

Chapter 7: Identifying HCP Species and Information Needs

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7.0 Introduction

Preparing an acceptable HCP requires thorough, up-to-date biological information on the project area, covered lands, and species. First, we should advise the applicant to collate and review existing information about species distribution, occurrence, and ecology (e.g., feeding, breeding, sheltering), including potential effects of climate change that could compromise the success of the HCP’s conservation strategy. We can assist in this process by providing or directing the applicant to available information, and species or other subject-matter experts. Second, the

applicant, in coordination with the Services, should determine if the available information is adequate to proceed with the HCP planning process. If further information is needed to develop the HCP, the Services should work with the applicant to determine the type, scope, and design of biological studies that can reasonably be developed to support the HCP. Appropriate data gathering efforts for an HCP could include species population surveys, species distribution information, and/or habitat modeling and distribution. Surveys can occur before the permit is issued (with the appropriate permits, while the HCP is in development) and after the permit is issued (during implementation of the HCP).

Deciding which species to cover in an HCP involves the consideration of many factors. The Services and the applicant must work together to identify the list of covered species. The applicant must include ESA-listed animal species that are expected to be taken by proposed covered activities as covered species in the HCP. Species that may be ESA-listed during the permit term, and are expected to be taken from proposed activities should be considered for inclusion as a covered species. Common species, or species that have very low likelihood of becoming ESA-listed, should not be covered by the HCP because every species included involves commitments of time and money by both the applicant and the Services. Every species covered in the HCP must be treated as though it were already ESA-listed.

The Services require applicants to include as HCP covered species all ESA-listed wildlife species for which incidental take is reasonably certain to occur, unless take is addressed through a separate ESA mechanism (e.g., section 7 consultation with another Federal agency, separate incidental take permit, etc.), or to explain or demonstrate in the HCP why take is not anticipated or will be avoided during implementation of covered activities (e.g., inclusion of measures that will avoid potential for take). Note that the Services' intra-Service section 7 consultation prepared in conjunction with incidental take permit issuance will not include an incidental take exemption for non-HCP covered species. In addition, while a separate ESA mechanism (e.g., section 7 consultation with another Federal agency) is a possible path forward for addressing take of non-covered HCP species, the pluses and minuses should be carefully weighed. For instance, No Surprises assurances would be precluded for those species not covered in the HCP and it may undermine the opportunity for project streamlining afforded through the HCP process.

Impacts to plants do not fall under the definition of "take," therefore, we cannot authorize incidental take of plants. However, the Services cannot issue a permit that would jeopardize the continued existence or adversely modify the designated critical habitat of any listed species, including plants, so addressing listed plants in the HCP may be prudent. Table 7.0a shows when to cover species in an HCP or not. For this discussion, covered species are those that are included in the HCP with conservation measures to offset the impacts of the taking and are included on the incidental take permit. Plants adequately covered by the plan may be included on the permit for the purpose of providing No Surprises assurances. Species included in the plan that are not included in the permit are not considered covered species.

Table 7.0a: Species Coverage in HCPs

	Occurs in the plan area or likely to occur	Take expected from covered activities	Cover in HCP?
ESA- listed species	yes	yes	yes
ESA- listed species	yes	no	consider for coverage; the HCP should explain or demonstrate why take is not anticipated or will be avoided during implementation of covered activities
ESA-listed plant	yes	yes	recommended, to avoid potential jeopardy/ adverse mod to critical habitat problems later
Proposed or candidate species	yes	yes	consider for coverage
State listed	yes	yes	consider for coverage
Common species	yes	yes	no

A key factor in determining whether to cover a species is how much is known about the species. If there is not enough information available (see section 7.1 for more information) to develop a conservation strategy for a particular species, choosing not to cover the species may be best. In this case, take of an ESA-listed species must be avoided or the permit cannot be issued as it will be difficult to understand the impacts of the taking, and it will be difficult to develop a conservation strategy that will mitigate those impacts. Another key factor is whether the species occurs in the permit area. If there is not enough information available to determine if one of the covered species occurs within the plan area or not, there is unlikely to be sufficient information for an adequate effects analysis, which are required contents of an HCP, National Environmental Policy Act (NEPA) document (see [HCP Handbook Toolbox](#)), and Section 7 analysis. An additional consideration is the option of including species that do not currently occur in the plan area, but are reasonably likely to move into and occur in the area during the life of the plan, e.g., due to a range shift related to climate change effects or for other reasons.

Helpful Hint: All ESA-listed species that will be taken through implementation of covered activities must be included as covered species, or we cannot issue the incidental take permit (unless covered by another ESA mechanism). The applicant must adjust covered activities to avoid take of ESA-listed species that are not covered by the HCP.

A covered species in an HCP is one for which an applicant is requesting authorization for incidental take and is developing a conservation strategy with avoidance, minimization, and mitigation measures. There are HCPs that include non-ESA-listed species in the plan without take coverage in addition to the ESA-listed species with take coverage. This is typically the case where State or local laws require certain minimization or mitigation requirements for those species, and the applicant uses the HCP to help meet both sets of requirements (e.g., establishing and maintaining a 5,000 acre grassland preserve for the covered species would also benefit some non-covered species). By including them as species of local concern the applicants are not required to meet issuance criteria for them or have individual goals and objectives, or monitoring requirements, but may be able to meet the requirements of State or local laws. These species of local concern would not receive assurances as covered species do. The HCP must make it clear for which species the applicant is seeking incidental take permit coverage.

7.1 Requirements and Information Needs and Standards for Covered Species

An applicant needs sufficient species information to meet required permitting elements. FWS permit regulations (50 CFR 17.22(b)(1) and 17.32(b)(1)) require the permit application to include the “number, age, and sex of such species, if known.” National Marine Fisheries Service (NMFS) permit regulation 50 CFR 222.307(b)(3) requires that applications include the species or stocks, by common and scientific name, and a description of the status, distribution, seasonal distribution, habitat needs, feeding habits, and other biological requirements of the affected species or stocks. See these regulations in the [HCP Handbook Toolbox](#). The HCP must describe:

1. the impact that will likely result from incidental taking; and
2. what steps the applicant will take to monitor, minimize, and mitigate such impacts.

The permit issuance criteria require the Services to determine if the measures in the HCP will minimize and mitigate the impact of the taking to the maximum extent practicable. The impact of the taking cannot be clearly articulated without some baseline information about the presence and status of the species in the covered area, or a logical explanation of potential impacts based on habitat characteristics, carrying capacities, etc. and by taking into consideration likely future changes due to climate change effects or other causes. If such information is not available for the plan area, there are a few options to understand current occurrence status:

- conduct new surveys
- develop or make use of existing species distribution models
- use habitat to estimate species occurrence in the plan area
- or highlight important habitat within the plan area

The development of species distribution models can be useful for filling information gaps about species occurrence in the plan area, where sufficient information is available to develop such a model. For species that have a close tie to a certain habitat, and are known to be present nearby, habitat may be a useful indicator of current occupancy in the plan area. The HCP must include an assessment of current and likely future habitat availability, and how that may change as a result of the proposed activities, including the mitigation measures.

We must also be able to describe and analyze the effects of the proposed covered activities on the covered species to issue incidental take coverage for each species. If there's not enough information about a species' habitat requirements, its potential reaction to changes in habitat resulting from the proposed activities, or the effects associated with some form of disturbance (e.g., noise, artificial light, airplane/helicopter flyovers, human presence, pets, etc.), then we should work with the applicant to carefully consider whether to cover the species and if special considerations are needed for those species. Some form of conditional coverage, extra monitoring, or an increased focus on adaptive management may be prudent for species where important information is lacking. For an ESA-listed species that won't be covered in the plan, the applicant must modify development activities to avoid taking the species. In complex HCPs covering many activities, it may be necessary to exclude coverage of certain activities if the effects of the take cannot be well quantified. In this case: take must be avoided.

The HCP should acknowledge information gaps, and uncertainty in species' needs and impacts to species so uncertainties that cannot be resolved during the HCP development phase can be addressed through monitoring and adaptive management (see Chapter 10 for more information about Monitoring and Adaptive Management).

Helpful Hint: Consider not covering a species if there isn't information available and cannot be collected for the following:

- 1. The likelihood of species occurring in the plan area is low.**
- 2. We do not know enough about the species to be able to assess the impacts of the taking from the covered activities.**
- 3. We do not know enough about the species to develop a conservation strategy for the species that offsets the impacts of the taking.**

If the Services and applicant agree to drop coverage of a species part way through development of the HCP, the Services must determine the effects of dropping that species in relation to other covered species. What conservation is being lost from dropping the species? How much did other species conservation strategies depend on the conservation from the species that was dropped?

Detailed species and habitat information are also needed for the intra-Service section 7 consultation. All covered species, listed or not, will be assessed under section 7 for direct, indirect, and cumulative effects and the likelihood of jeopardy, and for listed covered species, the destruction or adverse modification of critical habitat (if any is designated in the plan area). The section 7 consultation must also analyze whether any non-covered, listed species in the action area may be affected by covered activities. The HCP essentially serves as a biological evaluation and can greatly simplify the writing of the biological opinion (BO) by referencing the information from the HCP in the BO. This is especially important when non-listed species are involved, since there often is little or no information in our files for background information.

7.2 Selecting Covered Species

Early discussions with the applicant should identify the proposed activities and the proposed or approved planning area in order to identify all listed species that may be incidentally taken. Non-listed species, especially proposed and candidate species, for which permit coverage may be

desired should also be identified at this time. If there are listed plants in the HCP area, encourage applicants to also address those plants in the HCP. However, take prohibitions are not applicable to ESA-listed plants (see section 7.4.6 below), so an HCP must cover at least one listed animal. The availability of information about the species to be covered should be discussed as soon as possible to determine whether there is sufficient information available or whether additional information needs to be collected to complete the HCP.

Helpful Hint: You must have at least one ESA-listed animal species to do an HCP. Encourage applicants to also include listed plants if any occur in the plan or permit area; and proposed or candidate species that may be listed during the life of the permit if they may be impacted.

All covered species (listed or non-ESA-listed) in an HCP are treated as if they are ESA-listed and must have sufficient background information, analysis of effects from proposed covered activities, and mitigation and monitoring requirements. We should work in partnership with the applicant to make the decision about which species to include in the HCP and permit application. The first HCPs written often covered many species, which increased plan development time and increased costs. Each species covered in the HCP will require a thorough analysis of effects and a commitment of time to understand their conservation needs to offset the impacts of the taking. These are very real commitments of time (i.e., takes longer to finish the plan) and money (i.e., to fund staff/consultants and to implement conservation actions) for the applicant and for the Services. Finding the right balance between covering species above what is required without covering too many species involves trade-offs of resources and time, and the decisions of which species to cover should be based on the benefits of covering each additional species and the costs of doing so.

Helpful Hint: HCP-covered species lists, especially on large plans, can change throughout development of the plan as new information is gathered.

Project proponents often don't have the expertise or knowledge necessary to determine if their proposed activities are likely to result in take of the species. They may contract an environmental consultant or contact the Services directly to assist in that determination. Once the project proponent has information on the probability of incidental take from the proposed activities, they are responsible for deciding whether to apply for an incidental take permit and prepare an HCP. The project proponent may ask the Services for advice on the decision, but we cannot force a project proponent to apply for a permit; hence, the often-heard phrase that HCPs are applicant driven. However, should incidental take occur from the activities, the project proponent is liable for violation of section 9 of the ESA.

7.3 Addressing Non-ESA-Listed Species in the HCP

Covering non-ESA-listed species in an HCP is a decision that should be based on the likelihood of listing, risk of take, availability of existing information, additional monetary costs, and additional time required to include them in the HCP. Coverage of non-listed species should also be judged in terms of feasibility from the applicant's point of view, overall benefits to the species, and whether there is sufficient species information available for the Services to determine if covered activities may affect the species. Also consider state requirements: would including a non-ESA-listed species help the applicant meet state regulatory needs?

7.4 Special Considerations for Species Coverage

7.4.1 Migratory Birds

The Migratory Bird Treaty Act (MBTA) (see the [HCP Handbook Toolbox](#)) prohibits take, as defined in the MBTA, of all migratory birds in the United States. If a migratory bird is listed under the ESA, an ESA incidental take permit can authorize take of that species that is otherwise prohibited by the MBTA (Chapter 16.2.1). However, if an MBTA protected species is not ESA-listed, the FWS does not have a way to authorize incidental take.

How we address migratory birds in and HCP will depend on the project, its expected effects on migratory birds, and our conservation concerns for those species. While covering ESA-listed birds should be done like any other covered species, what to do about non-ESA-listed birds has a few options. Coordinate with migratory bird staff early; they can help identify conservation needs and recommendations for voluntary conservation measures or other measures.

There are three approaches to dealing with non-ESA-listed bird species that may be taken from HCP covered activities:

1. Cover them in the HCP (like other covered species) to demonstrate the applicant's good faith efforts to comply with MBTA.*
2. The applicant can develop a Bird and Bat Conservation Strategy (BBCS).* A BBCS identifies conservation measures for migratory birds affected by covered activities and specific avoidance, minimization and mitigation measures an applicant will take to reduce their impacts on MBTA species.
3. The applicant could adjust covered activities to avoid take of MBTA species. If necessary, these avoidance measures could be included on the permit as "other measures as required."

*The FWS Office of Law Enforcement may take into consideration the good faith effort should unintentional MBTA violations occur.

Seek help from FWS migratory birds staff to determine which of the above approaches is most appropriate. Figure 7.4a summarizes the different options for covering bird species.

7.4.2 Bald and Golden Eagles

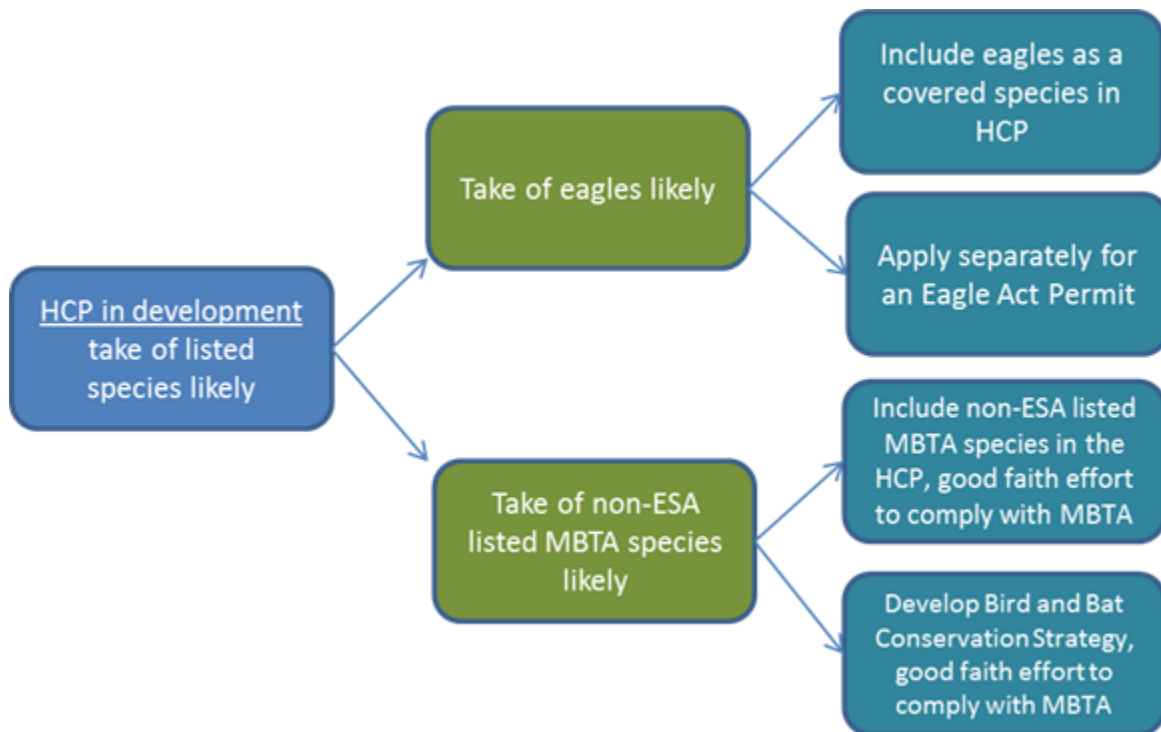
The Bald and Golden Eagle Protection Act (BGEPA) (see the [HCP Handbook Toolbox](#)) was enacted in 1940 (before the ESA) to conserve eagles. In 2009, the FWS amended the BGEPA implementing regulations to allow for, under certain circumstances, the permitting of incidental take of bald and golden eagles. Issuance of a take permit under the BGEPA requires a determination that the take is compatible with the preservation of eagles, which the FWS defines to mean that the taking is consistent with the goal of stable or increasing breeding populations. Currently, the FWS has sufficient data to show that golden eagle populations cannot sustain any additional unmitigated take without experiencing declines. Accordingly, all new authorized take of golden eagles must be at least equally offset by compensatory mitigation in the form of

actions that either reduce another ongoing source of mortality or lead to an increase in carrying capacity that allows the eagle population to grow by an equal or greater amount.

FWS will only issue permits for eagles where the take is associated with, but not the purpose of, the activity, and it cannot practicably be avoided. Therefore, applicants need to include all practicable measures they plan to use to avoid the potential for take and explain how any anticipated take of eagles from covered activities cannot practicably be avoided. Applicants will also need to include appropriate measures to support a determination that the plan will achieve the BGEPA's standard of maintaining stable or increasing breeding populations.

Applicants can choose to include bald and golden eagles on the incidental take permit for an HCP. Doing so also confers take authorization under the BGEPA (50 CFR 22.11) without the need for a separate permit. However, when making permit decisions, FWS must consider whether the permit issuance criteria under both ESA and BGEPA will be met by the conservation measures included in the HCP. Additional information on the permitting requirements for authorizing the take of eagles under BGEPA can be found in the permit regulations (50 CFR 22.26) and the FWS 2009 permit rule (74 FR 46835). In general, combining the requirements of BGEPA and ESA is more efficient than applying for two separate permits. FWS staff can reference the May 10, 2011 memorandum entitled "Use of Endangered Species Act Section 10 Permits to Provide Bald and Golden Eagle Act Authorization for Incidental Take of Bald Eagles and Golden Eagles;" refer to the [HCP Handbook Toolbox](#) for more information about including eagles in HCPs. As with other species, including eagles in an HCP without take authorization is possible, but the pros and cons of this approach should be examined before making this decision.

Figure 7.4a: Different approaches to receive take coverage for eagles and for non-ESA listed birds, different approaches to demonstrate good faith effort to comply with MBTA



7.4.3 Anadromous Fish

Close collaboration between the Services is required when an applicant’s proposed covered activities are likely to cause take of both FWS and NMFS listed species, such as salmon and sturgeon. When both agencies are working with an applicant on development of an HCP, careful planning is necessary to ensure efficient development of the plan. Any differences the two agencies have about minimizing or mitigating take for a species or a life stage of a species in an HCP should be discussed early in the process so issues can be resolved.

When discussing species coverage in an HCP that covers both NMFS and FWS trust species, the HCP must cover at least one ESA-listed species, however the HCP doesn’t need to cover an ESA-listed species for each agency.

7.4.4 Sea Turtles

Jurisdiction of listed sea turtles is shared by FWS and NMFS in accordance with a July 1977 Memorandum of Agreement (MOA). FWS has jurisdiction over sea turtles while they are on the land, while NMFS has jurisdiction in the water. Close collaboration between the Services may be needed when an applicant’s proposed activities cross our jurisdictional boundaries.

7.4.5 Marine Mammals

Jurisdiction over marine mammals is split between NMFS and FWS. NMFS is charged with conserving and protecting whales, dolphins, porpoises, seals, and sea lions. Walrus, manatees, otters, and polar bears are under FWS' management authority. When developing an ESA incidental take permit application and conservation plan, it is imperative that an applicant work with the Services from the outset in order to determine if their action is likely to incidentally take marine mammals. If marine mammals could be incidentally taken as a result of proposed activities, the applicant should also begin a separate Marine Mammal Protection Act (MMPA) (see the [HCP Handbook Toolbox](#)) application process for authorization of incidental take of marine mammals under that statute. Sections 101(a)(5)(A) and (D) of the MMPA provides authority for the Secretary of Interior or Commerce to allow "incidental, but not intentional" take of small numbers of marine mammals from a specified activity in a specified geographical region. Section 7(b)(4)(C) of the ESA also requires the Secretary of Interior or Commerce to conclude that the taking of ESA-listed marine mammals is authorized under section 101(a)(5) of the MMPA before issuing an incidental take statement. In order to obtain authorization under the MMPA, an applicant must also apply for an MMPA Letter of Authorization or Incidental Harassment Authorization.

To authorize take under the MMPA, the relevant Services must find that the action:

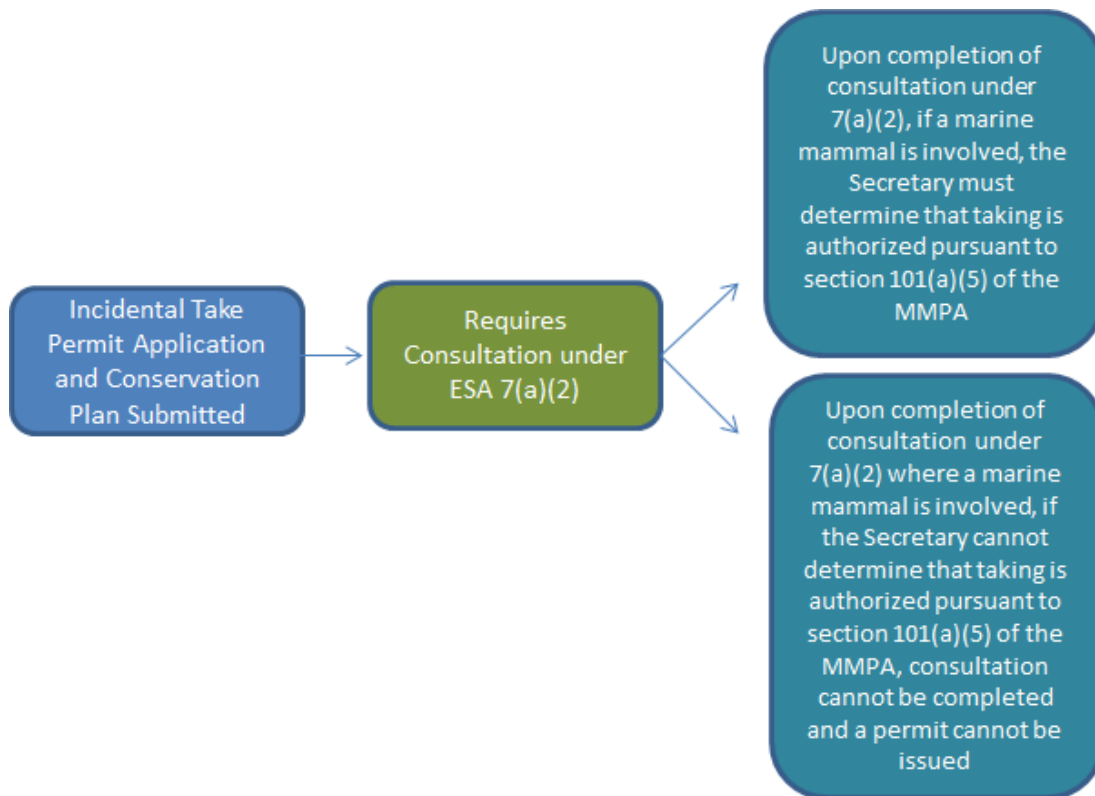
1. will have a negligible impact on the affected species or stock, and
2. will not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses.

NMFS may authorize MMPA incidental take through either a letter of authorization issued in conjunction with activity-specific regulations or a more streamlined incidental harassment authorization. The applicant must consider what type of MMPA incidental take authorization is most appropriate, but a letter of authorization is often more appropriate for those engaged in the HCP process because it can cover a longer time frame - up to 5 years. An incidental harassment authorization is valid only for taking by harassment for up to one year.

Establishing an "incidental take" authorization for marine mammals requires either: (1) an activity specific rule-making under section 101(a)(5)(A) with notice and comment that results in the publication of regulations governing issuance of Letters of Authorization or (2) a more streamlined notice and comment procedure for IHAs under section 101(a)(5)(D), depending on the level of taking and the duration of the authorization being requested (50 CFR 18; NMFS regulations are 50 CFR 216). Within FWS, authority for MMPA permits has been retained at the Division of Management Authority. Within NMFS, authority for MMPA permits has been retained in the Office of Protected Resources, Permits, and Conservation Division.

If marine mammals are not identified as an issue up front, the permitting process could become much more time consuming (effectively doubled) if it is later discovered that marine mammals will be incidentally taken under the ESA, for instance during section 7 consultation. Therefore, it is in the interest of both the applicant and the Services that MMPA compliance requirements are running concurrently with the ESA permitting and consultation process.

Figure 7b: Marine Mammal Protection Act: Incidental Take Authorization



7.4.5.1 Incidental Harassment Authorization (IHA)

The applicant may apply for an Incidental Harassment Authorization (IHA) if they can show that (1) the underlying activities have no potential for serious injury or mortality, or (2) they can negate the potential for serious injury or mortality through mitigation requirements in the requested authorization. Serious injury is defined as “any injury that will likely result in mortality” (50 CFR 216.3).

The IHA process does not require procedural rulemaking; however, the Services must solicit public comment by publishing the proposed authorization in the *Federal Register*. The MMPA indicates that IHAs should be issued within 120 days of a Services’ receipt of a complete application (although other factors may, in practice, lengthen this time).

7.4.5.2 Letter of Authorization

If covered activities are likely to cause or lead to serious injury or death, and they cannot be moderated by mitigating measures, or if the applicant seeks take coverage for a longer period of time, the applicant must obtain a letter of authorization (LOA). For well-planned, multi-year activities for which enough detailed information can be provided in an application to allow for a robust analysis of multiple years of activities, we may use the rulemaking/LOA process, even when serious injury or mortality is not anticipated, because annual renewal of LOAs during the effective period of the specific regulations does not require a public comment period and is

administratively less cumbersome than requesting and processing a new IHA every year. To issue an LOA, we have to promulgate regulations, which may be valid for a maximum period of 5 consecutive years. We may issue LOAs annually under these regulations or for up to the maximum 5-year period of validity. Under NMFS implementing regulations for section 101(a)(5)(A), the MMPA rulemaking process includes two public comment periods, including public notice of the receipt of a request and, subsequently, a proposed rule.

Both proposed IHAs and proposed rules must outline:

1. permissible methods of taking;
2. 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
3. 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.

If the information submitted in support of the incidental take request is sufficient (i.e., it would support necessary analyses as well as preparation of the requisite NEPA analysis and ESA section 7 consultation), we start processing the LOA. Decisions on LOA applications, which include two comment periods, possible public hearings, and consultations, may take between 10 and 18 months or longer. In contrast, IHA decisions involve just one comment period and, depending on the issues and species involved, can take anywhere from 4 to 9 months. However, as stated above, considering issues such as the form of take contemplated by the applicant engaged in the HCP process, and the need for multi-year coverage, the IHA process would appear to have little utility to most of those seeking large scope and long enduring incidental take permits.

After the appropriate type of MMPA authorization is determined, the applicant must submit a written request to the Services (FWS for sea otters, manatees, polar bears, and walrus, and NMFS for all others).

Requests made to NMFS for MMPA authorization must include items 1-14 below:

1. A detailed description of the specific activity or class of activities that can be expected to result in incidental taking of marine mammals;
2. The date(s) and duration of such activity and the specific geographical region where it will occur;
3. The species and numbers of marine mammals likely to be found within the activity area;
4. 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;
5. The type of incidental taking authorization that is being requested (i.e., take by harassment only; take by harassment, injury, or death) and the method of incidental taking;
6. By age, sex, and reproductive condition (if possible), the number of marine mammals (by species) that may be taken by each type of taking we describe in (5) above, and the number of times such takings are likely to occur;
7. The anticipated impact of the activity on the species or stock;

8. The anticipated impact of the activity on the availability of the species or stocks of marine mammals for subsistence uses;
9. The anticipated impact of the activity on the habitat of the marine mammal populations, and the likelihood of restoration of the affected habitat;
10. The anticipated impact of the loss or modification of the habitat on the marine mammal populations involved;
11. 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 on 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;
12. Where the proposed activity would take place in or near a traditional Arctic subsistence hunting area 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 it took or will take to minimize any adverse effects on the availability of marine mammals for subsistence uses;
13. 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 the people conducting such activity. Monitoring plans should include a description of the survey techniques that will 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, Office of Protected Resources; (NMFS) and
14. Suggested means of learning of, encouraging, and coordinating research opportunities, plans, and activities relating to reducing such incidental taking and evaluating its effects.

FWS informational requirements are similar to NMFS's list above. FWS's MMPA regulations are at 50 CFR 18.1 through 18.34, with general exceptions in 18.21 through 18.26. Incidental take is mostly covered by 50 CFR 18.27. FWS does not provide a 3-200 application form for MMPA.

7.4.6 Plants

Although take prohibitions do not apply to listed plant species in the ESA, plants can and often should be included in HCPs as covered species. Because the Services cannot issue a permit that would jeopardize the continued existence, or destroy or adversely modify the designated critical habitat of, any listed species (including plants), covering plants in an HCP may be prudent to avoid these problems in the HCP permitting process. When plants are covered in an HCP, encourage applicants to include measures that will provide a conservation benefit to listed plant species to be addressed in an HCP (which may also lower the required level of NEPA analysis). In addition there may be State laws that prohibit take of state listed plants and an HCP can provide the instrument to satisfy State law.

When plants are included as covered species in an HCP, they may be included on the permit for various reasons including:

1. Plants are protected under a state law and our permit can facilitate compliance with state requirements
2. the applicant wants No Surprises assurances to cover plants, and the HCP provides minimization and mitigation measures for the plants to meet the permit issuance criteria
3. some other compelling reason to include plants on the permit

7.4.7 State Protected Species

In States that have their own endangered species laws, it is particularly important to coordinate the development of the HCP for covered species with the State natural resource agency. For example, in Illinois, the State accepts the HCP as part of their process to authorize incidental take of State-listed species. In Illinois, if an applicant needs incidental take coverage of State-listed species, including it as a covered species in the HCP might be an efficient way to meet State requirements. On the other hand, some State laws prohibit take of their listed species but have no mechanisms for authorizing such take. If a federally listed species is also State-listed, the applicant and the Services should work closely with the State resource agency to ensure their needs for the species are considered in the HCP.

7.4.8 HCPs and Enhancement of Survival Permits

Candidate conservation agreements with assurances (and their associated permit) cover the permittee's incidental take if a covered species becomes listed. Safe harbor permits also cover incidental take as long as the permittee maintains a certain baseline of habitat or species numbers. These enhancement of survival permits provide No Surprises assurances similar to HCPs, and they can be amended to adapt to changing circumstances. Nevertheless, there are growing numbers of situations where covered landowners seek significant, fundamental changes that may require an HCP. A landowner may want to change their land use in ways completely incompatible with their permit, or a covered property might be incorporated into a larger-scale regional project. A landowner could also decide to forgo returning to baseline and make the "credits" gained for the species available to others or to meet their own mitigation needs in an HCP.

The Services need to carefully consider the agreements and analyses supporting the enhancement of survival permit, as well as the changed circumstances when working on the HCP. Would the proposed land use change truly exceed take levels already authorized (e.g., below baseline)? The existing enhancement of survival permit may already address appropriate responses if a permittee decides to terminate their agreement. As much as possible, we should respect the voluntary measures that have already been implemented. For example, a Safe Harbor Agreement (SHA) conservation site might become the mitigation site for the new HCP, in which case, the HCP should build off the conservation achievements of the SHA and include them in the HCP. In this situation, the HCP permit terms will usurp the SHA permit terms at the site. In some cases there may be ongoing conservation commitments from implementing the existing SHA that must be retained. For example: the XYZ SHA has a conservation commitment that extends 10 years beyond the permit term to maintain certain habitat conditions. After the SHA expires the

landowner wants to use the SHA area as part of a new HCP; in this case the conservation commitment beyond the SHA permit term must be honored.

On a safe harbor property, the status of above-baseline species or habitat may become open to negotiation. The landowner has the authority to take down to baseline, but any above-baseline resources might figure into the mitigation of a potential HCP. If there is no way to accommodate the existing covered species, either above- or below-baseline, into newly proposed land uses, then a safe harbor permittee seeking an HCP may need to consider off-site compensatory mitigation.

FWS biologists negotiating SHAs should consider the possibility that an agreement might eventually need to be transformed into an HCP. Additional guidance is in the [HCP Handbook Toolbox](#).

7.5 Addressing Critical Habitat

When a species is proposed for listing as endangered or threatened under the ESA, the Services must consider whether there are areas of habitat essential to the species' conservation. Within the geographical area occupied by the species at the time it is listed, critical habitat is the specific areas that contain features essential to the conservation of an endangered or threatened species that may require special management considerations or protection. Critical habitat may also include areas outside the geographical area occupied by the species at the time it is listed that are essential for the conservation of the species.

7.5.1 Effect of Critical Habitat on HCPs

Under section 7 of the ESA, Federal agencies must ensure that their activities are not likely to result in the destruction or adverse modification of designated critical habitat. If proposed covered activities in an HCP are likely to adversely affect designated critical habitat, section 7 requires us to analyze those effects in the consultation for the proposed issuance of the incidental take permit and determine if it is likely to destroy or adversely modify critical habitat. If we determine that covered activities in an HCP are likely to destroy or adversely modify critical habitat, the applicant must adjust the plan so that they avoid that outcome. If critical habitat is designated on lands that are covered by an existing HCP, we must reinitiate consultation on the existing Section 7 analysis to analyze the effects of implementing the plan on critical habitat. If we find that critical habitat is likely to be adversely modified, we must consider our options consistent with the regulatory assurances, including:

- work with the permittee to develop reasonable and prudent alternatives so they can voluntarily adjust implementation of covered activities to avoid adverse modification to critical habitat, or
- the Services could revoke their permit or coverage for those activities that are expected to adversely modify critical habitat.

Planning for designation of critical habitat will clarify the response should it be designated in the plan area (often in the HCP's changed circumstances section). Typically, the response outlined in the plan is a commitment by the permittee to adjust covered activities to avoid adverse

modification as determined by Services staff in consultation with the permittee. If designation of critical habitat is included as a changed circumstances and it has specific measures the applicant will take to avoid actions that would result in adverse modification of critical habitat, then we are able to avoid problems with No Surprises and we should be able to avoid permit revocation. As discussed below in detail, the designation of critical habitat in a permitted HCP should not be needed if the plan provides a benefit to the species and its habitat.

7.5.2 Critical Habitat Exclusions

The Services jointly issued a policy on February 11, 2016 (81 FR 7226) (see the [HCP Handbook Toolbox](#)) that provides predictability, transparency, and consistency regarding exclusions from critical habitat designations. Rather than cover the entire range of factors that may be considered as the basis for an exclusion in any given designation, the policy provides our position on how we consider non-permitted conservation plans and partnerships; conservation plans permitted under section 10 of the ESA; tribal, military and Federal lands; and economic impacts in the exclusion process.

Under section 4(b)(2) of the ESA, all discretionary decisions to exclude areas from a critical habitat designation, including areas covered by a permitted HCP, must be based on a case-by-case analysis to determine whether the benefits of exclusion outweigh the benefits of inclusion and will not result in the extinction of the species. Our critical habitat policy doesn't alter this requirement, but it clarifies the critical habitat exclusion process for Federal and State agencies, tribes, and the public. It also provides a defensible and predictable critical habitat exclusion process.

The policy consists of the following HCP-related elements that the Services consider when determining whether to exclude any areas from critical habitat:

- Section 10 permitted conservation plans: When we undertake a discretionary 4(b)(2) exclusion analysis, we will always consider for exclusion from a designation of critical habitat those areas covered by an approved candidate conservation agreement with assurances/safe harbor agreement/HCP if incidental take caused by the activities in those areas is covered by a permit under section 10 of the Act.
- Partnerships and conservation plans: When we undertake a discretionary 4(b)(2) exclusion analysis, we will give great weight and consideration to the conservation benefits provided through conservation plans, programs and partnerships before designating critical habitat. We will generally exclude areas from critical habitat designation when those areas are covered by approved and implemented plans or programs, and involve demonstrated partnerships that provide a benefit to the species and its habitat. This policy element could be used to evaluate an area covered by an HCP that is not yet permitted, but is in the final stages of permitting.

7.6 Identifying the Role of the Plan Area in the Conservation of Each Covered Species

Understanding the value of the approved plan area to covered species is necessary to understand how both the impacts and conservation of the HCP will affect the overall species' status. See chapter 9 for more information about developing the HCP conservation program.

The role of the HCP area in the conservation of covered species relative to the overall range of the species is an important consideration for the section 7 (jeopardy analysis) and NEPA (cumulative effects) analyses. This information also helps us understand the conservation needs of the species to develop an appropriate conservation strategy. Examples of questions we could ask to understand the context of the plan area to the species include:

- What percent of total habitat or species' range occurs in the HCP area?
- Does the HCP area contain designated critical habitat?
- Is the HCP area a core area for the species?
- Does the HCP area include habitat needed for recovery of the species as identified in the recovery plan? If there is no recovery plan or if a plan is not up-to-date, the best available information must be used.
- Does the HCP area harbor a genetically unique or isolated population?
- Does the HCP area harbor a source population that enhances surrounding populations outside the plan area?
- Are there climate refugia or other conditions important for conserving climate sensitive species in the HCP plan area?
- How will implementation of the plan's covered activities negatively affect the species outside the plan area and the overall range of the species?
- How will implementation of the plan's conservation program enhance the species status outside of the plan area and the overall range of the species? Can we quantify it?
- How will changes to habitat quantity and quality affect the species outside the plan area and the overall range of the species? Does the HCP area play a particularly important role for the species in terms of habitat quality or quantity?

The structured framework in the FWS "Species Status Assessments" (see the [HCP Handbook Toolbox](#)) could be useful to adopt for developing a conservation strategy for HCPs.

Threats to the species both inside and outside the plan area are important to keep in mind when developing a conservation strategy for covered species. Large-scale threats, like effects of climate change, can add to the importance of evaluating the role of the HCP area relative to outside the area and of the overall range of the species. Some of the questions we should consider include:

- Are there large-scale threats that could impact the conservation program of the HCP (e.g., white-nose syndrome in bats, various widespread impacts related to invasive species, or effects of climate change such as drought, increased spread of invasive species, increased risk of wildfire, sea level rise, etc.)?
- Are those threats already occurring in the plan area, or is the HCP area currently a safe haven from an important threat?
- Is the species particularly vulnerable to specific effects of climate change? Are there habitats in the HCP area that would be important to serve as refugia for covered species from the projected effects of climate change? Are there areas within the HCP boundary that should be conserved to help keep the effects of climate change from undermining the effectiveness of the HCP's conservation strategy for the covered the species (e.g., provide a diversity of conditions that will allow the species to adapt to changing conditions, or that facilitate movement in response to changing conditions)?

7.7 Tools

Developing a conservation program and analyzing effects from plan implementation can be challenging tasks, but there are tools that can help (see the [HCP Handbook Toolbox](#)). Below is a small selection of tools that may be useful in developing your HCP: use them if they are helpful, but there is no obligation or requirement to use them. As with all data driven tools, the results need to be interpreted carefully as data quality and quantity affect the analysis and results. Similar HCPs may have already conducted analyses that could be useful to consider in your HCP. The summaries below are to get you started; more investigation is needed to understand and use these tools.

7.7.1 Climate Change Effects Analysis

Understanding the realm of ongoing and future effects of climate changes can be an important consideration to provide context for decisions during the HCP development process, and in related section 7 and NEPA processes. Considering climate change early in plan development can help to ensure the conservation program has durable outcomes. There are many ways to start your climate change analysis; we offer the following sequence to focus your climate work only on the variables that matter for your covered species and their habitats:

- *You might want to start by exploring what climatic variables the covered species are sensitive to, for example:*
 - Do you have a species that is sensitive to temperature (e.g. a fish species with narrow temperature tolerance)?
 - Do you have coastal habitat that is sensitive to flooding?
 - Do you have a species or habitat that is sensitive to variability of precipitation (e.g. seasonally flooded pond habitat)?
- *Having narrowed your focus to climatic variables that are important to your species: how might those climatic variables change in future climates? If you're unfamiliar with climate trends and projections, you can review regional summaries put out by federal entities such as the National Climate Assessment, USGS Climate Science Centers, USFWS Landscape Conservation Cooperatives, or NOAA Regional Integrated Sciences and Assessments programs.*
- *Given the expected changes and effects to covered species and habitats from climate change- how should we adjust the conservation strategy for those sensitive species to manage climate-related risks and meet goals and objectives? How much would various climatic factors have to change for it to matter for the decisions we make for this HCP?*

Different types of analytical tools may be useful to help work through the analytical steps above: computer models to project climatic changes (e.g., changes in temperature, precipitation, sea level, storm severity or extreme events); models, experiments, or expert elicitation to assess likely direct, indirect, and interactive effects on species, communities, and habitats; and decision analytic approaches to decide how to manage climate-related risks. In many cases it may be appropriate to use existing scientifically credible information, rather than conducting new analyses. User-friendly scientific tools are available online that may be suitable for some analyses. For example: Defenders of Wildlife has conducted a “coarse filter” assessment of climate change sensitivity for all U.S. species currently listed as endangered: that database is

available on request. In all cases it will be important to understand the appropriate uses and limitations of the tools, as well as best practices for interpreting and using model outcomes or other information. Since tools are continuing to improve for assessing and addressing climate change and its effects, obtaining the assistance of Services or other climate change specialists will help ensure efficiency and effectiveness. Tools and guidance for incorporating climate change into HCPs are in the [HCP Handbook Toolbox](#).

7.7.2 Conceptual Models

Conceptual models can range from basic to complex graphics used to simplify problems by laying out how the system, species, or threats are thought to work and affect each other. Conceptual models can be useful early in the HCP development process as hypotheses about how the system works and the discussions during their development promotes close coordination between the Services, the applicant, and their consultants. See *10.1.2.1* for more on conceptual models. Mental modeler and Lucid Chart (see the [HCP Handbook Toolbox](#)) are 2 examples of free and easy to use programs to help develop conceptual models.

7.7.3 Decision Support Models

Structured decision making is a general term for a logical *process* to make decisions. It involves carefully organized analysis of problems to reach decisions that are focused clearly on achieving fundamental objectives. Based in decision theory and risk analysis, structured decision making encompasses a simple set of concepts and helpful steps, rather than a rigidly-prescribed approach for problem solving. Key concepts include clearly articulated goals and objectives, dealing explicitly with uncertainty and transparency in decision making, and integrating science and policy explicitly. Decision support tools include decision trees, scoring matrix tables, etc. These tools can be useful throughout the entire HCP process whenever decisions need to be made. For more information about structured decision making see the [HCP Handbook Toolbox](#).

7.7.4 Effects Pathway Model

The Effects Pathway Model can be used to identify stressors and explore how those stressors might affect covered species. We describe the effects pathway model in Chapter 8.

7.7.5 Geographic Information System (GIS)

GIS is an essential tool for logically laying out an HCP area and displaying it through maps. GIS can also be a useful tool for analyzing complex spatial data. GIS analyses can include many things like: species locality analysis and modeling, vegetation locality analysis and modeling, determining location of different habitat, spatial analysis/depiction of likely locations of habitat change related to climate change effects and many more. All of these analyses and map making are often an integral part of reserve design, avoiding impacts in important areas, etc. The mapping and analytical outputs of GIS are indispensable tools for all HCPs. More information about GIS, see the [HCP Handbook Toolbox](#).

7.7.6 Habitat Equivalency Analysis (HEA)

HEA (see the [HCP Handbook Toolbox](#)) is a methodology we use to determine compensation for natural resource damages. HEA was developed specifically for damages caused by things like spills and hazardous waste contamination. The idea behind HEA is that the public can be compensated for past losses of habitat resources through habitat replacement projects of the same type lost. The HEA process attempts to understand the value of lost habitat services and find a replacement of restored habitats that provides services of the same type and quality, and of comparable value as those lost due to injury. HEA assumes the public is willing to accept a one-to-one trade-off between the service lost and the service gained by the restoration. This process can be useful when developing HCPs to determine impacts of the taking and how to appropriately compensate for it. However, information provided by an HEA will need to be considered in conjunction with the statutory permit issuance criteria.

7.7.7 Population Viability Analysis (PVA)

PVA (see the [HCP Handbook Toolbox](#)) is a species-specific method of risk assessment frequently used in conservation biology. It is a process that estimates the probability that a population will go extinct within a given number of years. PVA is a statistical approach that utilizes ecological data to bring together species characteristics and environmental variability and forecasts population health and extinction risk. Each PVA is unique and is individually developed for a target population or species, provided sufficient information is available to result in credible modeling. It will be important to consider whether the underlying assumptions of a particular PVA process need to be adjusted due to various changing conditions related directly or indirectly to effects of climate change. Although PVAs can be useful for HCPs to evaluate the population level effects from an HCP's implementation area, we need to interpret the results carefully as the quality and quantity of the data affects the analysis. PVA is useful for comparing scenarios and how they may affect the risk of extinction, we can also use this information to understand actions that will improve the conservation status of the species.

7.7.8 Reserve Design Optimization Models

Reserve design optimization models can be useful in both the HCP development and implementation phases. These models make use of known species occurrence data (or modeled habitat suitability data) combined with values defined by the user (e.g. minimum patch size, distance from X activity, number of species per grid cell, high habitat quality, etc.) to analyze the landscape and produce a solution or range of solutions that best meet the user-defined goals (e.g. where are the best places to preserve habitat?). For example, you might ask the model to identify 10 acres of a 100-acre area that has the most species that use the area. You could also incorporate model projections of future climate to understand future species use in that same area. These tools can be extremely useful in balancing species conservation needs with development needs during the reserve design development process. Zonation and MARXAN are good examples of reserve design optimization models.

7.7.9 Resource Equivalency Analysis (REA)

REA (see the [HCP Handbook Toolbox](#)) involves determining the amount of “natural resource services” that the affected resources would have provided had they not been injured. It equates the quantity of lost services with those created by proposed compensatory restoration projects that would provide similar services. The unit of measure may be acre-years, stream feet-years, or some other metric. The size of the restoration project is scaled to the injury first; the cost of restoration is then calculated after the scaling is complete. The cost of restoring a comparable amount of resources to those lost or injured is the basis for the compensatory damages. REA calculates the replacement cost of the lost years of natural resource services. This process can be useful for HCPs in helping to determine impacts of the taking and how to appropriately compensate for it.

7.7.10 Species Distribution and Habitat Suitability Models

We can estimate species distribution and potential changes to it based on their pattern of occupancy as it relates to biotic or abiotic variables. These models generally analyze species occurrence records against numerous biological (e.g., vegetation associations), geological variables (e.g., elevation), and climatic variables (e.g., rainfall) to determine the bio-climatic envelope in which the species inhabits. This bio-climate envelope can help explain where the species lives and can be used in places where data are insufficient to predict areas the species may also occupy (now or in the future). Species distribution models can integrate other variables depending on the technique used including: dispersal/migration, disturbance, and abundance. We can also use them to help assess climate change effects and conservation management issues by incorporating the results of climate models to help predict how future habitat distributions will change. There are a range of types of species distribution models, including: presence/absence models, dispersal/migration models, disturbance models, and abundance models. Species distribution models can be very helpful during HCP plan development to assess: what areas should be included in the approved planning area, habitat quality throughout the plan area, ecological corridors, and for design of both planned conservation areas and approved impact areas (e.g., highest biological value to be avoided). Some species distribution models are available online some are being refined, and new models are emerging. We encourage HCP practitioners to check with Services staff with the appropriate expertise about using such modeling and interpreting the model outcomes. Simple models can be created through GIS, or dedicated models like MaxEnt can be utilized.

7.7.11 Species Status Assessments

The species status assessment concept was designed to provide a common, consistent, repeatable, scientifically sound approach that will help serve as a basis for informing future ESA decisions. Using the SSA Framework early can help provide the context for a decision on whether protections are warranted, later for decisions regarding what is needed for its conservation and recovery, what the greatest research needs are, and how public or private actions may affect the species. Staff in each region are available to provide support to help ensure we continue to build on and improve the successes the SSA Framework has already delivered. Over time, completed species status assessments are expected to be available for many

species and used for: candidate conservation, analyses for listing decisions, consultations, grant allocations, HCPs, and recovery planning.

7.7.12 Spreadsheet Population Models

Spreadsheet population models can be simple logic paths to help understand complex problems. Simple spreadsheet population models often use basic life history traits to evaluate how populations may change as new variables are introduced or as life history values change. Spreadsheet population models can be useful tools for HCP development to evaluate how population numbers may change as the HCP is implemented.

7.8 Data Sharing

Collaboration is an extremely important element of efficient HCP development; data sharing is no exception. The applicant and the Service must work together to provide the necessary information to develop the HCP.

For HCPs where maps are developed, analyses performed, or data is collected, a data management and sharing plan should be developed. A data management and sharing plan describes the data that will be authored, what will be shared, how it will be shared, and how the data will be managed throughout its lifetime.

For more information on data management plans see 10.4 and the [HCP Handbook Toolbox](#).

7.8.1 Freedom of Information Act (FOIA) and Proprietary Data

Most information must be released, if requested under FOIA (see the [HCP Handbook Toolbox](#)), once the Services have the data in their files. These data may include species occurrence locations, which are often thought of as sensitive data.

The following are examples of exemptions that the Services can typically use to withhold proprietary, financial, and personal information from being released when a Freedom of Information Act request is submitted:

- Covered by a Statute - information specifically exempted from disclosure by another statute such as the National Parks Omnibus Management Act of 1998, the Archaeological Resources Protection Act of 1979, the Federal Cave Protection Act of 1988, or the National Historic Preservation Act Amendments of 1966, as amended through 2006.
- Trade secrets, commercial or financial information (confidential business information).
- Personal information affecting an individual's privacy.
- Geological and geophysical information, including maps, concerning wells.

Always coordinate with the Regional FOIA coordinator and the Solicitors or General Counsel offices to determine which documents may fit the exemptions. Although we may assert that information should be withheld based on one or more of the FOIA exemptions listed above, the

applicant should be aware that FOIA requesters may appeal withholding of information to the Departmental General Counsels and ultimately to a United States District Court. If a requester's appeal is successful, we will have to release the contested information.