

Section 7(a)(2) Critical Habitat Internal Guidance for the Great Lakes Piping Plover Population

The purpose of this document is to give guidance to field biologists conducting section 7(a)(2) review of federal projects occurring within or near designated piping plover critical habitat to ensure that such reviews are consistent with statutory and regulatory requirements. Specifically, this document clarifies key terms identified in the *Federal Register* (66 FR 88:22938-22969; May 7, 2001) rule, identifies triggers for making or concurring with “Likely to Adversely Affect” and “Adverse Modification” determinations, provides examples of voluntary conservation measures to avoid or minimize adverse effects, and identifies important monitoring components. We anticipate that biologists will use this guidance to assist with determining whether to concur with an action agency’s section 7 determination and to assist with making such section 7 determinations for U.S. Fish and Wildlife Service actions.

The intent of this document is to provide interpretative guidance of the procedural processes and application of biological information in the section 7(a)(2) review within designated critical habitat areas. The guidance does NOT establish additional or modify regulatory authority or process and is consistent with the statute, regulations, and policy (Section 7 Handbook) of the Service. Furthermore, the guidance within is anticipated to apply to most circumstances encountered while allowing appropriate flexibility in individual circumstances. Therefore, given the site-specific differences that may exist and the differences in population status throughout the Great Lakes, the guidelines within should be critically evaluated to determine whether such guidance is appropriate for the action and site under review.

Terms Defined

1. "the PCEs" - Primary Constituent Elements (PCEs) are the physical and biological features that make an area suitable for successful piping plover nesting. In order to be considered critical habitat, a site must have all or most of the PCEs present with the absent PCEs being "readily developable". In other words, if a site has 3 PCEs present then the remaining 6 PCEs must be "readily developable" for the site to be considered critical habitat (CH).

2. "readily developable" as used in the above definition of "PCEs". All PCEs have the potential to be readily developable, with the exception of PCE #1 (sand, gravel, or cobble beaches or spits). In other words, for an area to be considered CH, PCE #1 must be present.

Consider factors such as the following to determine whether a PCE is "readily developable" in a particular action area:

- a. Historical evidence of the PCE at the site
 - b. Piping plover nesting occurrence within the last 15 years (this time interval is likely to capture the high and low water fluctuations)
 - c. Presence of features that could prevent developing the PCE (e.g., breakwaters, piers, or similar structures)
 - d. Habitat condition of nearby areas - if the PCE is present nearby, the processes to develop this PCE may also be present in the action area. However, it is necessary to explain why the PCE has not yet been developed and how likely it is to be developed.
 - e. Beach size, shape, and location - e.g., take into consideration the current water levels. If water level is currently high, then a larger beach area would be expected in the future as water level drops.
 - f. System dynamics - e.g., protected bay vs. exposed sand spits
3. "low level of disturbance" -
- (a) During the time period from 1 April through 1 July (or until all chicks are mobile¹):
For both **occupied** and **unoccupied** sites, low disturbance is defined as a few people; dogs controlled on less than a 6-foot lead; no motorized vehicles; no fireworks; no kite-flying; and minimizing or eliminating other similar activities.
 - (b) During the time period from 1 July (or beginning after all chicks are mobile) through 31 August (or until birds have left the breeding grounds):
 - (1) For unoccupied sites, low level of disturbance is no longer applicable; and

¹ By July 1, most chicks have fledged or are at least mobile, but depending on site specifics this date may need to be later.

(2) For occupied habitat, low disturbance is defined similarly to the definition in (a) EXCEPT that the restriction on the number of people may be lessened. The rationale for this is that after chicks have fledged (or are at least mobile), disturbance is less disruptive because the birds can escape.

(c) This PCE is almost always readily developable; only under rare circumstances would a low level of disturbance not be quite promptly restored.

(d) As disturbance is an issue only when the plovers are using the site or are searching for suitable nesting sites, low disturbance will apply to unoccupied sites only if they contain PCEs 1- 5.

(e) Avoiding disturbance in unoccupied habitat is important because pioneering events (birds seeking new breeding areas) are currently essential to the recovery and survival of the species. Disturbance during the period of time when birds are selecting breeding areas (during migration from the breeding grounds or while on the breeding grounds) may impede pioneering events. To manage for these pioneer events, disturbance should be kept to a low level during the period of 1 April to 1 July. The justification for this time-frame (1 April to 1 July) is that in unoccupied habitat, disturbance is only an issue if the birds “want” to use the site to nest. For the vast majority of sites, birds will attempt to nest or re-nest by 1 July (Cuthbert pers. com. 2001). Thus, provided a low level of disturbance is maintained until 1 July, no adverse effects to CH from disturbance are expected.

4. “critical habitat”

“critical habitat” - those specific sites that contain the PCEs or have the ability to readily develop the PCEs.

“critical habitat unit” - the broad geographic area that contains sites of critical habitat.

“critical habitat as a whole” - the entire Great Lakes designation; consisting of 35 critical habitat units.

5. “productivity” - number of chicks fledged per breeding (nesting) pair.

6. “fledged” - chicks are considered to have fledged when they are 35 days old.

7. “treeline” - an obvious forest edge, not just a few scattered trees.

8. “protective cover” - a modest amount of herbaceous vegetation, cobble, gravel, or debris (such as driftwood, wrack, root masses, or dead shrubs) that provides shade and protection for piping plovers.

Relevant Issues

1. Assessing the effects of actions occurring outside of CH.

Keep in mind that actions not occurring within CH, may still adversely affect PCEs. In other words, when describing the action area, be cognizant of the need to incorporate all areas likely to be directly and indirectly affected by the proposed action. For example, a resort expansion outside of CH may lead to increased public use of nearby CH; constructing breakwaters may negatively affect littoral drift downstream of the action.

It is important for FOs to alert Federal agencies of the need to analyze effects of their actions beyond the immediate impact area. Federal agencies should understand that just because an action does not take place within a critical habitat unit (CHU), a “no effect” finding is not automatically appropriate.

2. Evaluating effects on physical and biological features other than the identified PCEs. Regulations (50 CFR 402.02) define “destruction or adverse modification” as “a direct or indirect alteration that appreciably diminishes the value of critical habitat for both survival and recovery of the a listed species. Such alterations include, **but are not limited to** (emphasis added), alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.” Thus, analysis of effects should not necessarily be limited to just the PCEs. Additional physical and biological features that could lead to a “LAA” finding if negatively impacted include, but are not limited to, the following:

1. predator density
2. water quality
3. prey base (e.g., insect control)
4. contaminants
5. exotic species

3. Jeopardy vs. Adverse Modification

Jeopardy = to engage in an action that 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.

- analysis includes assessing how the action affects reproduction, numbers, and distribution of piping plover, and to what extent that the species’ survival and recovery are affected.

Adverse Modification= 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.

- analysis includes assessing how the action affects the PCEs or other pertinent habitat features, and how such effects on the PCEs will affect the survival and recovery of piping plover.

Critical Habitat Effects Analysis Process

1. Determine whether CH will be directly or indirectly adversely affected; if so,
2. Determine whether such adverse effects will appreciably diminish the value of the CHU; if so,
3. Determine whether such diminishment of the CHU will result in an appreciable reduction in the value of CH as a whole.

Note: Given the current status of Great Lakes population of piping plover, appreciably diminishing the value of a single CHU will likely lead to an Adverse Modification finding. If new information indicates that a particular CHU is no longer essential for the survival and recovery of the species, a diminishment in value of one CHU may not exceed the Adverse Modification threshold.

Likely to Adversely Affect Triggers (see attached Table for PCE description)

1. For PCEs #1-4, the LAA trigger in **occupied** habitat is “any activity that temporarily (during the period of 1 April to 31 August or until all birds have departed from the CHU) or permanently reduces the length, width, area, or slope of beach; or temporarily or permanently negatively alters the character of the substrate or replaces the substrate.”
2. For PCEs #1-4, the LAA trigger in **unoccupied** habitat is “any activity that temporarily (during the period of 1 April to 1 July) or permanently reduces the length, width, area, or slope of beach; or temporarily or permanently negatively alters the character of the substrate or replaces the substrate.”
3. For PCE #5, the LAA trigger in **occupied/unoccupied** habitat is “any activity that reduces the distance from the waterline to the treeline.”. After a certain point, increasing the average distance between the waterline and treeline no longer influences the suitability of the site. Up to this distance, however, the greater the distance between these two features the more suitable the site.
4. For PCE #6, the LAA trigger in **occupied/unoccupied** habitat is “any activity that increases the woody or herbaceous cover beyond 50 percent of the beach or the inter-dunal cobble pan.” As a modest amount of cover is most desirable, appreciable increases in cover, despite remaining under 50 percent, may also trigger LAA. For example, increasing the percent of woody cover from 15 to 40 percent at a particular site may reduce the suitability of the area. In such situations, a LAA finding would be appropriate.

5. For PCE #7, the LAA trigger in **occupied/unoccupied** habitat is “any activity that noticeably reduces the protective cover of the site.” Keep in mind that too much cover could cause predation problems; thus, a decrease in the percent of protective cover may not always warrant a LAA finding.

6. For PCE #8, the LAA trigger in **occupied/unoccupied** habitat is “any activity that negatively alters natural habitat formation and maintenance processes.” Examples include snow fences, breakwaters, jetties, seawalls, tree-plantings, buildings, and marinas.

7. For PCE #9, the LAA trigger in **occupied** habitat is “violation of any factor in the definition of low level of disturbance .” Disturbance on the beach is an issue only when the birds are on the breeding grounds (i.e., 1 April through 31 August).

8. For PCE #9, the LAA trigger in **unoccupied** habitat is “violation of any factor in the definition of low level of disturbance during the period of 1 April through 1 July.” Disturbance on the beach is an issue only when the birds are seeking nesting or re-nesting sites (i.e., 1 April through 1 July). Because pioneering events are possible anywhere across the breeding range during any given year (Cuthbert pers. com. 2001) applying the “low disturbance” trigger to all unoccupied critical habitat, regardless of distance from occupied habitat, is warranted. In other words, it is unlikely that the probability of colonization at any particular site will be so low that the effect of impeding a pioneering event could be considered discountable (as defined in the 1998 Section 7 Consultation Handbook).

Adverse Modification Triggers (see attached Table)

1. The key to determining whether the Adverse Modification threshold has been exceeded is to assess whether the ecological function of CH has been appreciably diminished. The ecological function for all CHUs is to provide nesting habitat. Thus, the following triggers will be used to determine whether the Adverse Modification threshold has been exceeded. Adverse Modification is the appropriate conclusion if an action appreciably reduces:

- a. the number of pairs the “CH as a whole” can support;
- b. the piping plover productivity that the “CH as a whole” can provide,
- c. the ability of the “CH as a whole” to maintain adult survival; or
- d. the distribution of “CH as a whole”

In the case of unoccupied CH, the question is whether the *potential* for one or more of the four triggers has been appreciably reduced.

2. Some factors to consider in determining whether one or more of the Adverse Modification triggers has been exceeded:
 - a. minimum beach length requirement/pair is 0.2km,
 - b. average home range², and
 - c. habitat quality: Poor quality will require more habitat to successfully provide for pairs. Consider the amount of available forage base and protective cover, the disturbance level, and predation intensity

3. To determine the carrying capacity of a unit, consider the following:
 - a. physical area: Carrying capacity increases with increasing area.
 - b. linear shoreline distance: Carrying capacity increases with increasing shoreline length.
 - c. current piping plover density: Home range decreases as the number of pairs at a site increases.
 - d. health of the ecosystem: Better “health” leads to a greater likelihood that plovers will use the site for nesting.
 - e. level of disturbance: Suitable habitat decreases as disturbance increases.

4. Consider the following as indicators of decreased piping plover productivity. Productivity will be hindered if an action will:
 - a. decrease the size of young →influenced by prey base & disturbance
 - b. extend the fledge date →influenced by prey base & disturbance
 - c. decrease home range size →influenced by habitat loss
 - d. decrease the percent of successful nests → influenced by disturbance, predators, & habitat loss
 - e. decrease chick or juvenile survival → influenced by predator density, prey base, disturbance, and habitat loss

5. Consider the following as indicators of decreased adult survivorship. Adult survivorship will be hindered if an action will
 - a. decrease forage base
 - b. increase predator density and diversity
 - c. decrease protective cover (from predators and environmental conditions)

²Average home range of a breeding pair of Great Lakes piping plovers is unknown. Information on the home range of piping plover broods is available from Fadroski (1998) and Shutt (1996). The overall average of the 1996 and 1998 data is 3.0 +/- 3.4 hectares. Also Shutt (1996) documented that as breeding density increases, home range decreases and as disturbance increases, home range increases.

6. Adverse Modification involving PCE #9 Low Level of Disturbance

Factors to consider in determining whether the Adverse Modification threshold is exceeded:

- a. circadian and seasonal timing of the disturbance,
- b. frequency and duration of the disturbance,
- c. intensity and type of disturbance, and
- d. location of the disturbance within the site

7. In unoccupied habitat, also consider the likelihood of the Great Lakes population expanding to the site. This should include an evaluation of habitat quality and quantity and the distance to know piping plover occurrences.

Conservation Measures to Reduce or Avoid LAA or Adverse Modification Potential for “Low Disturbance” Factors

The following are appropriate Conservation Measures to minimize adverse effects of disturbance:

1. Reduce access to the nest site & beach use during nesting season (e.g., nest enclosures, psychological fencing, garbage control),
2. stewards, and
3. staff & public outreach (e.g., educational signs, fliers, programs, and displays)

Monitoring

Monitoring may be necessary to determine whether low disturbance has been exceeded. The need for such monitoring will be dependent upon several factors, including but not limited to: (1) whether site is occupied; (2) location of site; and (3) location, type, duration, and timing of the activity under review. If there is a reasonable likelihood that the action could result in adverse effects, monitoring may be necessary to verify that adverse effects will not occur. For example, an action that involves a week long festivity on an unoccupied beach in late April, when the birds may be scouting for breeding sites, is more likely to have adverse effects than the same activity in late June after the chicks have fledged. In the latter situation, requiring monitoring throughout the nesting season may not be warranted. Determining whether monitoring is necessary for concurring with NLAA determinations will be site- and project-specific.

If monitoring is required, the protocol should include information on the presence and location of piping plovers, fledge dates, total number of young fledged, areas used for foraging, and observations of predation events.

Sources for Additional Information on Piping Plovers

Recovery Plan for the Great Lakes Population of Piping Plovers

Most recent Piping Plover Breeding Biology and Management in the State of Michigan