i>Federal Register</i> 88609 (December 8, 2016)	Not applicable	Not applicable	Amends EO 13112 to strengthen coordinated, cost-efficient federal prevention and control efforts related to invasive species.
CEQ Guidance on Incorporating Biodiversity Considerations Into Environmental Impact Analysis Under the National Environmental Policy Act (January 1993)	Not applicable	Not applicable	Not applicable	In accordance with 40 CFR §§ 1507.2(e), 1508.8(b), and 1508.27, this guidance directs federal agencies to consider the effects of federal actions on biodiversity to the extent that is possible to both anticipate and evaluate those effects. The guidance outlines the general principles and discusses the importance of context – that is, examining the direct, indirect, and cumulative impacts of a specific project in the regional or ecosystem context.

^a CEQ = Council on Environmental Quality; CFR = Code of Federal Regulations; EO = Executive Order; MOU = Memorandum of Understanding; NMFS = National Marine Fisheries Service; U.S.C. = United States Code; USFWS = U.S. Fish and Wildlife Service.

2.1.1. Consultations, Permits, and Other Approvals

This section contains a detailed explanation of the consultations, permits, and authorizations that could be required under the Endangered Species Act (ESA) (Section 2.1.1.1), the Marine Mammal Protection Act (MMPA) (Section 2.1.1.2), and the Magnuson-Stevens Fishery Conservation and Management Act (Section 2.1.1.3). See Appendix B.2 for brief explanations of potential consultation obligations under the other requirements summarized in Exhibit 2-1.

2.1.1.1. Endangered Species Act

The most common consultation when analyzing potential impacts to biological resources is Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) (collectively known as “the Services”) under the ESA. Under Section 7, if the Federal Aviation Administration (FAA) determines that an action *may affect* a threatened or endangered species, the FAA must initiate consultation with USFWS (for terrestrial and freshwater species) or NMFS (for marine and anadromous species), as appropriate, to ensure that any action the FAA authorizes, funds, or carries out is not likely to jeopardize the continued existence of any federally-listed threatened or endangered species, or result in the destruction or adverse modification of critical habitat. Some common definitions used in the ESA consultation process are presented below.

ESA Consultation Terms and Definitions

Action area – A project area applicable to ESA consultation. The action area is defined as all areas to be affected directly or indirectly by the FAA action and not merely the immediate area involved in the action (see 50 CFR § 402.02).

Biological Assessment – A Biological Assessment should be prepared when an action could:

- adversely affect listed species or designated critical habitat;
- jeopardize the continued existence of species that are proposed for listing; or
- adversely modify proposed critical habitat.

The FAA is required to prepare a Biological Assessment for all “major construction activities” (see 50 CFR § 402.12(b)).

Biological Opinion – A document prepared by the Services that explains their determination regarding whether the FAA action is likely to result in jeopardy to an endangered or threatened species or result in destruction or adverse modification of its designated critical habitat. The Biological Opinion includes a summary of the information on which the opinion is based, and a detailed discussion of the effects of the action on listed species or critical habitat. A Biological Opinion normally includes an *incidental take statement* which describes the amount or extent of anticipated take due to the FAA action, reasonable and prudent measures to minimize the take, and terms and conditions that must be observed when implementing those measures. If the FAA complies with the incidental take statement in implementing the action, the FAA is exempt from the ESA’s Section 9 “take” prohibitions.

Destruction or Adverse Modification – A direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

Effects of the Action – All consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see 50 CFR § 402.17).

Major Construction Activity – A construction project (or other undertaking having similar physical effects) which is a major federal action significantly affecting the quality of the human environment as referred to in National Environmental Policy Act (NEPA) (see 50 CFR § 402.02).

Take – Defined under Section 3 of the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct.”

Harm is further defined as to “include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing behavioral patterns such as breeding, feeding, or sheltering” (see 50 CFR § 17.3).

Harass is defined as “to create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering” (see 50 CFR § 17.3).

Types of Possible FAA Determinations on Potential Impacts to Listed Species or Critical Habitat

No effect – The appropriate conclusion when the FAA has determined that an action will not affect a listed species or designated critical habitat.

May affect – The appropriate conclusion when the FAA has determined that an action may pose **any** effects on listed species or designated critical habitat. When the FAA determines that a “may affect” situation exists, the FAA must either initiate formal consultation with the Services or seek written concurrence from the Services that the action “is not likely to adversely affect” listed species (see definition below).

Not likely to adversely affect – The appropriate conclusion when the FAA determines that effects on listed species are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where “take” occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.

Likely to adversely affect – The appropriate FAA conclusion if any adverse effect to listed species may occur as a direct or indirect result of the action or its interrelated or interdependent actions, and the effect is not: discountable, insignificant, or beneficial (see definitions above). If incidental take is anticipated to occur as a result of the action, an “is likely to adversely affect” determination should be made. In the event the overall effect of the proposed action is beneficial to the listed species, but is also likely to cause some adverse effects, then an “is likely to adversely affect” determination should be made. This determination is typically made by the FAA through the informal consultation process and/or through preparation of a Biological

Assessment. An “is likely to adversely affect” determination requires the initiation of formal Section 7 consultation.

Types of Possible USFWS/NMFS Determinations on Potential Impacts to Listed Species or Critical Habitat

Concurrence/Non-concurrence – The Services determination regarding whether they agree with the FAA’s determination regarding the effects of the action on listed species or designated critical habitat.

No Jeopardy/No Adverse Modification/Jeopardy/Adverse Modification – The Services determination, provided in a Biological Opinion, regarding whether the action is likely to jeopardize the continued existence of listed species or result in adverse modification of critical habitat. To jeopardize the continued existence of listed species means that the action reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (see 50 CFR § 402.02). Destruction or adverse modification of critical habitat occurs when an action results in a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical (see 50 CFR § 402.02).

Types of Consultation under the ESA

There are three primary types of consultation under the ESA: (1) Informal Consultation; (2) Formal Consultation; and (3) Conference under Section 7(a)(4). These consultation processes are described in more detail below.

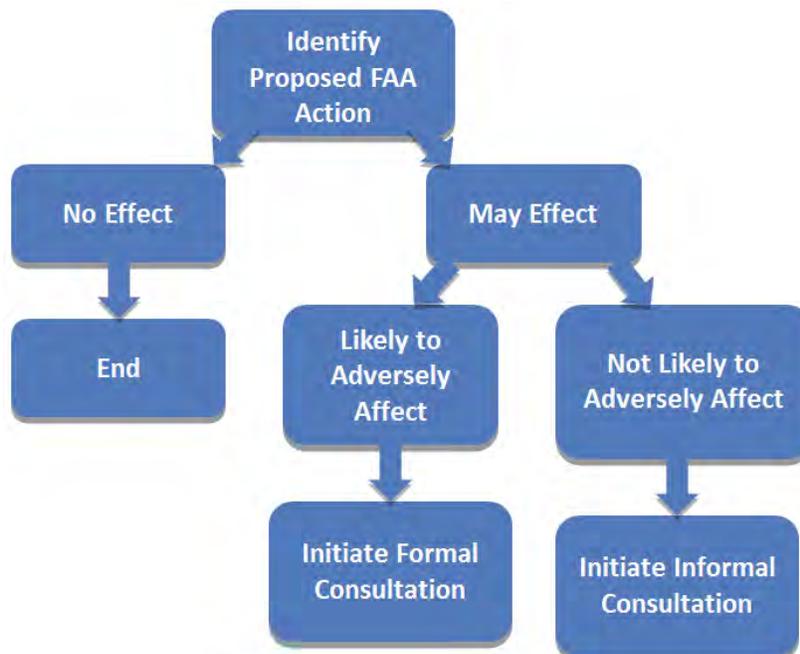
Informal and Formal Consultation

Prior to initiating informal or formal consultation with the Services, there are several steps the FAA must take to determine whether consultation is necessary, and if it is needed, which type of consultation to pursue. The FAA should also coordinate with appropriate U.S. Fish and Wildlife Service (USFWS) or NMFS field offices to determine if there are specific regional protocols that should be followed. These steps are outlined in Exhibit 2-2 and depicted in Exhibit 2-3 below.

Exhibit 2-2. FAA Steps for Determining What Type of ESA Consultation is Necessary

Step	Action
1	<p>The FAA determines whether any federally-listed species, candidate species, or critical habitat might be present within the action area. This can be determined through use of the USFWS Information, Planning, and Conservation System (IPaC) website, NMFS Office of Protected Resources (NMFS OPR) website or regional NMFS Office websites, or other data sources (such as USFWS county species lists). IPaC can be accessed on the USFWS website at: https://ecos.fws.gov/ipac/. NMFS OPR website can be accessed at: http://www.nmfs.noaa.gov/pr/species/esa/.</p> <p>In addition, a letter can be sent to the Services describing the proposed project and the list of species identified on the website to confirm the website is up-to-date. Proceed to Step 2.</p>
2	<p>If federally-listed species or critical habitats are present in the action area, the FAA determines whether the action would have an effect on the species or habitat.</p> <ul style="list-style-type: none"> • If the FAA determines that the action will have <i>no effect</i> on federally-listed species or critical habitat, consultation with the Services is <u>not</u> required. The FAA should document this conclusion in the associated NEPA document. • If the FAA determines that the action <i>may affect</i> federally-listed species or critical habitat, consultation with the Services <u>is</u> required. See Step 3 below.
3	<p>The FAA determines whether the action is likely to adversely affect federally-listed species or critical habitat.</p> <ul style="list-style-type: none"> • If the FAA determines that the action is <i>not likely to adversely affect</i> federally-listed species or critical habitat, the FAA initiates informal consultation with the Services. See Exhibit 2-4 and Exhibit 2-5. • If the FAA determines that the action <u>is likely to adversely affect</u> federally-listed species or critical habitat, the FAA initiates formal consultation with the Services. See Exhibit 2-6 and Exhibit 2-7.

Exhibit 2-3. FAA Determination for ESA Consultation Type Flow Chart



Informal Consultation. Informal consultation is designed to assist the FAA in determining whether formal consultation is required. Informal consultation refers to an unstructured approach for coordinating with the Services through phone contacts, meetings, conversations, letters, project modifications, and concurrences that occur prior to initiation of formal consultation. Participants in informal consultation may include the FAA, applicants, or FAA contractors. Note that while Exhibits 2-4 through 2-8 below specify the FAA as the consulting entity, this term is intended to encompass those other entities who may participate on the FAA's behalf in the consultation process. Entities other than the FAA must be designated by the FAA. These designated non-federal representatives act on its behalf during informal consultation. The person or contractor may also prepare a Biological Assessment on the agency's behalf, but the FAA remains responsible for the Biological Assessment's content and effects finding (see 50 CFR § 402.02).

Exhibit 2-4 and Exhibit 2-5 below illustrate the informal consultation process.

Exhibit 2-4. Informal Consultation under the ESA^a

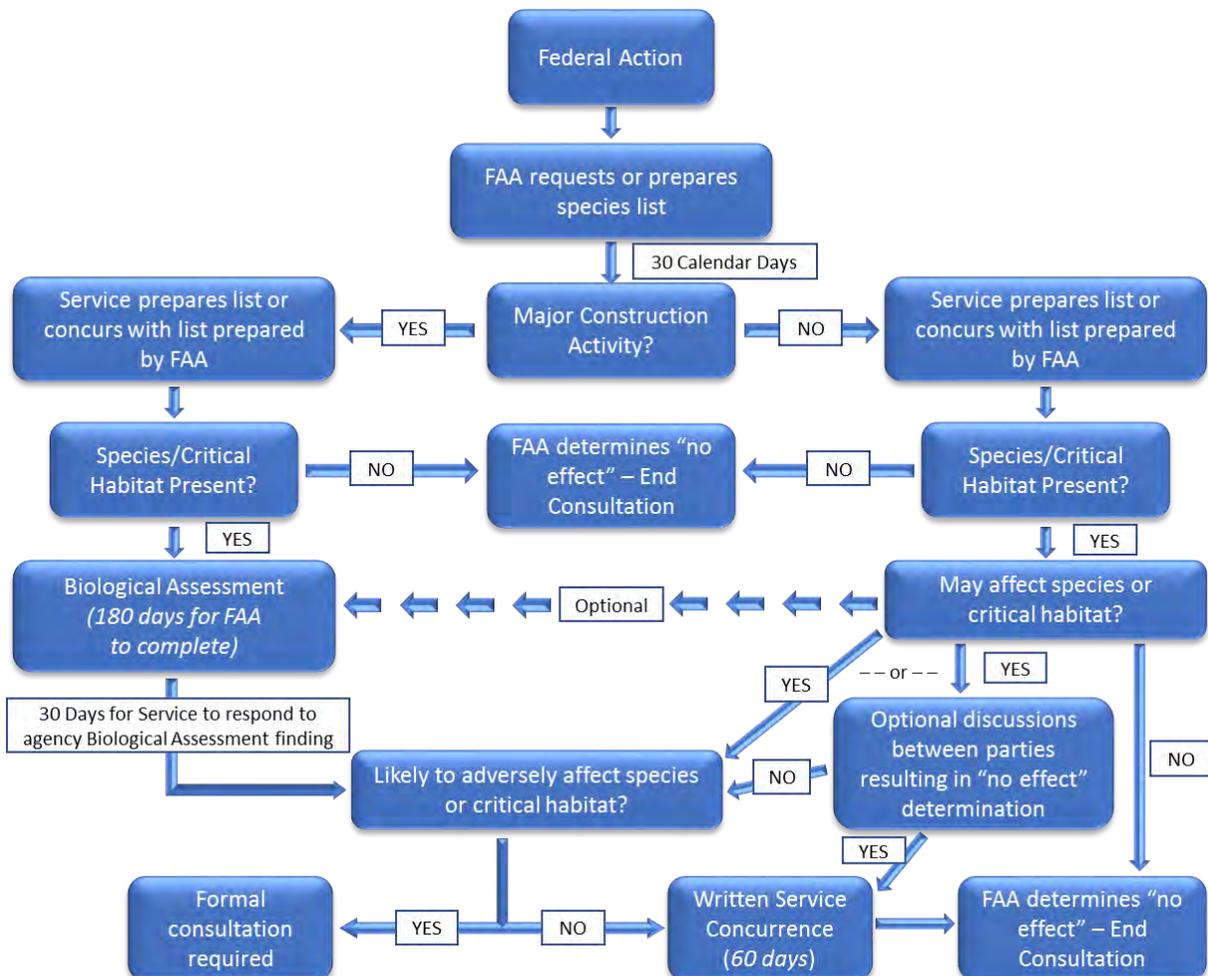
Step	Action
1	If the FAA determines that the action <i>may affect</i> federally-listed species or critical habitat, consultation with the Services <u>is</u> required and the FAA must analyze the potential effects of the action on federally-listed species and critical habitat. Proceed to Step 2.
2	The FAA's analysis must determine whether the action is likely to adversely affect federally-listed species or critical habitat. <ul style="list-style-type: none"> • If the FAA determines that the action <i>may affect, but is not likely to adversely affect</i> the federally-listed species and/or critical habitat in the action area (i.e., the effects are beneficial, discountable, or insignificant), the FAA may continue the informal consultation process. Proceed to Step 3 for Non-Major Construction Activities or Step 5 for Major Construction Activities. • If the FAA determines that the action <i>may affect, and is likely to adversely affect</i> the federally-listed species and/or critical habitat in the action area, formal consultation is required. Proceed to Step 1 in Exhibit 2-6.
3	The FAA sends a letter (or optional Biological Assessment) to the Services that describes the project, includes the list of federally-listed species and/or critical habitat present within the action area, explains the FAA's reasoning for why the action is not likely to adversely affect the species and/or critical habitat, and requests concurrence with the <i>not likely to adversely affect</i> determination. Proceed to Step 4 (or Step 6 if a Biological Assessment is prepared).
4	The Services will reply to the FAA's determination in writing within 60 calendar days . This timeframe for concurrence may be extended upon mutual consent of the Service and the FAA, but will not exceed 120 calendar days . <ul style="list-style-type: none"> • If the Services concur with the FAA's determination, the informal consultation process ends. Any consultation documentation between the FAA and the Services, including the FAA's determination and Service's concurrence letter, should be included in the FAA's NEPA document. • If the Services do not concur with the FAA's determination, formal consultation is required. Proceed to Step 1 in Exhibit 2-6 below.
5	The FAA submits a Biological Assessment to the Services which presents the FAA's findings regarding whether the action is likely to adversely affect listed species or critical habitat. If the FAA has requested concurrence on a species list from the Services, the Biological Assessment must be submitted within 180 calendar days from the time the FAA receives the Services concurrence letter. Proceed to Step 6.

Step	Action
6	<p>Within 30 calendar days^b after receiving the FAA’s Biological Assessment, the Services will respond to the Biological Assessment in writing.</p> <ul style="list-style-type: none"> • If the Biological Assessment determines the action is <i>not likely to adversely affect</i> federally-listed species and/or critical habitat, and the Service concurs, the informal consultation process ends. Any consultation documentation between the FAA and the Services, including the FAA’s Biological Assessment and Service’s concurrence letter, should be included in the FAA’s NEPA document. • If the Biological Assessment determines the action is <i>not likely to adversely affect</i> federally-listed species and/or critical habitat, and the Service <u>does not</u> concur, formal consultation is required. Proceed to Step 1 in Exhibit 2-6 below. • If the Biological Assessment determines the action <u>is likely to adversely affect</u> federally-listed species and/or critical habitat, the FAA must initiate formal consultation. Proceed to Step 1 in Exhibit 2-6 below.

^a This is a recommended process for informal consultation with the Services; however, the consultation process may vary from the steps listed. See the Section 7 Endangered Species Consultation Handbook for more information at: https://www.fws.gov/ENDANGERED/esa-library/pdf/esa_section7_handbook.pdf.

^b Although a timeframe for responding to these requests is not mandated by regulation, the Services will respond within 30 calendar days when possible.

Exhibit 2-5. ESA Informal Consultation Flow Chart



Formal Consultation. As described in Exhibit 2-4 above, formal consultation with the Services becomes necessary when either of the following conditions apply:

- The FAA requests consultation after determining the action is *likely to adversely affect* a listed species or critical habitat; or
- The Services, through informal consultation, conclude that the action is *likely to adversely affect* listed species or critical habitat.

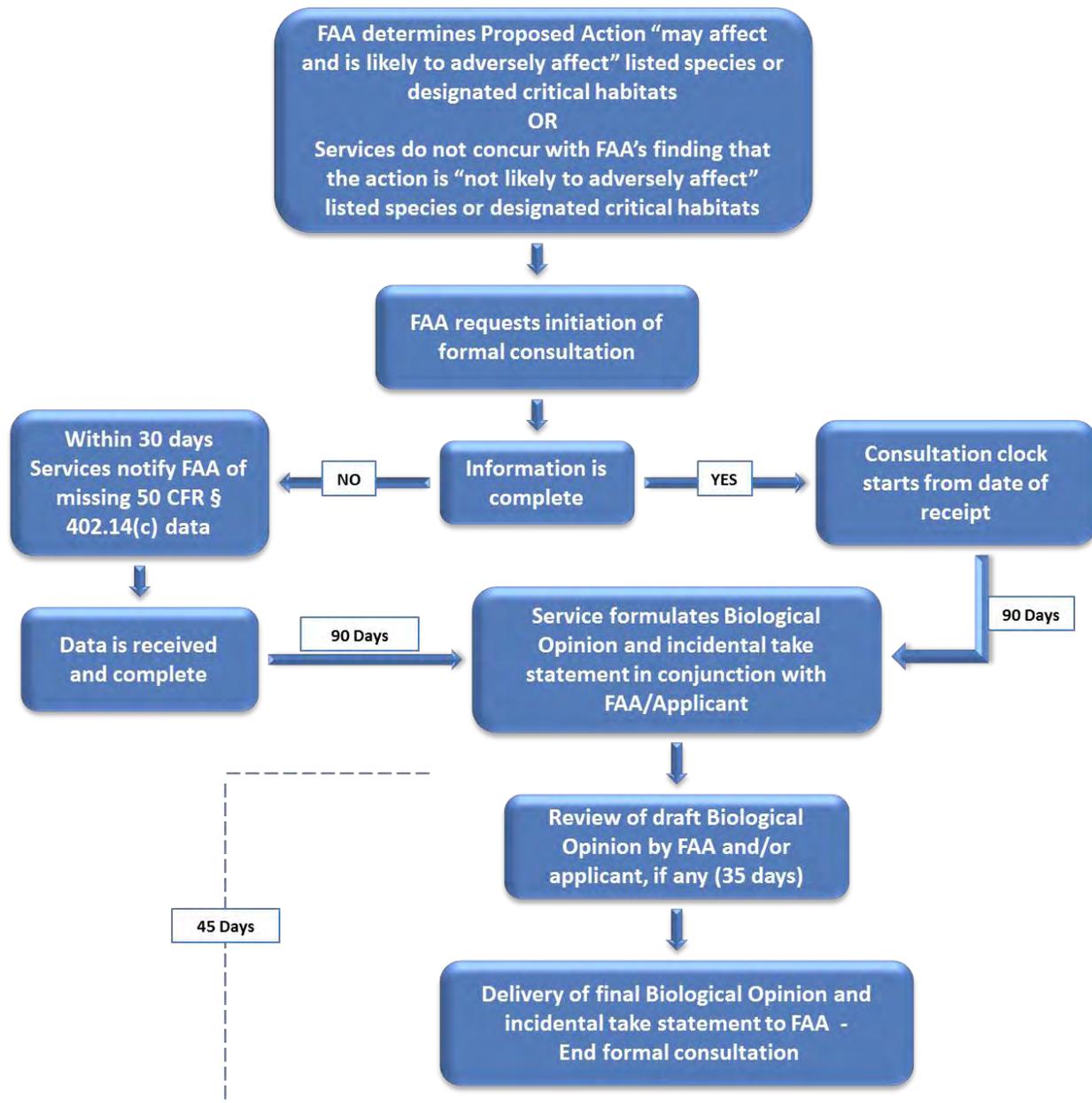
Exhibit 2-6 and Exhibit 2-7 below illustrate the formal consultation process.

Exhibit 2-6. Formal Consultation under the ESA^a

Step	Action
1	<p>If the FAA determines that the action is <i>likely to adversely affect</i> a listed species or destroy or adversely modify critical habitat, formal consultation is required. In this situation, the FAA must request initiation of formal consultation from the Services. Proceed to Step 2.</p> <p>OR</p> <p>If the Services, through informal consultation, do not concur with the FAA's finding that the action is <i>not likely to adversely affect</i> listed species or critical habitat, formal consultation is required. Proceed to Step 2.</p>
2	<p>The FAA provides all necessary information required by 50 CFR § 402.14(c) to the Services.</p> <ul style="list-style-type: none"> • If the Services determine that the information is <u>complete</u>, the formal consultation clock starts from the date of receipt. The Services then have 90 calendar days to develop a draft Biological Opinion and incidental take statement^b in conjunction with the FAA and send the draft Biological Opinion to the FAA. Proceed to Step 3. • If the Services determine that the information is <u>incomplete</u>, the Services have 30 calendar days to notify the FAA of the missing data. Once the missing data is received, the Services have 90 calendar days to develop a draft Biological Opinion and incidental take statement^b in conjunction with the FAA and send the draft Biological Opinion to the FAA. Proceed to Step 3.
3	<p>The FAA has 35 calendar days to review the draft Biological Opinion and incidental take statement and provide comments to the Service (if any). Proceed to Step 4.</p>
4	<p>The Services issue the final Biological Opinion to the FAA (within 135 days from initiation), ending the formal consultation process.</p> <ul style="list-style-type: none"> • If the Services determine <i>No Jeopardy/Adverse Modification</i>, the FAA obtains any required incidental take permits, abides by the terms and conditions set forth in the Biological Opinion, and implements any identified mitigation measures. Any consultation documentation between the FAA and the Services, including the Service's Biological Opinion and incidental take statement, should be included in the FAA's NEPA document. • If the Services determine <i>Jeopardy/Adverse Modification</i>, the FAA has the following options: <ol style="list-style-type: none"> 1. Implement one of the reasonable and prudent alternatives provided by the Services; 2. Modify the proposed project and consult again; 3. Decide not to undertake a project; or 4. Apply for an exemption.

^a This is a recommended process for formal consultation with the Services; however, the consultation process may vary from the steps listed. See the Section 7 Consultation Handbook for more information online at: https://www.fws.gov/ENDANGERED/esa-library/pdf/esa_section7_handbook.pdf.

^b Incidental take statements are not prepared for federally-listed plant species.

Exhibit 2-7. ESA Formal Consultation Flow Chart***Conference under Section 7(a)(4)***

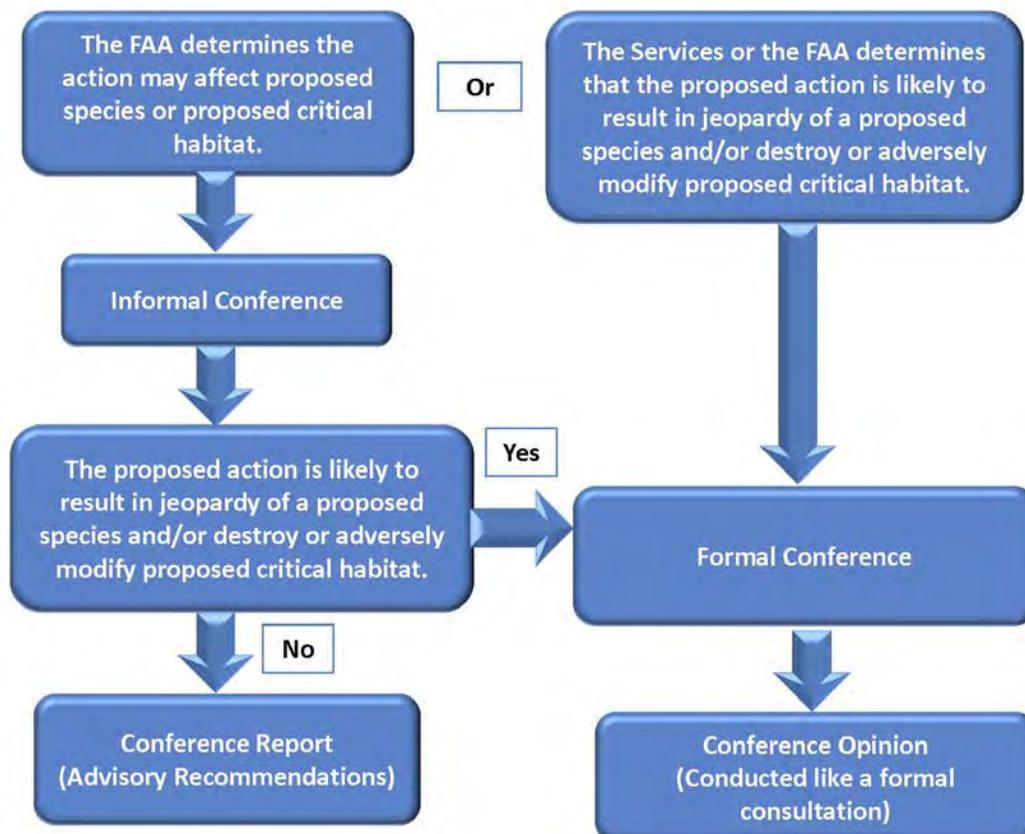
A *conference* is a process of early interagency cooperation involving informal or formal discussions between the FAA and the Services pursuant to Section 7(a)(4) of the ESA regarding the likely impact of an action on any species proposed in the *Federal Register* to be listed, or any habitat proposed in the *Federal Register* to be designated as critical habitat, under Section 4 of the ESA. Conferences serve to facilitate the consultation process in the event that a proposed species is listed or proposed critical habitat is designated prior to completion of the FAA's NEPA review process.

Conferences are required for FAA actions likely to jeopardize proposed species, or destroy or adversely modify proposed critical habitat. The FAA can enter into an informal conference if a proposed action may affect a proposed species or proposed critical habitat. The informal conference is similar to informal consultation and involves discussions among the Services. The services may assist in determining effects and ways to avoid or minimize adverse effects to proposed species or proposed critical habitat. The FAA should receive a conference report prepared by the Services which includes advisory recommendations in conclusion to an informal consultation. This is depicted in Exhibit 2-8 below.

If it is determined that a proposed action is likely to result in jeopardy of a proposed species and/or destroy or adversely modify proposed critical habitat, the FAA and the Services can initiate a formal conference. Formal conferences follow the same procedures as formal consultation. In conclusion of the formal conference process, the Services will prepare a Conference Opinion which is similar to the contents and format of a biological opinion. This process is depicted in Exhibit 2-8 below.

If an action will affect both listed and proposed species (or both designated and proposed critical habitat), the conference can be incorporated into the informal or formal consultation processes described above (see Chapter 6 of the USFWS's Consultation Handbook for more information on conferences for proposed species or proposed critical habitat).

Exhibit 2-8. Informal and Formal Conference Process



Re-initiation of Consultation

There are situations in which consultation with the Services, which had previously been concluded, may need to be re-initiated. For example, *candidate species* are those species for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. If consultation has concluded for the listed species that may be affected by the proposed project and a candidate species is listed as threatened or endangered prior to implementation of the action, re-initiation of consultation may be required for the newly listed species. In addition, consultation may be re-initiated by the FAA or the Services when any of the following conditions exist:

- The amount or extent of incidental take is exceeded;
- New information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
- The action is modified in a manner causing effects to listed species or critical habitat not previously considered; or
- A new species is listed or critical habitat is designated that may be affected by the action.

For more information regarding Section 7 consultation under the ESA, refer to the Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the ESA March 1998 available at: https://www.fws.gov/ENDANGERED/esa-library/pdf/esa_section7_handbook.pdf. See also the USFWS Endangered Species Program website at: <http://www.fws.gov/endangered/>.

Coordination of Section 7 Consultation with Other Environmental Reviews

Environmental reviews, including NEPA, may be processed concurrently with a Section 7 consultation package; however, they should be separate entities.¹ The Section 7 consultation package may be prepared as a stand-alone document under separate signature, or one cover transmittal may be used as long as the consultation package is identified as a separate entity.

A major concern of the FAA is often the timing of the consultation process in relation to NEPA. For example, the time required to conduct formal Section 7 consultation may be longer than the time required to complete the NEPA process. As a result, if the FAA determines that consultation will be required, the FAA should initiate informal consultation prior to scoping for the NEPA process. Biological Assessments may be completed prior to release of the draft Environmental Assessment (EA) or Environmental Impact Statement (EIS), and formal consultation, if required, should be initiated prior to or at the time of release of the draft EA or EIS. Please note that Section 7 consultation must be completed at the time that the final EA or EIS is issued. In addition, the Finding of No Significant Impact or Record of Decision (ROD) must address the results of Section 7 consultation.

¹ Note that the “One Federal Decision” approach calls for federal agencies to agree to a permitting timetable, including Section 7 consultations, where applicable. Updated information on “One Federal Decision” is available through DOT’s Infrastructure Permitting Improvement Center, available at: <https://www.transportation.gov/PermittingImprovementCenter>.

2.1.1.2. Marine Mammal Protection Act

As described in Exhibit 2-1 above, the MMPA prohibits, with certain exceptions, the “take” of marine mammals in U.S. waters and by U.S. citizens on the high seas (see text box). As a result, if the proposed action or alternative(s) has the potential to impact marine mammals,

Under the MMPA, *take* is defined as “to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect or kill” (see 50 CFR § 216.3).

coordination with the Services (USFWS for sea and marine otters, walrus, polar bears, three species of manatee, and the dugongs; NMFS for all other marine mammal species) may be required before the action can proceed. There are two types of take authorizations which may need to be obtained by the FAA: (1) an Incidental Harassment Authorization (IHA); and (2) an Incidental Take Authorization or Letter of Authorization (LOA).²

If the FAA determines that the action has the potential to harass a marine mammal, but can demonstrate that the action does not have the potential to result in serious injury or mortality of marine mammals (or that the potential for serious injury or mortality can be negated through mitigation) the FAA should obtain an IHA from the Services. The process for obtaining an IHA typically takes approximately 120 days.

However, if the FAA action has the potential to lead to the incidental take of marine mammals, an LOA must be obtained from the Services. An LOA authorizes a small amount of take, provided the Services conclude that the take would have no more than a “negligible impact” on those marine mammal species not listed as depleted under the MMPA and would not have an “unmitigable adverse impact” on subsistence harvests of those species. An LOA must be promulgated as a regulation and published in the *Federal Register* and must specify the following:

- Permissible methods and the specified geographic region of the take;
- The means of effecting the least practicable adverse impact on the species or stock and its habitat and on the availability of the species or stock for “subsistence” uses; and
- Requirements for monitoring and reporting, including requirements for the independent peer-review of proposed monitoring plans where the proposed activity may affect the availability of a species or stock for taking for subsistence uses.

As an LOA must be promulgated as a regulation, the process for obtaining an LOA can take between 8–18 months.

Applying for an IHA or LOA

After the FAA has determined which type of authorization to pursue, the FAA must submit a written request to the Services (the Division of Management Authority of the International Affairs Office for the USFWS and NMFS OPR and the appropriate Regional Office where the specified activity is planned for NMFS). All applications for marine mammal incidental take

² Note that the “One Federal Decision” approach calls for federal agencies to agree to a permitting timetable, including MMPA authorizations, where applicable. Updated information on “One Federal Decision” is available through DOT’s Infrastructure Permitting Improvement Center, available at: <https://www.transportation.gov/PermittingImprovementCenter>.

authorizations, whether an IHA or LOA, must include the items identified below before being reviewed by the Services:

- A detailed description of the specific activity or class of activities that can be expected to result in incidental taking of marine mammals;
- The date(s) and duration of such activity and the specific geographic region where it will occur;
- The species and numbers of marine mammals likely to be found within the activity area;
- A description of the status, distribution, and seasonal distribution (when applicable) of the affected species or stocks of marine mammals likely to be affected by such activities;
- The type of incidental taking authorization that is being requested (i.e., takes by harassment only; takes by harassment, injury and/or death) and the method of incidental taking;
- By age, sex, and reproductive condition (if possible), the number of marine mammals (by species) that may be taken by each type of taking identified in #5 above, and the number of times such takings by each type of taking are likely to occur;
- The anticipated impact of the activity upon the species or stock;
- The anticipated impact of the activity on the availability of the species or stocks of marine mammals for subsistence uses;
- The anticipated impact of the activity upon the habitat of the marine mammal populations, and the likelihood of restoration of the affected habitat;
- The anticipated impact of the loss or modification of the habitat on the marine mammal populations involved;
- The availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, their habitat, and on their availability for subsistence uses, paying particular attention to rookeries, mating grounds, and areas of similar significance;
- Where the proposed activity would take place in or near a traditional Arctic subsistence hunting area and/or may affect the availability of a species or stock of marine mammal for Arctic subsistence uses, the applicant must submit either a “plan of cooperation” or information that identifies what measures have been taken and/or will be taken to minimize any adverse effects on the availability of marine mammals for subsistence uses;
- The suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species, the level of taking or impacts on populations of marine mammals that are expected to be present while conducting activities, and suggested means of minimizing burdens by coordinating such reporting requirements with other schemes already applicable to persons conducting such activity. Monitoring plans should include a description of the survey techniques that would be used to determine the movement and activity of marine mammals near the activity site(s) including migration and other habitat uses, such as feeding. Guidelines for developing a site-specific monitoring plan may be obtained by writing to the Director, NMFS OPR; and

- Suggested means of learning of, encouraging, and coordinating research opportunities, plans, and activities relating to reducing such incidental taking and evaluating its effects.

For additional information, see the USFWS website at: <http://www.fws.gov/international/laws-treaties-agreements/us-conservation-laws/marine-mammal-protection-act.html>, and the NMFS website at: <https://www.fisheries.noaa.gov/topic/laws-policies#marine-mammal-protection-act> and <https://www.fisheries.noaa.gov/protecting-marine-life>.

ESA and MMPA

Any takings of marine mammals listed as threatened or endangered under the ESA must be authorized under both the ESA and the MMPA. The ESA takes are authorized by an incidental take statement under Section 7. An incidental take statement cannot be authorized for a listed marine mammal until the appropriate MMPA authorization is completed.

2.1.1.3. Magnuson-Stevens Fishery Conservation and Management Act

Under the Magnuson-Stevens Fishery Conservation and Management Act, the FAA must consult with NMFS with regard to any action authorized, funded, or undertaken that may adversely affect any essential fish habitat identified under the Act. The consultation procedures are similar to ESA consultation requirements³. NMFS will provide conservation recommendations (which may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on essential fish habitat) to the FAA for activities that would adversely affect essential fish habitat. The FAA must provide a detailed response in writing to NMFS and to any Regional Fishery Management Council commenting under Section 305(b)(3) of the Act within 30 days of receiving an essential fish habitat conservation recommendation (or at least 10 days prior to final approval of the action, if a decision by the federal agency is required in less than 30 days). The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on essential fish habitat. In the case of a response that is inconsistent with the recommendations of NMFS, the FAA must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects.

NMFS has defined several approaches to meet the essential fish habitat consultation requirements, including:

- Use of existing procedures – The use of existing environmental coordination and/or review procedures (e.g., the NEPA process) to meet essential fish habitat consultation requirements is the preferred approach for essential fish habitat consultations;
- General concurrences – Identifies specific types of federal actions that may adversely affect essential fish habitat, but for which no further consultation will generally be required;

³ Note that the “One Federal Decision” approach calls for federal agencies to agree to a permitting timetable, including essential fish habitat consultations, where applicable. Updated information on “One Federal Decision” is available through DOT’s Infrastructure Permitting Improvement Center, available at: <https://www.transportation.gov/PermittingImprovementCenter>.

- Programmatic consultations – Allows NMFS and the FAA to consult on, and NMFS to provide essential fish habitat conservation recommendations for, a potentially large number of individual actions that may adversely affect essential fish habitat. The FAA may request programmatic consultation with NMFS; or
- Abbreviated and expanded consultation – When no other methods can be used for essential fish habitat consultation, the FAA must use the abbreviated or expanded consultation processes outlined in the essential fish habitat regulations at 50 CFR § 600.920(h) and § 600.920(i).

More information on these approaches can be accessed online at:

<https://www.fisheries.noaa.gov/>.

2.2. Affected Environment

When defining the study area for biological resources, consider both areas directly impacted (such as through vegetation and habitat removal within the construction footprint) and those areas indirectly impacted through facility lighting, noise, air emissions, and changes to water quality or quantity caused by construction equipment or facility operations.

The presence of biological resources is best determined by visiting a project site to conduct a field assessment. Field assessments should be conducted by a qualified specialist who can evaluate the proposed site's biological characteristics. If a field assessment is not possible, the following resources can also help to identify the presence of biological resources in the study area:

- Recent plant and wildlife surveys conducted for a project site or surrounding locations;
- Recent published literature for a project site or surrounding locations;
- Recent NEPA documents for a project site or surrounding locations; and
- Other publicly available information, such as Geographic Information System (GIS) data, and maps.

Using all available information, provide a general description of the plant and animal species potentially present within or near the proposed study area. For animal species, it might be appropriate to organize the discussion by the major animal groups (i.e., mammals, birds, reptiles, amphibians, fish, and invertebrates) and then list example species. For plant species, it might be appropriate to provide an overview of the type(s) of vegetative communities in and surrounding the study area (including invasive species).

Special emphasis should be placed on any federally or state-listed threatened or endangered species, species proposed for listing, or migratory birds that may be present in the study area. For these species, provide a table listing all species and their designation (e.g., federally-threatened or state species of concern). In addition, provide a general description of each species, including known or historic locations of each species, habitat requirements, cause(s) of species decline, etc. If federally-designated critical habitat is present within or near the study area, describe the critical habitat and provide a map that shows the location of the critical habitat in relation to the study area.

In addition, the following is a list of electronic sources which might be useful in gathering information regarding the biological resources that may be present in the study area.

2.2.1. Federally-Protected Species; Critical Habitat; Essential Fish Habitat

- USFWS IPaC website at: <https://ecos.fws.gov/ipac/> for federally-listed threatened and endangered species lists and designated critical habitat by county;
- USFWS Ecological Services field office websites for federally-listed species county lists;
- USFWS Environmental Conservation Online System website at: <https://ecos.fws.gov/ecp/> for information and *Federal Register* documents on federally-listed species under the jurisdiction of the USFWS;
- USFWS Critical Habitat Portal at: <http://criticalhabitat.fws.gov/crithab/> for locations of designated critical habitat for species under the jurisdiction of the USFWS;
- NMFS OPR's website at: <https://www.fisheries.noaa.gov/protecting-marine-life> for information on federally-listed threatened and endangered species, critical habitat areas, and MMPA-protected species under the jurisdiction of NMFS;
- USFWS Marine Mammals Habitat and Resource Conservation website at: <http://www.fws.gov/international/animals/marine-mammals.html> for information on MMPA-protected species under the jurisdiction of the USFWS;
- NMFS Essential Fish Habitat Mapper at: <https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper> for locations of essential fish habitat; and
- Multi-federal agency-supported Marine Cadastre website at: <http://www.marinecadastre.gov/> for geospatial marine data that show important coastal features, special habitat areas, and jurisdictional boundaries.

2.2.2. State-Protected Species

- State Wildlife Action Plans at: <https://www.fishwildlife.org/afwa-informs/state-wildlife-action-plans>; and
- State Fish and Wildlife websites.

2.2.3. Migratory Birds

- USFWS IPaC website at: <https://ecos.fws.gov/ipac/> provides information on the migratory birds that may be in the impact area as well as best management practices for limiting impacts to migratory birds.
- USFWS Migratory Bird Program website at: <https://www.fws.gov/birds/index.php> for information on migratory birds protected by the Migratory Bird Treaty Act.
- USFWS Birds of Conservation Concern website at: <https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php> for the Birds of Conservation Concern (BCC list). The BCC list is comprised of species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA.

2.3. Environmental Consequences

When discussing potential impacts to biological resources, start by explaining the methodology used to evaluate impacts, if applicable. The NEPA document should contain an explanation of any assumptions used in the analysis. In consultation with agencies and organizations having jurisdiction or special expertise concerning the protection and/or management of affected species, consider factors affecting population dynamics and sustainability, such as reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting, aircraft strikes), and the minimum population levels required for population maintenance. Relevant information may be obtained from state, tribal, and local wildlife management agencies and scientific literature concerning wildlife management (e.g., U.S. Department of Agriculture National Wildlife Research Center library).

When analyzing impacts for biological resources, established scientific practices should be used to obtain the best estimate of potential effects. Studies on specific species should be used where possible; however, impact studies of similar species, where similarity may be judged on physiological, phylogenetic, or ecological criteria can be used to obtain the best estimate of potential impacts. This estimate should be qualified by a discussion of the biological uncertainties that arise from gaps in theory and distinctions between the studied species and the affected species.

As biological resources (particularly birds) also have the potential to impact project alternatives, some projects may necessitate consideration of the effects of wildlife on the siting of alternatives. For example, siting an airport where there are no hazardous wildlife attractants nearby would be preferable to an alternative with hazardous wildlife attractants nearby. Similarly, orienting a new runway away from known wildlife hazard attractants such as a National Wildlife Refuge should be considered when possible.

Potential impacts on biological resources from construction activities include the destruction or alteration of habitat and the disturbance or elimination of individuals or local populations of fish, wildlife, plants, or the introduction of invasive species. One way to assess the potential impacts on vegetation and wildlife is to calculate the area that could be affected during construction for each alternative and identify the vegetation types and wildlife species associated with that area. Use of GIS data may be helpful when estimating the size of the area that could be affected.

Like construction, potential impacts on biological resources from operations include disturbance to noise-sensitive terrestrial and aquatic animal species generated by operational noise. A noise analysis allows for an assessment of the potential impacts on these noise-sensitive species. When discussing the extent of the potential impact, include areas within the vicinity of operations as well as any land area or open water (such as oceans) that aircraft or commercial space launch vehicles would fly over. Additional potential direct impacts on biological resources from operations include those that would occur during an accidental spill of fluids, assuming an accident is sufficiently likely as to not be speculative, and such an accident could result in the disturbance or death of individual fish, wildlife, or plants.

2.3.1. Significance Determination

Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for biological resources (including fish, wildlife, and plants). A significant impact to biological resources

would occur when: *The U.S. Fish and Wildlife Service or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a Federally-listed threatened or endangered species, or would result in the destruction or adverse modification of federally-designated critical habitat.* The FAA has not established a significance threshold for non-listed species.

In addition to the threshold above, Exhibit 4-1 of FAA Order 1050.1F provides additional factors to consider in evaluating the context and intensity of potential environmental impacts for biological resources. Please note that these factors are not intended to be thresholds. If these factors exist, there is not necessarily a significant impact; rather, the FAA must evaluate these factors in light of context and intensity to determine if there are significant impacts. Factors to consider that may be applicable to biological resources include, but are not limited to, situations in which the proposed action or alternative(s) would have the potential for:

- A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area (e.g., a new commercial service airport);
- Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats;
- Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or
- Adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance.

2.4. Mitigation

Examples of potential measures to mitigate impacts to biological resources include:

- phasing activities to avoid breeding, nesting, flowering, or pollination seasons;
- conducting surveys for nesting migratory birds during the breeding season prior to construction, resulting in avoidance and/or relocation of active nests to the extent possible;
- conducting surveys for state or Federally-listed plants prior to planned construction;
- fencing best management practices, to the extent possible, that allow for wildlife movement at all locations when appropriate;
- designing project components in such a way as to reduce the potential to cause or enhance wildlife hazards to aviation;
- re-vegetation of temporarily disturbed work areas, using original top soil as a seed bank;
- enhancement of off-site habitats (not near airports) to replace those habitats made unusable or inaccessible; and
- monitoring of wildlife populations within and/or near the study area to examine for potential shifts in density and diversity.

Common construction-related mitigation measures include:

- adherence to state guidelines to reduce threats to local fauna; and
- adherence to state distribution line guidelines for on- and off-site construction of aboveground lines to reduce threats to birds, particularly raptors.

When possible, mitigation measures for biological resources should consider actions at the ecosystem level, rather than the project level. An interagency steering team, including representatives from U.S. Department of Transportation (DOT), has developed *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects* to help guide the development of infrastructure projects that are more sensitive to terrestrial and aquatic habitats. This document may be a useful resource in developing appropriate mitigation for some projects. It is available here: https://www.environment.fhwa.dot.gov/env_initiatives/eco-logical/report/eco_index.aspx.

2.5. Sample Consultation Letter

Exhibit 2-9 presents a sample letter to the Services documenting a *may affect, not likely to adversely affect* determination by the FAA for non-major construction activities.

Exhibit 2-9. Sample Letter Documenting the FAA’s Determination of *May Affect, Not Likely to Adversely Affect* and Requesting Service Concurrence For a Non-Major Construction Activity

U.S. Department of Transportation
Federal Aviation Administration

(Name)

Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
(Address)

RE: Section 7 Consultation for Activities Associated with an FAA Launch Site Operator License at Cape Canaveral Air Force Station

Dear *(Name)*,

Thank you for your email to *(FAA employee name)* of my staff on August 13, 2010, regarding the Federal Aviation Administration’s (FAA) July 2010 final Environmental Assessment (EA) for Space Florida Launch Site Operator License. As you are aware, the EA evaluates the potential environmental impacts of the proposed action, where the FAA would issue a Launch Site Operator License to Space Florida to operate a commercial space launch site at Launch Complex (LC)-36 at Cape Canaveral Air Force Station (CCAFS) in Brevard County, Florida. Per your conversation with *(FAA employee name)* on *(date)* regarding the FAA’s Section 7 consultation obligations under the Endangered Species Act, we are requesting your concurrence with our assessment and determination of potential effects of the proposed action on 12 Federally-listed threatened and endangered species and their critical habitats.

Project Description

(Describe project, including figures as needed)

Federally-Threatened and Endangered Species

The threatened and endangered species listed by the United States Fish and Wildlife Service in Brevard County, Florida are depicted in Exhibit 1.

(List species in a table)

Potential Federally-Listed Species Presence Around LC-36

Habitat around LC-36 is suitable to support all Federally-listed species in Brevard County except Audubon's crested caracara, Red-cockaded woodpecker, and Carter's mustard. Prairie habitat and open mature pine woodlands are not found around LC-36. In addition, no known Federally-listed plant species are known to occur in CCAFS. These three species will not be discussed further.

Action Area

(Describe action area) The project action area is defined as all areas to be affected directly or indirectly by the proposed action and not merely the area immediately adjacent to the action. Therefore, the project action area includes the area inside the LC-36 perimeter for construction activities, and the areas where launch blast emissions may be felt and noise may be heard.

Effects Determinations

Birds

The FAA has determined that the proposed project warrants a **May Affect, Not Likely to Adversely Affect** for the Florida scrub-jay, Piping plover, and Wood stork.

A determination of **May Affect** is warranted for the project based on the following rationale:
(List reasons – can be in bulleted format)

- The presence of potential habitat around LC-36.
- Disturbances from construction noise and human activities could startle and disturb these birds, if present.
- Disturbances from launch operations, such as noise/vibration and rocket exhaust, could startle and disturb these birds, if present.
- The potential for a direct bird strike during vehicle launch.

A determination of **Not Likely to Adversely Affect** is based on the following rationale:
(List reasons – can be in bulleted format)

- All construction would occur inside the perimeter of LC-36 and no direct impacts to native habitats are expected. Construction noise would be short term and temporary.
- Rocket exhaust clouds near the launch site could result in displacement and disorientation of the birds, but the exhaust would be of very short duration and would be rapidly dispersed due to the mechanical and thermal turbulence of the exhaust gases, the movement of the vehicle, and wind action.
- Noise from rocket launches would be short term and temporary (less than one minute).
- The probability of a bird strike during a launch event is extremely low.

Mammals

The FAA has determined that the proposed project warrants a **May Affect, Not Likely to Adversely Affect** for the West Indian manatee's designated critical habitat.

A determination of **May Affect** is warranted for the project based on the following rationale:
(List reasons – can be in bulleted format)

- The presence of the nearby Banana River, which is designated critical habitat for the West Indian manatee.
- Disturbances from launch activities, such as rocket exhaust.
- Disturbances from launch anomalies or failures, such as leaching of rocket propellant into the river or vehicle parts landing in the river.

A determination of **Not Likely to Adversely Affect** is based on the following rationale:
(List reasons – can be in bulleted format)

- Rocket exhaust near the launch site could result in acid deposition that could reach the Banana River, but the exhaust would be of very short duration and would be rapidly dispersed due to the mechanical and thermal turbulence of the exhaust gases, the movement of the vehicle, and wind action.

- The probability of launch anomalies resulting in the accidental release of rocket propellant or vehicle parts in the early stage of flight is extremely small. In the unlikely event of such an anomaly, perchlorate from solid propellant rockets could leach into the Banana River, resulting in short-term impacts. However, perchlorate leaches slowly (in freshwater at 20°C it would take over a year for the perchlorate contained in solid propellant to leach out into the water, and even longer in lower water temperatures and more saline waters). As a result, perchlorate would be diluted in the water over this time period and would not reach toxic concentrations.
- Emergency response and clean-up procedures would reduce the magnitude and duration of any impacts to the Banana River from accidental propellant or vehicle part releases.

(Continue the same procedure as above for all remaining species and critical habitat)

We seek your concurrence on our determinations. Thank you for your assistance in this matter. Please provide your response to *(FAA employee name)*, FAA Environmental Specialist, by mail at *(address)*, by e-mail at *(address)*, or by phone at *(number)*.

Sincerely,

(Name and Title)

Appendix B. Biological Resources

Federal activities affecting all environmental impact categories are governed by many statutes, regulations, and Executive Orders. Each impact category chapter of this Desk Reference (Chapters 1-14, as applicable) contains an exhibit with a tabular overview of the major applicable Federal statutes, regulations, Executive Orders, and the agencies responsible for overseeing their implementation. This appendix supplements the background information relevant to those requirements that is provided in the chapter exhibits. Please note that these requirements may not be applicable to every FAA action, and should only be included when relevant to the proposed project.

B.2. Biological Resources

The following statutes, Executive Orders, and memorandum govern the protection of biological resources.

B.2.1. Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act, administered by the U.S. Fish and Wildlife Service (USFWS), protects bald and golden eagles from the unauthorized capture, purchase, or transportation of the birds, their nests, or their eggs. Any action that might disturb these species requires a permit from the USFWS, which authorizes limited, non-purposeful take of bald and golden eagles. In limited cases, a permit may authorize the physical take of eagles, but only if every precaution is taken to avoid physical take. Removal of eagle nests is typically only allowed when necessary to protect human safety or the safety of the eagles. Coordination with the USFWS may be necessary if a proposed project has the potential to affect bald or golden eagles.

For additional information, see the following links:

- Information on Bald Eagle Management: <https://www.fws.gov/birds/management/managed-species/eagle-management.php>
- Federal Laws protecting Eagles: <http://www.fws.gov/midwest/eagle/protect/laws.html>
- Information on Eagle Permits: <https://www.fws.gov/pacific/eagle/> Endangered Species Act

The USFWS and the National Marine Fisheries Service (NMFS) (collectively known as “the Services”) jointly administer the Endangered Species Act of 1973 (ESA), which requires all federal agencies to seek to conserve threatened and endangered species. In general, the USFWS has jurisdiction over federally-listed terrestrial and freshwater species, and the NMFS has jurisdiction over federally-listed marine and anadromous species.¹ The ESA provides the following definitions of threatened and endangered species:

- **Threatened species.** Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

¹ The USFWS and NMFS have joint jurisdiction over some species, including sea turtles and certain fish species.

- **Endangered species.** Any plant or animal species that is in danger of extinction throughout all or a significant portion of its range.

Those species that are considered for possible addition to the list of threatened and endangered species are known as *candidate species*. Candidate species are not afforded regulatory protection under the ESA; however, these species are still important to include in the National Environmental Policy Act (NEPA) review as they may be listed in the foreseeable future. *Proposed species* are any species proposed to be listed as threatened or endangered, and are provided protection under the ESA.

Under the ESA, the Services are also required to designate *critical habitat* for listed species at the time of or within one year of each species' listing.² Critical habitat is defined as specific areas within the geographic area occupied by the species at the time it is listed, which contain the physical or biological features essential to conservation of the species and that might require special management considerations or protection. Critical habitat also includes specific areas outside the geographic area occupied by the species if the Services determine that the area itself is essential for conservation of the species.

The most relevant section of the ESA to FAA actions is Section 7(a)(2), which requires federal agencies, in consultation with the Services, to ensure that any action the agency authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. As a result, the FAA must consult with the Services prior to taking any action that has the potential to affect listed species. In addition, if a proposed project has the potential to impact a proposed species or proposed critical habitat, the FAA must confer with the Services under Section 7(a)(4).

For additional information on the ESA, see the following links:

- ESA information: <http://www.fws.gov/endangered/laws-policies/index.html>
- Information on Endangered Species: <http://www.fws.gov/endangered/>
- Link to Information, Planning, and Conservation System (IPaC) database: <http://ecos.fws.gov/ipac/>

B.2.2. Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act of 1958 requires that federal agencies consult with the USFWS, NMFS (in some instances), and appropriate state fish and wildlife agencies regarding the conservation of wildlife resources when proposed federal projects may result in control or modification of the water of any stream or other water body. This Act provides for financial and technical assistance to states to develop conservation plans, subject to approval by the U.S. Department of the Interior (DOI), and implement state programs for fish and wildlife resources. The Act also encourages all federal departments and agencies to utilize their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities, to conserve and to promote the conservation of non-game fish

² Designation of critical habitat for a species usually does not occur within a year.

and wildlife and their habitats. Coordination with the USFWS and state wildlife agencies may be necessary if a proposed project has the potential to impact applicable water bodies.

For additional information on the Fish and Wildlife Coordination Act, see <https://www.fws.gov/laws/lawsdigest/fwcoord.html>.

B.2.3. Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act governs the conservation and management of ocean fishing, including *essential fish habitat*.³ Implemented by the NMFS, this Act establishes eight Regional Fishery Management Councils who are responsible for: (1) describing and identifying essential fish habitat in their respective regions; (2) specifying actions to conserve and enhance essential fish habitat; and (3) minimizing the adverse effects of fishing in essential fish habitat. The Magnuson-Stevens Fishery Conservation and Management Act also establishes exclusive U.S. management authority over all fishing within the U.S. exclusive economic zone,⁴ all anadromous fish throughout their migratory range (except when in a foreign nation's waters), and all fish on the Continental Shelf. Consultation with the NMFS may be necessary if a proposed project has the potential to impact essential fish habitat.

For additional information on the Magnuson-Stevens Fishery Conservation and Management Act, see <https://www.fisheries.noaa.gov/topic/laws-policies#magnuson-stevens-act>.

B.2.4. Marine Mammal Protection Act

The Services also jointly administer the Marine Mammal Protection Act (MMPA) of 1972. The MMPA protects all marine mammals and prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas. In addition, the MMPA prohibits the importation of marine mammals and marine mammal products into the United States. Under the MMPA, the USFWS has jurisdiction over sea and marine otters, walruses, polar bears, three species of manatees, and dugongs; the NMFS has jurisdiction over sea lions, whales, and dolphins. Consultation with the Services may be necessary if a proposed project has the potential to impact marine mammals.

For additional information on the MMPA, including links to MMPA regulations and descriptions of marine mammals, see <http://www.nmfs.noaa.gov/pr/laws/mmpa/> and <https://www.fws.gov/international/animals/marine-mammals.html>.

³ Essential fish habitat is defined as "...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity".

⁴ The exclusive economic zone is the zone where the United States and other coastal nations have jurisdiction over economic and resource management. The exclusive economic zone includes waters 3 to 200 miles offshore (or 9 to 200 miles offshore in western Florida and Texas). Coastal states are responsible for inshore waters out to 3 miles off the coast (or 9 miles off the west coast of Florida and Texas).

B.2.5. Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 protects migratory birds by prohibiting private parties (and federal agencies in certain judicial circuits) from intentionally taking,⁵ selling, or conducting other activities that would harm migratory birds, their eggs, or nests (such as removal of an active nest or nest tree), unless the Secretary of the Interior authorizes such activities under a special permit. Administered by the USFWS, the Act implements various treaties and conventions between the United States and Canada, Japan, Mexico, and the former Soviet Union (now Russia) for the protection of more than 800 species of migratory birds. Coordination with the USFWS may be necessary if a proposed project has the potential to affect migratory birds.

For additional information on the Migratory Bird Treaty Act, see the:

- Migratory Bird Treaty Act: <http://www.fws.gov/laws/lawsdigest/migtrea.html>
- USFWS Migratory Bird Program: <http://www.fws.gov/migratorybirds/>
- Migratory Bird List: <https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protected-species.php>
- Link to IPaC database: <http://ecos.fws.gov/ipac/>

B.2.6. Executive Order 13112, *Invasive Species*

As defined by Executive Order 13112, *Invasive Species*, 64 *Federal Register* 6183, (February 8, 1999), invasive species are non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human health. A species is regarded as invasive if it:

1. Has been introduced by human action to a location where it did not previously occur naturally;
2. Becomes capable of establishing a breeding population in the new location without further intervention by humans; and
3. Spreads throughout the new location.

Pursuant to this Executive Order, federal agencies whose actions may affect the status of invasive species are directed to use relevant programs and authorities, to the extent practicable and subject to available resources, to prevent the introduction of invasive species, and to provide for the restoration of native species and habitat conditions in ecosystems that have been invaded. Agencies are directed not to carry out actions that they believe are likely to cause or promote the introduction or spread of invasive species unless the benefits of such actions clearly outweigh the potential harm, and all feasible and prudent measures, and mitigation to minimize risk of harm are taken.

For additional information

- Link to Executive Order 13112: <http://www.gpo.gov/fdsys/pkg/FR-1999-02-08/pdf/99-3184.pdf>

⁵ Under the Migratory Bird Treaty Act, *taking* is defined as “pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting”.

- Link to the National Invasive Species Council website:
<https://www.doi.gov/invasivespecies/>

B.2.7. Executive Order 13751, *Safeguarding the Nation from the Impacts of Invasive Species*

Executive Order 13751, *Safeguarding the Nation from the Impacts of Invasive Species*, 81 *Federal Register* 88609, (December 8, 2016) amends Executive Order 13112, *Invasive Species* and directs actions to continue coordinated federal prevention and control efforts related to invasive species. This Executive Order incorporates considerations of human and environmental health, climate change, technological innovations, and other emerging priorities into federal efforts to address invasive species and strengthens coordinated, cost-efficient federal action.

For additional information on this Executive Order, see <https://www.whitehouse.gov/the-press-office/2016/12/05/executive-order-safeguarding-nation-impacts-invasive-species>.

B.2.8. Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*

Executive Order 13186, *Responsibilities of Federal Agencies To Protect Migratory Birds*, 66 *Federal Register* 3853, (January 17, 2001) directs federal agencies to take action to further implement the Migratory Bird Treaty Act for federal actions that have, or are likely to have, a measurable negative effect on migratory bird populations, through the development and implementation of Memorandums of Understanding (MOUs) with the USFWS. In accordance with this Executive Order, the FAA signed a Memorandum of Agreement (MOA)⁶ with the USFWS and other federal agencies in December 2002 to address aircraft-wildlife strikes. Through this MOA, the agencies established procedures to coordinate their missions to more effectively mitigate against existing and future environmental conditions that contribute to wildlife strikes with aircraft.

For additional information on this Executive Order, see <http://www.gpo.gov/fdsys/pkg/FR-2001-01-17/pdf/01-1387.pdf>.

B.2.9. Council on Environmental Quality (CEQ) Guidance, *Incorporating Biodiversity Considerations Into Environmental Impact Analysis Under the National Environmental Policy Act*

In accordance with 40 CFR §§ 1507.2(e), 1508.8(b), and 1508.27, this guidance directs federal agencies to consider the effects of federal actions on biodiversity to the extent that is possible to both anticipate and evaluate those effects. The guidance outlines the general principles and discusses the importance of context – that is, examining the direct, indirect, and cumulative impacts of a specific project in the regional or ecosystem context.

⁶ MOA Between the Federal Aviation Administration, the U.S. Air Force, the U.S. Army, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture to Address Aircraft-Wildlife Strikes. Available at: <https://www.faa.gov/airports/environmental/media/wildlife-hazard-mou-2003.pdf>.

For additional information see the CEQ Guidance at:

http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-BiodiversityConsiderations.pdf.

B.2.10. Memorandum of Understanding to Foster the Ecosystem Approach (December 1995)

This MOU was signed between CEQ and all federal Departments, EPA, and the Office of Science Technology Policy. The MOU emphasizes consideration of all relevant and identifiable ecological and economic consequences both long term and short term; coordination among federal agencies; partnership; communication with the public; efficient and cost-effective implementation; use of best available science; improved data and information management, and responsiveness to changing circumstances. The MOU can be found at:

<https://www.fhwa.dot.gov/legsregs/directives/policy/memoofun.htm>.