

**APPENDIX L:
SUMMARY OF COMMENTS ON DRAFT REVISED RECOVERY PLAN
AND USFWS RESPONSES**

In February 1995, the U.S. Fish and Wildlife Service released the Draft Revised Recovery Plan for the Piping Plover, Atlantic Coast Population for a 90-day comment period ending on May 8, 1995. Availability of the plan for comment was announced in the *Federal Register* (USFWS 1995a) and via a news release to media contacts throughout the species' U.S. range.

In accordance with USFWS policy (USFWS and NOAA 1994), requests for peer review of the draft plan were sent to experts outside the USFWS. In particular, these experts were asked to comment on (1) issues and assumptions relating to the biological and ecological information of the plan, and (2) scientific data related to the tasks in the proposed recovery program. Requests for peer review were sent to the following individuals:

Dr. Susan Haig, National Biological Service, Corvallis, Oregon
Dr. Robert Deblinger, Massachusetts Division of Fisheries and Wildlife
Dr. Guy Baldassarre, State University of New York, Syracuse

During the comment period, more than 350 additional copies of the draft plan were distributed to affected government agencies, organizations, and interested individuals.

Twenty-seven comment letters were received during the official comment period; six additional letters were received by the USFWS between May 8 and May 25, 1995. Affiliations of the originators of these thirty-three comment letters is tabulated below:

Peer reviewers	2 letters
Federal agencies	4 letters
State and Provincial governments	8 letters
Local governments	7 letters
Recreation groups	2 letters
Environmental or conservation organizations	4 letters
Academic institutions	1 letter
Landowner Association	1 letter
Individuals	4 letters

The letters received from the independent peer reviewers, as well as all other comment letters on the draft plan, are on file at the U.S. Fish and Wildlife Service, Weir Hill Road, Sudbury, Massachusetts, 01776.

Comments from Peer Reviewers and USFWS Responses

1. *Suggest showing State totals for nesting pairs and carrying capacity estimates for sites in Appendix B.* This has not been done because both the recovery team and the USFWS want to preclude erroneous interpretation of the 1993 carrying capacity estimates as either site-specific or State recovery goals (see comment #28, below). As noted on pages 29-30 and in the introduction to Appendix B, piping plover habitat is inherently dynamic, and the carrying capacity of individual sites is expected to fluctuate over time. The carrying capacity estimates represent a conservative "snap-shot" of carrying capacity based on habitat conditions in 1993, and their primary purpose was to facilitate population viability modeling.

2. *If possible, the plan should discuss the relative impact of each threat.* The relative impact of threats to piping plovers varies substantially from site to site, and may even vary between years at a given site. Therefore, effective and efficient plover protection requires careful and frequent on-site evaluation. Fortunately, a dedicated and skilled cadre of biologists from the various organizations and agencies involved in plover management at many sites are being attentive to this need, which will require on-going effort.

In addition, it is important to recognize that protection of piping plovers is often ineffective unless all threats are addressed comprehensively. For example, plover productivity will not be enhanced by reductions in egg depredation if the chicks are subsequently subjected to unrestricted off-road vehicle traffic; similarly, benefits from management of recreational activities will be much less effective if high rates of nest depredation are not alleviated. Benefits of protection efforts that increase plover productivity will not be realized if habitat loss and degradation reduce opportunities for recruitment into the breeding population.

For both of the reasons stated above, the USFWS believes that ongoing, site-specific evaluation of factors limiting productivity, as specified in task 1.12 is the most effective means for assessing and portraying relative threats.

3. *The plan should provide more information on how Section 10 permits will be implemented.* Information about the Section 10 application process is contained in the Draft Interim Handbook of Habitat Conservation Planning and Incidental Take Permitting Processing, referenced in Appendix H of the plan. The guidelines contained in this plan (Appendix H) are intended to help potential applicants formulate biologically-sound conservation plans, without constraining potentially innovative ways of accomplishing this goal. The Section 10 permit recently issued to Massachusetts Division of Fisheries and Wildlife provides one example of how such permits might "work" for piping plovers, but the USFWS anticipates that different approaches may be formulated by future applicants.

4. *Will it be possible to manage the plover for a recovery goal that is very close to the estimated capacity of current habitat?* See the expanded discussion of carrying capacity on pages 29-30 of the final plan. The recovery team believes that estimates provided in Appendix B are very conservative; furthermore, these estimates were designed to be below levels at which density dependent effects on

productivity would be triggered. Indeed, several New England sites are now very close to or have exceeded the capacity estimates stated in the draft plan, while maintaining high productivity.

Current experience suggests that management for a 2,000-pair population will require intensive protection, but is quite feasible. However, if future events shows that habitat capacity is more limited or that it is very difficult to manage for the target population, alternatives for achieving recovery, such as increasing the average productivity criterion and/or decreasing the variance in productivity, might be evaluated. Experience to date, however, suggests that it will be more feasible to manage for a 2,000-pair population than for average productivity above 1.5 chicks per pair.

5. Is it biologically feasible to restore currently unsuitable or degraded habitat, in order to increase the overall capacity of plover habitat rangewide? Are there Federal programs available to do this? There are at least two possible approaches to increasing the carrying capacity of piping plover habitat: (1) reducing impediments to natural coastal processes that form and maintain habitat (tasks 1.22 and 1.23) and (2) pro-active habitat enhancement (task 1.24). While there is no Federal program that has these tasks as its primary purpose, task 1.2 discusses the roles of the U.S. Army Corps of Engineers and the Federal Emergency Management Agency, particularly with regard to tasks 1.22 and 1.23. A number of organizations, including the National Park Service, USFWS, and The Nature Conservancy have been engaged in habitat enhancement; these efforts need to be continued and expanded. For example, the USFWS is seeking funding for habitat enhancement projects at Chincoteague and Currituck National Wildlife Refuges. Another opportunity to increase available habitat is through removal of herring and great black-backed gulls from otherwise suitable habitat (see task 1.43), and the USFWS has proposed such a gull removal program for the Monomoy National Wildlife Refuge in Massachusetts (USFWS 1996b).

6. The plan needs to provide more information on how the carrying capacity estimates were derived. See added discussion on pages 29-30 and 127 of the final plan.

7. The plan should provide an estimate of the difficulty of achieving increases in populations at various sites. Difficulty of achieving increases at various sites is a function of factors (including predation pressure and physical habitat suitability), that may vary across time (see response to comment #2, above) as well as social and political factors, which are also highly changeable. The local human and financial resources available to deal with threats are another variable that will affect the ability to achieve protection at given sites. The USFWS believes that top priority should be placed on maximizing productivity and abundance of plovers on Federal lands. Allocation of resources to non-Federal sites must be continually evaluated with consideration to all factors cited above.

8. The plan should provide more background on the PVA process, including the incorporation of stochastic events. Several references to materials that describe PVA have been added to the introductory paragraph in Appendix E for the benefit of those who wish to learn more about this process. Information about how the stochastic events have been incorporated into the PVA is found on pages 177 and 178, but there are few data available on the effects of catastrophic events on the Atlantic Coast piping plover.

9. *The plan should identify additional research needs important to recovery:*

a. Breeding habitat characterization - would contribute to refinement of carrying capacity estimates and help prioritize sites for recovery effort; should also attempt to correlate changes in habitat characteristics with changes in carrying capacity. See task 3.2 in the final plan.

b. Temporally partition mortality (within the annual cycle). This has been added to the final plan as task 3.6.

Other Major Substantive Comments and USFWS Responses

1. *Capacity estimates for the edge of the range need to reflect the possibility that nesting densities may be much lower there than in the core of the range. As noted on page 30 of the final plan, the recovery team believes that estimates for the southern edge of the plover's range are very conservative, especially compared with those for New England.*

2. *The plan should identify additional research needs important to recovery:*

a. Role of heat on egg mortality; role of heat and moisture availability on chick survival. This has been added to the final recovery plan as task 3.22. There may be opportunities to incorporate such research into potential pool/pond creation projects (see task 1.243).

b. Correlation between frequency of intertidal feeding and incidence of ghost crabs throughout the species' range. This is reflected in the expanded narrative accompanying task 3.43 in the final plan.

c. Determine effects on a local or regional populations from an event that causes widespread loss of productivity, including re-nest rates, productivity of re-nests, effects on population in subsequent years, etc. This information is available for a variety of sites in the species' range, including those where very poor productivity has occurred in one or more years. However, analysis of the data is sometimes confounded by lack of information on productivity in previous years, difficulty in tracking movements between sites/regions, and confounding factors that may exert simultaneous impacts on plovers.

3. *If increased survey intensity accounts for some of the increase in population estimates between 1986 and 1988, then maybe the piping plover should not have been listed in the first place.*

Although the actual Atlantic Coast plover population at the time of listing was probably larger than estimates made in the early to mid-1980's, it was nonetheless very small (less than a thousand pairs), and productivity was below the rate needed to maintain a stationary population. Furthermore, the PVA estimates that (even with current population and productivity, which are much higher than in 1988) the Atlantic Coast piping plover population has an approximately 31-35% probability of extinction over 100 years. In addition, experience gained since listing has shown that threats to the security of the

plover on the Atlantic Coast are considerably more serious than the USFWS believed at the time of the listing.

4. *Including the Canadian portion of the population in the recovery goal holds recovery in the U.S. "hostage" to management in a foreign country where U.S. law has no authority.* Available data show that plovers in the two countries form a distinct vertebrate population as defined in the ESA, and inclusion of the Canadian portion of the range in the recovery plan is consistent with the species' listing. While delisting of the plover is contingent on improvement in the status of plovers in Atlantic Canada, the establishment of four recovery units within the Atlantic Coast population can facilitate some relaxation of protection under both Sections 7 and 9 of the ESA in U.S. recovery units where the species' numbers and productivity have attained levels that provide sufficient security for the species.

5. *Increasing the recovery goal after population estimates have increased is an unfair change in the "rules of the game."* The USFWS does not revise recovery goals without compelling data. Both plover demographic data and techniques for simulating population dynamics have improved substantially since 1988. Furthermore, the 1988 goal specified that the increases need to be spread across the species' range. Since an extremely large proportion of the actual increase in population since listing has occurred in New England, the Atlantic Coast plover population remains considerably more vulnerable to catastrophes than gains in total numbers might suggest.

6. *Beaches designated for public recreation are being converted to wildlife refuges without the benefit of legislation.* With the exception of national wildlife refuges, the USFWS is not aware of any plover nesting sites where recreational use has been eliminated, even seasonally. Off-road vehicle use has been curtailed for part of the year at some sites.

7. *Mobile sportsfishermen are a potential source of volunteers to assist with plover protection.* Volunteers, including mobile sportsfishermen, have indeed made valuable contributions to plover protection at some sites; there may be opportunities for increased assistance from such groups in the future.

8. *Photos of dead plovers in tire tracks are "fakes."* The USFWS is aware of one situation where a plover was found dead in a tire rut, moved to a freezer, returned to the site several days later to show investigators where and how it was discovered, and was photographed during this time. The USFWS is not aware of any instances of plovers that died from other causes being photographed in tire tracks.

9. *Emphasis on protecting plovers from motorized vehicles is disproportionate to the actual threat.* The USFWS and others have placed substantial emphasis on reducing many threats to plovers, including pedestrian disturbance, pets, predation, and habitat degradation. However, off-road vehicles remain one of the most *controversial*, and therefore one of the most visible aspects of the recovery program. Plover protection from off-road vehicles is not disproportionate to the threat, but the controversial nature of the issue means that it receives more public attention than other recovery activities.

10. *Restrictions on off-road vehicles are not as stringent for essential vehicles as for recreational vehicles and therefore mortalities are still occurring.* The USFWS agrees that any vehicle is a potential source of mortality to unfledged plover chicks, and therefore recommends that use of "essential" vehicles be avoided whenever possible. However, the USFWS also believes that mortalities from recreational vehicles are under-detected relative to mortalities from essential vehicles. The probability of encountering a dead chick in a single set of tire tracks on sites where a few vehicle trips per week occur is much higher than that of locating a dead chick on a site where frequent vehicle passes create many tire ruts that must be searched before subsequent traffic obliterates a carcass.

11. *Buffers to protect plovers from off-road vehicles should be the same as for pedestrians.* Impacts of pedestrians and off-road vehicles on plovers are very different, with vehicles exerting more serious injuries than pedestrians. Data in Table 1 show that buffers recommended for vehicles in Appendix G are the minimum necessary to avoid chick mortalities.

12. *The FWS and NPS are allowing dune restoration, which is deleterious to plover habitat, at Fire Island Seashore.* Threats described in a recovery plan are not automatically prohibited under the ESA. Reasons for concurrence with very limited dune construction within 500 feet of developed communities in 1993 and 1994 are summarized in an August 12, 1995 letter to the Fire Island Seashore (D.A. Stilwell, U.S. Fish and Wildlife Service, *in litt.* 1993). Future shoreline protection plans under the Fire Island Interim Storm Damage Protection Plan will be the subject of consultation between the USFWS and the Corps; the USFWS has already expressed grave concerns about the potential impacts of this project on plovers.

13. *Rules on National Seashores prohibiting vehicles from driving adjacent to beach grass foster vegetation encroachment into nesting habitat and exacerbate nest loss due to flooding.* Low rates of nest inundation are observed on many beaches where the "rhizome rule" has been enforced for many years, as well as on sites where off-road vehicles are not permitted at any time of year. Contrary to this comment, Elias-Gerken (1994) suggests that vehicles driving too close to beach grass prevent the development of sparse vegetation, found to be a characteristic of suitable nesting habitat in her Long Island study area.

14. *There is a discrepancy between actual population trends and those projected using survival rates from Massachusetts and observed productivity rates.* Most of the alleged discrepancy arises because the model adds the non-breeding one year old adults that survive their second winter into the breeding population the following year, while the commenter omitted this step.

15. *Delisting criterion #3, requiring that productivity of 1.5 chicks per pair be maintained for five years will increase the population beyond 2,000 pairs.* Stochasticity of survival and productivity rates means that average productivity needed to achieve a low probability of extinction is above that required to maintain a stationary population. However, the recovery plan anticipates that only 2,000 pairs will receive intensive protection over the long term. Indeed, the PVA assumes much lower productivity for pairs in excess of the recovery goal.

16. *A Section 10 permit should be issued to allow off-road vehicle use in Massachusetts.* A Section 10 permit that includes *limited* relaxation of current restrictions on off-road vehicle use was issued to MDFW in April 1996.

17. *The plan should be more specific about what type/level of protection will be needed once abundance and productivity objectives are achieved.* This need is identified in delisting criteria 4 and 5 and implementing actions are described in tasks 1.6 and 2.26. The USFWS agrees that types and intensity of long-term protection must be more specifically defined, but believes that achieving this will require experimentation and dialogue with affected parties. It would be especially premature to attempt definition of long-term protection needs in portions of the species' range where little increase in abundance has been achieved and productivity remains low. In addition, the ESA requires a minimum of five years of monitoring after any recovered species is delisted.

18. *Piping plover productivity figures should be compared with those for related species to determine whether the current emphasis on boosting productivity is appropriate.* Available data on productivity of other *Charadriidae* are from one or a few sites over limited time periods. The wide variation observed in Atlantic Coast piping plover productivity across sites and years suggests that data from one or two study sites may be a poor indicator of "normal" productivity for a species.

19. *How was the recovery goal target of 400 pairs for Atlantic Canada obtained?* This target was formulated on the basis of published and unpublished literature, discussions with Canadian biologists and reports from U.S. biologists familiar with Canadian sites and current protection efforts (see, for example, discussion on pages 30-31).

20. *Guideline #6 in Appendix H will be difficult to meet on some beaches with limited access points.* The USFWS does not anticipate that every guideline in Appendix H would have to be met for a Section 10 permit to be issued, especially guidelines such as #6 which include the caveat "whenever possible." However, the closer that conservation plans can come to meeting all the guidelines, the lower the anticipated impacts to the security of the plover population.

21. *Recommendations (in Appendix F) for monitoring exclosures every other day are not feasible for some sites.* Experience with exclosures in 1995, especially at three sites where "smart" foxes systematically depredated large numbers of exclosures, have reinforced the value of frequent monitoring. In situations where exclosures cannot be monitored every other day, it is recommended (page 189) that biologists carefully weigh the relative risks and benefits of exclosures on the site.

22. *Potential productivity of piping plovers may be lower at the edge of the range than in the core.* This may be true. However, productivity must be high enough to counter mortality rates and maintain a large enough population to buffer against stochastic events. However, since survival rates may differ across the species' range, delisting criterion #3 provides that adjustments to for productivity goals can be made for one or more recovery units if it is demonstrated that lower productivity rates will still assure a 95% probability of persistence for the population.

23. *Allowing take via Section 10 permits will send a message to the public that take is biologically sound and will encourage increased violations of local protection measures.* Appendix H contains very specific guidance about the circumstances under which take can be sustained without compromising plover recovery.

24. *What survival rate assumptions were used to formulate the 1988 recovery goal?* No data on survival rates were available in 1988.

25. *The recovery plan should recognize that competing land uses will affect the ability of some sites to contribute to recovery.* The USFWS recognizes that a number of factors will affect the contribution of each site to recovery. However, since suitable habitat is limited and competing uses are intense on most sites, efforts must be made to maximize the contribution of each. Except on national wildlife refuges, where the primary management objective is wildlife protection, it is considered neither feasible nor desirable to completely eliminate recreational use, but protecting piping plovers on sites that support multiple uses will require a continuing labor-intensive effort.

26. *The plan should give increased recognition to the dynamic nature of plover habitat and potential fluctuations in plover numbers and productivity over time.* The plan recognizes that plover habitat is dynamic and that suitability of various sites will vary over time (see pages 29-30 and 127). This consideration was a major factor in the decision to formulate relatively large recovery units (see page 55) and also underlies guideline #4 in Appendix H.

27. *The factors cited in comment #26 must be factored into any long-term protection agreements.* This concept has been incorporated into task 1.62. However, it must also be recognized that 2,000 pairs is a very small breeding population and intensive management will be needed to control the variance in productivity if such a small population is to persist over the longterm.

28. *Goals need to be set on a large enough spatial scale to allow for changes in suitability due to natural coastal formation processes.* The USFWS concurs. This is why delisting criteria are based on multi-State recovery units. Text has been added to the final plan (page 127) to clarify that the carrying capacity estimates in Appendix B are not site-specific goals.

29. *Intensive protection efforts will not translate into breeding success without maintenance of physical habitat characteristics.* The USFWS concurs and has emphasized this point in task 1.2 and related subtasks. However, the converse is also true -- that is, maintenance of habitat characteristics will not translate into breeding success without protection from other threats, including human disturbance and unnaturally high predation rates.

30. *Where plover numbers are expanding and/or management funds decreasing, it may become difficult to follow broods to 25 days for the purpose of determining productivity. A productivity figure based on survival to a lower age may be more feasible and provide more accurate data.* If a number of years of good data from an area is available, it may be possible to develop a "correction factor" that projects survival to 25 days based on rates of survival to a younger age. Even where available data is sufficient to accurately project productivity, however, intensive monitoring may be

needed until chicks fledge on many sites in order to determine when intensive public use management activities are no longer needed.

31. *Incidental take under Section 10 should be limited to one year "experimental" permits.* Guideline #5 in Appendix H recommends that, when possible, permits should be initially issued for two to six years to allow a reasonable period for gauging the effects of the permit and also to provide opportunities to reevaluate permits in light of changes in the overall status of the population. The guideline also recognizes that shorter permit periods (one to three years) may be particularly desirable in the early stages of Section 10 permitting for piping plovers. A one-year permit might be appropriate, for example, if a permit allows a relatively large amount of take or is based on relatively untested management techniques. The value of frequent re-permitting must, however, be carefully evaluated against the time and effort required to prepare and review a comprehensive permit application. Furthermore, one year of "experimentation" may be too short to provide meaningful feedback on the effects of the permit.

32. *It is inappropriate to "reward" areas where progress towards recovery has occurred by allowing relaxation of restrictions to reduce threats, specifically threats from off-road vehicles.* The guidelines in Appendix H are designed to identify locations where species' numbers and productivity have increased to the point where take can be allowed without compromising the plovers' survival and recovery. Furthermore, the guidelines are not specifically aimed at restrictions on vehicles, but are intended to guide preparation of conservation plans that might also involve non-motorized activities and/or significant habitat modification.

33. *Section 10 permits are not appropriate for off-road vehicle use because of the magnitude of damage they do to plovers and their habitat.* Impacts of any proposed activities, including off-road vehicle use, on the birds and their habitat will be considered during evaluation of Section 10 permit applications for piping plovers.

34. *Appendix H does not address the requirement that Section 10 applications analyze the alternatives to take induced by off-road vehicles.* Appendix H is only intended to provide a conservation planning guidance relative to the biology and demographics of Atlantic Coast piping plovers; more generic requirements, such as analysis of alternatives, are found in Federal regulations.

35. *Off-road vehicle use should not be sanctioned under Section 10 because it is not a "development project." Also, Appendix H does not specifically call for permittees to assist with plover conservation.* Although many Section 10 permits have been issued for development projects, the only limitation posed in the ESA is that they must be issued for an "otherwise lawful activity." Section 10(a)(2)(A) of the ESA requires conservation plans prepared by applicants to specify measures to minimize and mitigate impacts of the proposed taking.

36. *Issuance of Section 10 permits is inappropriate because critical habitat has not been designated for the piping plover.* Directions regarding designation of critical habitat and issuance of Section 10 permits are contained in separate sections of the ESA and are unrelated.

37. *Issuance of Section 10 permits is contrary to delisting criterion #4, because it will erode long-term protection efforts.* The plan identifies the need for long-term protection of plovers, but it also recognizes that the intensity of management required to sustain a recovered population *may* be less than that required to attain initial gains. The guidelines in Appendix H are specifically designed to promote continued progress towards recovery and long-term protection efforts. Task 1.64 states that the Section 10 permit process may be a valuable mechanism for developing the long-term protection agreements called for in delisting criterion #4, especially in areas where significant population growth has already occurred and productivity exceeds 1.5 chicks per pair.

38. *Section 10 permits for off-road vehicle use are contrary to the concept of conserving the ecosystem upon which the plover depends.* Guideline #11 recommends that applicants and evaluators of plans consider how they contribute to the health of the beach ecosystem. Specific incremental impacts on the beach ecosystem from any proposed Section 10 authorization should also be identified.

39. *Guideline #1 in Appendix H (achievement of 70% of a recovery unit's population target) is arbitrarily low and should be "in the 95% range."* For reasons stated under guideline #1, the USFWS believes that the 70% is appropriate as a minimum threshold. However, the plan also states that, "even after the 70% threshold is attained, conservation plans should maintain a cautious approach to take, especially if other recovery units lag substantially in their progress towards recovery." Furthermore, guideline #2 recommends that conservation plans assure that average productivity remain at or above 1.5 chicks per pair, a rate that will facilitate continued population growth.

40. *Commenter raises uncertainties concerning estimated carrying capacity for Delaware.* A USFWS biologist and the commenter conducted an on-site review of habitat carrying capacity in Delaware in September 1995, and estimates in the draft plan were confirmed.

41. *Establishment of four recovery units is not supported by taxonomic reasons, and their establishment will make it virtually impossible to achieve target numbers.* Recovery units are not intended to reflect taxonomic distinctions. Rather, they are primarily designed to increase security of the species by assuring that it is well-distributed. Contrary to the notion that recovery units will make it more difficult to achieve target numbers, they will facilitate prompt recognition of improved status of the species in parts of the range where numbers and productivity have improved. See also response to comment #4.

42. *The actual and anticipated costs of recovery (Appendix J and the Implementation Schedule) are not justifiable. These costs do not reflect costs to State and local governments.* As stated in Appendix J, costs reported there were assembled with the assistance of the State wildlife agencies, all of which incorporated cost information from other State agencies and local government, as well as private organizations.

As noted in the Implementation Schedule, tasks 1.3 and 1.4, Comments column (pages 101 and 102), the USFWS believes that protection costs could be reduced substantially by electing protection strategies that are more restrictive of other beach users. For example, 1993 protection costs (average cost per pair) were considerably higher at NPS units than those at national wildlife refuges; this is

partially due to the costs associated with protecting plovers on NPS beaches that receive heavy public use, whereas refuge beaches are generally closed to public use during the breeding season. While the USFWS believes that it is neither feasible nor desirable to completely eliminate beach recreation in all plover habitat, it also recognizes that a management strategy that protects plovers on beaches where public use is also maintained requires a continuing commitment of person-power, and is inherently expensive. See also text added to the introduction to the Implementation Schedule, page 99 in the final plan.

43. *How will adjustments to delisting criterion 3 be made to reflect any differences in survival rates in recovery units, especially if banding is not safe?* See task 3.5 in the final plan.

44. *Experience in New Jersey shows that dogs should be banned from beaches when chicks are present.* Dogs are a definite threat to plovers (see pages 39 and 72). Guidelines in Appendix G recommend that dogs be prohibited during the breeding season if, based on observations and experience, pet owners fail to keep pets consistently leashed and under control. This may be appropriate in New Jersey, and, if so, the USFWS would strongly endorse such a policy.

45. *Any decreases in Section 6 funding before or after delisting will curtail protection efforts. Effort should be devoted to devising less labor-intensive protection methods.* The USFWS is very concerned about the cost of the current protection effort and the need to sustain these efforts over the long-term. For example, task 3.4 cites the labor-intensive (and, therefore, expensive) nature of many current methods of reducing threats from predators, and seeks to develop new predator management techniques that are both more effective and efficient. However, as noted under comment #42, many of the costs associated with plover protection are attributable to the difficulties of trying to protect piping plovers on sites where intensive public use is also being maintained. One possible focus of participation planning (see page 61 final plan) may be to seek ways to spread the costs of protection efforts among the stakeholders; it may also be appropriate for regional or local stakeholder groups to further evaluate the trade-offs between protection costs and maintaining public use.

46. *The recovery plan should provide for recovery strategies that depart from the guidelines in Appendix G.* The recovery plan cannot recommend activities that are likely to violate Section 9 of the ESA, unless a legal exemption is provided under Section 10. Appendix H is intended to facilitate the exemption process.

47. *The plan fails to designate critical habitat.* As provided in Section 4(a)(3) of the ESA, critical habitat designation is a listing process, rather than a recovery planning process. Furthermore, considerable progress towards recovery of the Atlantic Coast piping plover has occurred, especially in New England, without designation of critical habitat.

48. *The plan accords too low a priority to habitat protection. (Commenter cites low priority numbers assigned in the implementation schedule to tasks for long-term habitat protection).* A number of habitat protection tasks, including discouraging habitat development, interference with natural coastal processes, and beach stabilization projects are priority 1 tasks. The tasks cited in this comment letter, which address development of long-term protection strategies, clearly fit the definition

of priority 3 tasks (they are not necessary to prevent significant declines or some other significant impact short of extinction). This does not, however, diminish the importance of these priority 3 tasks for achieving full recovery, as all tasks are considered necessary components of the recovery program.

49. *Delisting should not occur when a 2,000-pair population has been maintained for five years; these increases will be quickly eroded unless threats to plovers and their habitat have been "adequately dealt with."* The USFWS agrees maintenance of population gains and productivity after delisting must be ensured. This is why the delisting criteria 4 and 5, page 58 were included to provide for long-term protection of the species and its breeding and wintering habitat.

50. *The plan fails to specify how criterion #2 (verification of the adequacy of the 2,000-pair goal to maintain genetic diversity) will be accomplished.* Task 3.8 addresses this need. One possible approach is referenced, but the possibility of using other methodologies is also acknowledged.

51. *The plan should provide more details on how long-term protection of habitat will be provided, especially for wintering habitat in other countries.* See response to comment #17. In the case of wintering habitat, it will be especially difficult to define detailed long-term protection strategies until more immediate needs to locate wintering sites and determine the threats are accomplished. Recovery tasks build on each other, and more specific long-term protection strategies will be developed as more information becomes available.

52. *The plan should summarize all Section 7 consultations and their outcomes.* This information is not necessary or appropriate for recovery plans.

53. *The plan should provide more information on efforts to "foster ecosystem-level protection." Specifically, will the USFWS issue a multi-species recovery plan for the Atlantic Coast beach and dune ecosystem?* Although the USFWS is not currently planning to prepare a multi-species or ecosystem beach recovery plan for the Atlantic Coast, recovery plans (approved or draft) have been prepared for the various listed beach-dwelling species. The USFWS is also actively employing various other mechanisms to foster ecosystem level protection, including attention to rare beachstrand species in plans under development by the USFWS Ecosystem Teams.

54. *Carrying capacity estimates in Appendix B may be conservative, since some Massachusetts breeding sites are not included and estimates appear conservative.* The USFWS agrees with this comment. See discussion on page 30. However, given the limited application of these data in the plan (for the PVA) and the natural fluctuations in carrying capacity that occur due to the dynamism of the habitat, comprehensive revision of these estimates at this time is not warranted. The methodology proposed by the commenter for estimating carrying capacity is similar to the process used by MDFW to determine "provisional abundance objectives" for Massachusetts plover sites in 1995.

55. *The guidelines in Appendix G will end all future beach visitation.* Guidelines in Appendix G allow for uninterrupted pedestrian recreation on beaches and allow for minimizing duration and size of closures to vehicles, contingent on intensive monitoring. Widespread implementation of these guidelines in Massachusetts and elsewhere has been achieved while maintaining intensive beach use.

56. *The plan should note the association between least terns and piping plovers, and possible benefits to plovers from least tern protection efforts. See page 46.*

57. *Commenters recommend the addition of several sites to Appendices A-D. These have been included in the final plan.*

58. *Are the four recovery populations based on the anticipated metapopulation structure? This was not the intent of the recovery unit delineations. As explained on pages 54-55, the units are primarily designed to assure that the recovered population is well-distributed. The units were also designed to be large enough to buffer their carrying capacity against localized changes in habitat quality due to natural coastal formation processes and variation in other environmental factors. Development of a metapopulation model is called for in task 3.7.*

59. *Is there any evidence that dispersal occurs when habitat suitability declines? Declines in abundance on some sites have been documented when habitat declines (for example, at Cadden Beach/Kejimikujik National Park in Nova Scotia; see also Wilcox 1959). However, it is not clear whether this is due to declining fidelity of adults that have nested on the site in recent years or to decreased rates of colonization by either first-time breeders or adults dispersing from other sites.*

