WESTERN SNOWY PLOVER FIELD OFFICE COMMENT ON DRAFT ECONOMIC ANALYSIS

COMMENTS THAT CAN NOT BE ADDRESSED DUE TO GUIDANCE FROM ASSISTANT SECRETARY FOR FISH AND WILDLIFE AND PARKS

Comment 1) Paragraph 27, and generally throughout the document
The draft EA makes no attempt to separate economic and other impacts attributable to the designation of critical habitat from impacts attributable to the listing, or to any other Federal, State or local laws. Because of this, the Service will be unable to weigh the effects of the critical habitat designation, as required by the Endangered Species Act.

Comment 2) Page 1-2, pt 30
Clearly this point addresses protections that result from the listing itself, and not just those associated with critical habitat designation.

Comment 3) Page 1-2, pt. 31
Assessment of local and regional impacts includes areas not considered part of the critical habitat package. Both pts 30 and 31 will result in an overestimation of costs associated with critical habitat designation.

Comment 4) Page 1-4, pt 41
The scope of the analysis includes conservation measures attributed to listing, not just critical habitat designation.

Comment 5) All protective measures attributed to the listing are considered part of the economic analysis for critical habitat designation (ES-1, pt. 3); i.e. we’re not just looking at the economic impacts associated with the designation itself. By considering the protective measures that are not directly attributable to critical habitat, we prejudice those species that have human-related threats as primary reasons for their listing. To reduce human-related threats, there necessarily needs to be a greater impact on humans, many that have economic ramifications. This is partly why the Service does not consider economic impacts during listing. However, if the impacts of listing are considered during critical habitat designation, and designation is to occur at the time of listing, we are effectively reversing the notion of not considering economic impacts at listing. As discussed during our conference call April 19, 2005, this is apparently the current direction.

It appears that the analysis considers the economic impacts of “plover conservation” on lands not being considered for critical habitat designation. Annual costs to agencies for plover conservation are provided, and appear to include all areas under their jurisdiction, not just for those lands under consideration for designation. Consequently, the overall costs attributed to critical habitat designation, and the costs associated with implementing other laws and regulations, as presented, are artificially high (refer to Exhibit ES-5). I would think we could get a better idea from agencies of their actual costs for specific proposed units. By way of example, California State Parks should have expenditure
records by Park Unit or Park District that more closely corresponds to a critical habitat unit. Those expenditures would likely be more accurate relative to actual costs, than overall estimates provided by State Parks in Sacramento.

Comment 6) Page 3-17
During the section 7 process, Federal agencies develop proposed actions based on their mandates and the laws and regulations that require them to manage biological resources. The Act is one of those laws that Federal agencies must consider when developing their projects. My concern is that we’re overestimating the costs of plover conservation by double counting costs based on: 1) other laws and mandates, and 2) the requirements of section 7. Section 7 should be considered part of the planning process.

GENERAL TECHNICAL COMMENTS PROVIDED ON DRAFT ECONOMIC ANALYSIS

Carlsbad Fish and Wildlife Office

Comment 1) Page 3-6, Exhibit 3-3
CA 27 A, B, and D are owned and managed by the Department of Defense

Comment 2) Page 4-6, Exhibit 4-2
There is no public access to plover CH in Batiquitos Lagoon (CA 25A,B). There are trails in the Reserve, but not in the CH areas. The only public access is to the small stretch of public beach in CA 25A. There is also no public access to the majority of plover CH in Bolsa Chica Ecological Reserve (CA 22A), just a small portion of Bolsa Chica State Beach adjacent to the Reserve.

Comment 3) Page 6-16, Exhibit 6-14
It is stated on page 6-15 that the estimated past impact of all management efforts for the snowy plover to be $1.4 million. This was estimated from the total Least Tern management expenditure at the base. This number was then used in table 6-14 for the impact to the San Onofre Beach (CA 24) section. Camp Pendleton spends all of its snowy plover and least tern management dollars on the base itself, primarily at Red Beach at the mouth of the Santa Margarita River. It does not manage for snowy plovers on the State Park lease lands, which constitute the proposed critical habitat at San Onofre Beach. The dollar figure for management at Camp Pendleton is therefore not applicable to state beach lands, and should not be used in table 6-14.

It is also not clear where the estimate for Delta Beach (CA 27D) was derived from. This consists of artificial fill which was constructed during a past consultation for compensation for impacts to California Least Terns at North Island. It is primarily managed for least terns with only incidental management for snowy plovers. No change in management is anticipated at this site.

Sacramento Fish and Wildlife Office
Comment 1) Paragraph 4
The total cost figure provided of 554 million dollars apparently reflects a sum of the high ends of ranges provided elsewhere in the dEA. This should be so stated.

Comment 2) Paragraph 13 and generally throughout document
An annualized loss value is provided along with a total present value of future costs. The dEA should show the formula used for getting the one from the other. It should also specify and remain consistent regarding whether costs incurred in 2005 are considered future or present.

Comment 3) Exhibit 3-2
Areas such as CA 4B that have multiple land managers should provide the incremental costs from each manager and the total costs. Incremental costs should coincide with costs discussed in pages 3-7 to 3-15.

Comment 4) Paragraph 95 and generally throughout document
This paragraph provides absolute costs extending over multiple years without indicating whether these costs are discounted in the same manner as the present value of other past and future costs. If such discounts are in fact being used the paragraph should so state. If not, the paragraph should explain why not.

Comment 5) Paragraph 96 and Paragraph 106
In both these paragraphs, the present value of past costs extending over 10 years is less than 10 times the annual value. These are likely math errors. This problem re-emphasizes the importance of providing all formulas and assumptions, as discussed above with regard to paragraph 13, so that readers can review and understand the math and assumptions used.

Arcata Fish and Wildlife Office

Comment 1) Page 2-2, pt 63
Delete the last sentence indicating that the decision on the delisting petition is expected in August of 2005.


Comment 3) Page 2-3, pt 65
Since the statement goes beyond what the Act directs, I believe supporting language should be included to support the last sentence indicating that sufficient PCEs to support the plover must have been present at the time of listing. I think the environmental community will latch onto this otherwise.
Comment 4) Page 2-10, Exhibit 2-6
Why is there a category for DoD, and the branches of the armed forces under it. The exhibit appears to overstate DoD management. Drop the DoD category. U.S. Marine Corps also has military activities affected (Camp Pendleton).

Comment 5) Gravel mining (Eel River) is regulated by the Army Corps of Engineers. Unless sand mining is considered gravel mining, it should not be included under the private category. Although mining along the Eel River is conducted by Humboldt County and private operators, the instream gravel is a public resource, and not privately owned.

Comment 6) Page 2-12, Exhibit 2-7
Mendocino is misspelled.

Comment 7) In 2004, reword 90-day finding to reflect that substantial information was received in the petition to delist that further review would be initiated. We did not state that delisting may be warranted.

Comment 8) Page 3-5, Exhibit 3-3
CA-1 is managed primarily by the California Department of Fish and Game. CA-4d are under the jurisdiction of the California State Lands Commission, and Humboldt County.

Comment 9) Page 3-9, pt 95
CA-1 is managed by California Department of Fish and Game. Nest exclosures began at CA-4b in 1999.

Comment 10) pt. 97
The California Department of Fish and Game holds fee title to the South Spit of Humboldt Bay (CA-4a), but BLM manages the properties under an MOU. Subnote 72: pleasure driving is allowed on the wetted sand. Vehicle use is not just for access (biological opinion 1-14-2002-1196).

Comment 11) Page 3-12, pt 105
Does the last sentence indicate that the plover is not the driver for this plan? If so, then does this mean the costs associated with plover conservation measures and related economic impacts to the local economy are not considered? Please clarify the meaning of this statement.

Comment 12) Page 4-2, pt 128 and Exhibit 4-1
Both significantly overestimate economic impacts by assuming that use distribution along the beach, and up and down the beach is equal. Refer to Lafferty 2001.

Comment 13) Page 4-4, pt 133
How does the cost estimates for management compare to the estimates posed in the draft recovery plan? If there is a significant difference, it could be due to an overestimation (model bias).
Comment 14) Page 4-5, Exhibit 4-2
CA-3b is outside of Humboldt County Park. This proposed critical habitat unit is regulated under the Humboldt County Beach and Dunes Management Plan.

Comment 15) Page 4-9, Exhibit 4-4
Change label to Eel River. The Eel River WA only pertains to the north spit of the Eel River to Table Bluff (CA-4b). Table Bluff to mouth of Humboldt Bay is CA-4a, the South Spit of Humboldt Bay. CA-4c is Centerville Beach. CA-4d is the Eel River gravel bars.

Comment 16) Page 4-11 and 4-12, Exhibit 4-6
Tolowa Dunes State Park is inconsistently spelled throughout the document. CA-4d, Eel River gravel bars is managed by the California State Lands Commission (i.e. public lands), and Humboldt County, with access from both private property and public property.

Western Washington Fish and Wildlife Office

Comment 1) P. ES-11 Exhibit ES-3
We are currently in the process of excluding Willapa National Wildlife Refuge. This should be reflected in the table under the heading “Areas proposed for exclusion”.

Comment 2) P. 2-9 Exhibit 2-5
The table contains an error for land ownership in Washington. As listed, the table states that there are 0 acres of private ownership in potential critical habitat. There are 6520 acres of private lands proposed for critical habitat designation in Washington. Table 3 of the Federal Register notice has an error in the column headers that likely contributed to the acreage errors in the economic analysis.

Comment 3) P. 3-5 Exhibit 3-3
Under the column heading for land managers, WA-3 (Midway Beach) should include private property. WA-4 currently also includes lands administered by the Service, but the refuge is currently being considered for exclusion.

Comment 4) P. 3-15 3.2.3 Washington
For WA-3 (Midway Beach) change South Beach State Park to Grayland Beach State Park. There is no South Beach State Park.

The sentence in the middle of the paragraph starting with: “Plovers, however, nest on private property…..” appears to be a continuation of the discussion of WA-2 in the preceding sentence. Since there is no private property in WA-2 (Damon Point), this statement is incorrect.

Comment 5) P. 4-13 Exhibit 4-6 Table listing activities that are available at public access areas.
Remove South Beach State Park and replace with Grayland Beach State Park. Activities that are available at Grayland Beach State Park include: BA – beach access, C – camping, CL – clamming, F – fishing, T – trails, PR - Exhibits and Programs, and WV- wildlife viewing.

Comment 6) Lodging (L) is listed as a facility that is available at Griffith Priday State Park. We are unaware of any overnight accommodations at or adjacent to this day use area.

Comment 7) P. 5-37 Exhibit 5-7
Likelihood of Development in Potential Critical Habitat Units in Washington

Comment 8) WA-1 (Copalis Spit)
This unit is located entirely on state park lands (Griffith Priday State Park) and will not be developed. Development potential should be changed from “Medium” to “Low.”

Comment 9) WA-2 (Damon Point)
Because there is no private property in WA-2, development of single family residences is not an option within this unit. Development potential should be changed from “Medium” to “Low.”

Comment 10) P. 5-39 5.5.5 Units in Washington with Low or Unknown Development Potential.
Because of the recurring errors for ownership, this section also needs to be corrected. Units with low potential for development in Washington (no private property) are WA-1 (Copalis Spit), WA-2 (Damon Point), and WA-4 (Leadbetter Spit).

COMMENTS PERTAINING TO RECREATIONAL ACTIVITIES

Carlsbad Fish and Wildlife Office

Comment 1) Page 4-20, Exhibit 4-8
The exclosures in Batiquitos West (CA 25A) were constructed on created nesting islands for California Least Terns after the 1996 restoration. The area was previously mud flats and was not used for recreation. There is not loss of recreational potential due to the exclosures, and if there were, it is attributable to CLT conservation.

Comment 2) Page 4-21, Exhibit 4-9
Silver Strand State Beach (CA 27C) is a remote beach with limited free parking and paid parking that received relatively little visitation even before symbolic fencing was instituted several years ago. It is therefore difficult to reconcile the large number of foregone trips with the limited access and use of this beach. The symbolic fencing does not limit recreational use because there is a large area of open beach closer to the parking areas that is rarely filled, while the majority of users making their way down to the fenced off stretch are walking or jogging in the wet sand and are not restricted by the
dune closure. Therefore, the amount of recreational loss at this beach is very minimal and vastly overstated in the analysis.

**Comment 3)** Page 4-27, Exhibit 4-12
The extremely large cost attributed to Silver Strand (CA 27C) appears to be entirely attributable to the overestimated foregone trips as explained above.

**Comment 4)** Page 4-37, Exhibit 4-24
This analysis assumes that visitor use of beaches is constant throughout the beach. The two areas proposed on Dockweiler State Beach are both lightly visited relative to the rest of the beach area because they are removed from adjacent parking lots. Their lack of recreational users is likely the reason they are utilized by plovers. Use of the beach at Dockweiler is highly restricted to areas near the parking lots as there is limited public parking available in other areas.

As is stated in the caveats, whether any beachgoers abandon their trip to the beach due to a lack of beach raking is highly speculative. Most beaches in the state are not raked and they are still heavily used by people.

**Ventura Fish and Wildlife Office**

The draft EA includes costs in the form of welfare losses to recreators that the contractor attributes to the effect of WSP fencing. These costs should not be included in the analysis because **there is no evidence that fencing has a negative effect on recreators**.

The first step in the best practice for conducting a benefits transfer analysis is to "Describe conditions to be valued" which would include "the manner in which the management restrictions have affected user behavior." Yet, the contractor does not provide any data that indicates fencing has a negative effect on recreators. In fact, in Exhibit ES-5, the contractor states, "It is not possible, using existing data, to model beach recreationists behavior in response to plover conservation efforts." Similarly, on page 4-14 the contractor states, "Site specific information on recreator's response to plover conservation efforts are not available. On page 4-15, the contractor states, "For the few sites where attendance information is available for the time period after the commencement of plover conservation efforts, data necessary for a comparison between pre- and post-plover conservation efforts are lacking. In addition, attendance records for comparable, non-plover beaches that would allow for a comparison of attendance figures after the initiation of plover protections are unavailable." Finally, the contractor seems to refute any negative effect of fencing by incorporating a 2 percent annual increase in beach use in the calculation of future costs. Because there is no evidence that indicates fencing has a negative effect on recreators, these costs should not be included in the EA.

Although there is no evidence to support their view, the contractor concludes that the only effect of fencing on recreators must be negative in some way. On page 4-1 the contractor states, "Restrictions are expected to reduce recreational opportunities resulting in consumer surplus losses." On the same page, the contractor states, "For example, as a result of fencing of one beach, recreators may decide to go to a second-best location on that beach, go to the his usual location but experience a diminished trip due to crowding,
visit a less-preferred beach, or decide not to take a beach trip at all." However, another equally valid possibility would be that fencing is neutral and has no effect on recreators. Fencing is placed on the upper, dry portion of the beach that is less used by recreators. For example, a study of people and birds on a beach in southern California (Coal Oil Point) recorded most people as being on wet or moist sand, i.e., the lower part of the beach closest to the water. Fencing does not keep people from using this portion of the beach. Fencing also does not prevent people from using the dry sand portion of the beach. Often, fencing is placed well away from the water so that there are also large amounts of dry sand available in front of the fence. Fencing does not block people's access to the beach so they are not prevented from reaching their favorite place. Frequently, fencing is located on the more remote parts of beaches not easily accessed by people where they would not have an effect. A good example of all of these aspects of fencing is Unit CA 19A, Mandalay to Santa Clara. Although this is a relatively long unit (4-5 miles), only 900-1,200 feet of fencing are located within it. The fencing has been placed only along a portion of the beach with limited access, and the fences have been positioned well away from the few access points. All fencing is located well away from the water, with at least 100 feet of dry sand in front. There is no possibility that fencing in this unit has any effect on recreators.

Fencing in the Morro Bay area also does not have an effect on recreators (Regina Orr, Biologist, California State Parks, pers. comm. April 26, 2005). There are no beach access points that are blocked in that area, and public beach recreation, including equestrian use, is unrestricted below the high tide line during breeding season, adjacent to nesting areas (R. Orr, pers. comm. 2005).

Regardless of the above problems, the contractor concludes that the only way to calculate costs from fencing is to assume that people will simply not visit a beach where there is fencing. On page 4-14, the contractor states, "Because data are not available to understand how recreators may substitute one beach site for another, or substitute one recreational activity for another, this analysis conservatively assumes that fewer users visit plover beaches during the breeding season. Because substitute possibilities are not taken into account, this analysis likely overstates recreation-related impacts associated with plover conservation efforts." Actually, this results in a cost estimate that is even beyond a worse case scenario because this level of cost would never be reached.

Although costs attributed to fencing should not be included in the EA, there are problems with the contractor's calculation of these costs. For example, on page 4-16 the contractor states, "Where information is unavailable on the extent of symbolic fencing, this analysis assumes the extent is equal to the potential critical habitat area where public access would have been allowed." This is repeated again on Page 4-19. Depending on how many units this assumption has been applied, this could result in a gross inflation of the costs. Was this approach used for any of the units with high costs? At a minimum, the units where this has been applied should be identified.

Another potential problem is the contractor's approach to estimating beach visits. On page 4-15 the contractor states, "Where data were not available for a beach area considered in this analysis, the closest similar site was identified and its attendance rate is used to calculate expected visitation." Beach use in California varies widely from one
beach to another even within a few miles or even within 100's of yards. This could again grossly affect costs.

**Comment Specific to Unit CA 19A, Mandalay to Santa Clara.**
The EA states that the fencing in this area is 11,616 feet (2.2 miles) in length. How was this determined? During a visit to this unit on April 27, 2005, we estimated the fencing to be no more than 1,200 feet in length.

The EA states that 136,074 people visit this beach annually. How was this determined? We see very few people in this unit. Most of this unit can only be accessed by walking long distances.

**Arcata Fish and Wildlife Office**

**Comment 1) ES-13, Exhibit ES-5**
The overestimation of costs is acknowledged in ES-5; however, I believe the extent of the overestimation is significant. Human-related beach use has not changed significantly as a result of “plover conservation” measures, specifically the use of nest exclosures and symbolic fencing. Refer to Lafferty, K.D. 2001. *Biodiversity and Conservation* 10: 1949-1962, Kluwer Academic Publishers. and Lafferty, K.D. 2001. *Biological Conservation*. 101 (2001) 315-325. Additionally, Cheryl Dillingham, Deputy Director of Public Works, Humboldt County, California, observed beach users the first day after symbolic fencing was installed at Clam Beach County Park, in 2004. Ms. Dillingham stated that most people did not acknowledge the symbolic fencing. Some users walked up to the fencing to read the posted signs, then continued their activities. In a few instances, vehicles drove up to the fence, apparently “checking it out”, then resumed their activity. No one was apparently observed leaving the beach after seeing the fence management tool. During a separate discussion, Ms. Dillingham stated to the Humboldt County Board of Supervisors that overall use at Clam Beach County Park increased during 2004, including the period when the symbolic fencing and nest exclosures were being used. At this time, I have not been able to reach Ms. Dillingham to find the source of her statements regarding increased beach use. She can be reached at (707) 268-2689, or I can provide that information when she returns my call.

As a consequence, the assumption that plover conservation measures significantly impact beach use needs to be established, rather than the opposite.

**Comment 2) Page 1-5, pt 42**
Refer to initial general comment above regarding addressing the economic impacts of listing. As stated, recovery plans are guidance for interested parties. Therefore, management that is consistent with the recovery plan is voluntary, and may be a result of private land owner’s wishes, or agency mandates that are not Endangered Species Act related. California State Parks often uses symbolic fencing as a way to direct human traffic away from sensitive dune mat vegetation, although that fencing may also have the dual purpose of directing the public from plover nesting areas. So is fencing in this scenario a plover conservation measure, or an ecosystem measure that incorporates a multi-species approach?
Comment 3) Pages 2-14 through 2-19
Data are presented differently by State, and therefore are not easy to compare. California has 238 million visitor days per year. Although not stated, I figure Oregon has roughly 1,759,316 visitor days per year \(2 \text{ days}(52 \text{ wks}) \times 7104\text{ visits} + 5(52 \text{ wks}) \times 3925\text{ visits} = 1,759,316\}. Something similar for Washington?

Most California beach use is in southern California; however, many of the high use beaches are no longer used by plovers (some of the LA beaches specifically). Therefore, there is not economic impact to that segment of beach users.

The Washington State discussion addresses outdoor recreation, but not beach-related recreation specifically. Therefore, it should be clear that these figures are an overestimation.

Comment 4) Page 3-2, Exhibit 3-1
Exclosures stated to be used at CA-3a, CA-4b in 1999. Exclosures started to be used at CA-4a and CA-5 in 2000. CA-3b in 2001.
Driving restrictions began at CA-3a, CA-3b and CA-4a in 1995 as a result of the Humboldt County Beach and Dunes Management Plan (Humboldt County Planning Department), primarily out of concerns for conflicting uses; not the plover.

Comment 5) Page 4-1, pt 124
Vehicle use is considered by many beach visitors to be a conflicting use (Draft Clam/Moonstone Beach Master Plan, Humboldt County). Most children’s play, fishing/clamming, walking/jogging, dog use, equestrian use, etc., occurs on or near the wetted sand (Lafferty, 2001). Vehicles use primarily the wetted sand because of the reduced threat of getting stuck. Consequently, there is a conflict for space along the wetted sand. Therefore, many beach visitors select beaches without vehicle use as this reduces their conflicts, adding to their enjoyment. Note that symbolic fencing occurs on the upper strand and near the foredunes, not on the wetted sand where most beach use occurs. The economic analysis should reflect the benefits of limited vehicle use to the other recreation user groups, and the economic gains associated with vehicle-free or reduced vehicle use.

Clam Beach County Park (Humboldt County) began closing vehicle access at night. As a result, trash and related cleanup costs have been significantly reduced (contact Cheryl Dillingham, Humboldt County Public Works Department), and park staff are able to address other tasks.

California State Parks prohibits vehicle use on its lands, with the exception of Oceano Dunes SVRA, and commercial fishing and tribal use at Gold Bluffs Beach. There is not vehicle access at Little River State Beach; however, vehicles are allowed along the wetted sand (intertidal zone is regulated by the State Lands Commission). The prohibition of vehicles in State Parks was in place long before the plover was listed, and therefore should not be considered an economic impact.
Comment 6) Page 4-14, pt 134
Regional economic impacts: consider earlier vehicle-related comments under page 4-1, pt 124.

Comment 7) pt 135
This point states that the analysis “conservatively assumes fewer users visit plover beaches during the breeding season.” Does this mean that fewer people visit since the plover was listed, before plover conservation measures were enacted, or during the non-breeding season? Please clarify. Also, there is no stated basis for this assumption, which is likely erroneous based on Lafferty 2001 and statements by Cheryl Dillingham (Humboldt County Public Works Department).

Comment 8) Page 4-18, pt 139
Symbolic fencing and nest exclosures: Please look at the e:attachements that show the amount of symbolic fencing at Clam Beach (CA-3a), relative to the entire segment of Clam Beach (Little River to Mad River) that incorporates both CA-3a and CA-3b. Note also the main use by plovers, and how they adjust their use to avoid human-related activities (i.e. plovers use symbolically fenced area more when it is in place due to the reduction in human-related activities). Again, Humboldt County Public Works has stated that visitor use increased during the 2004 breeding season when symbolic fencing was initiated.

Sacramento Fish and Wildlife Office

Comments Pertaining to Pedestrian and Equestrian Restrictions
The proposed units within the jurisdiction of the Sacramento Fish and Wildlife Office are CA 7 through CA 10. Of these, the draft economic analysis (dEA) estimates the present value of future costs for CA 7 through CA 9 to be $1,000 or less (Exhibit ES-3). The value of future costs for CA 10 (Half Moon Bay), however, is estimated at 67.6 million dollars. This is the second highest cost estimate for any proposed unit, with only CA 15C (Morro Bay Beach) being slightly higher.

Almost all of the estimated cost for CA 10 (67.4 million dollars) is based on estimated economic losses associated with pedestrian and equestrian restrictions resulting from symbolic fencing (Exhibit 4-12 on p 4-27, Exhibit 4-8) (Note: there is another Exhibit 4-12 on p 4-24; one of these should be re-numbered.) The dEA estimates that symbolic fencing within the unit will cause an average annual decrease in beach visitation of 317,232 people (Exhibit 4-9). This estimate is in turn based on two primary assumptions that are unrealistic and unsupported. Revising the two assumptions to better reflect available information would produce a much more reasonable and defensible estimate of plover management costs for the unit.

The first assumption is that the proportion of visitors forgoing their visits due to symbolic fencing is roughly equal to the proportion of the total length of the beach that is fenced (dEA at 4-16). The second assumption is that any beach with symbolic fencing will be fenced along the entire length of the critical habitat unit (excluding areas not otherwise
open to the public) (dEA at 4-18, 19). We address each of these assumptions in turn below.

Estimating Visitation Decreases Due to Fencing:

The formula adopted by the dEA fails to distinguish fencing that only encloses upper dune or sand areas from fencing that eliminates all pedestrian and equestrian use of the beach from the back of the sand down to the water. It also assumes that all visitors normally within such an area will avoid the beach entirely rather than simply relocating to an unfenced section. Finally, it fails to take into account the concentration of pedestrian use near beach access points and near the water. None of these simplifications are necessary or supportable. In the case of Half Moon Bay, the current fenced areas comprise roughly 10 to 15 percent of the total area of the critical habitat unit (Kerbavaz in litt. 2005), which in turn comprises only about 60 percent of the total state beach (see attached map). Accordingly, the fenced areas enclose approximately 6 to 9 percent of the total area of the beach. A rough analysis of aerial photos of the beach using GIS software indicates the average width of the beach is approximately 0.05 miles, indicating the total area of the state beach is 2.1 x 0.05 = 0.1 square miles. The average annual visits per linear mile (from Exhibit 4-9) can now be re-interpreted as being per a 1 mile by 0.05 mile rectangle, or as average annual visits per 0.05 square miles. Nine percent of the total beach area is 0.09 x 0.1 = 0.009 sq miles. The average annual visits within the area enclosed by the fencing is therefore 244,392 x (0.009/0.05) = 43,990.

The above estimate only accounts for area actually enclosed by the fence, and not for differences in beach use attributable to upper versus lower sand or areas close or far from beach access points. The fenced areas are all on the upper sand above all but the highest tides (Lyons pers comm. 2005). Most use of the upper sand areas at Half Moon Bay is within 50 yards of the north and south boundaries of the various beach parking lots (Lyons pers comm. 2005). Only the northernmost and part of the southernmost fenced areas intersect these regions (Lyons pers comm. 2005, Kerbavaz in litt. 2005 (attached maps)). Additionally the northernmost exclosed area is on the other side of a stream outlet from the closest beach access, and the southernmost unit extends less than halfway into the zone of major use. The exclosed areas also do not block any major access points, except that the southernmost area blocks one of the two access points serving a single parking lot. Accordingly, the fenced areas are essentially all out of the area of major use of the upper sand. Outside such areas, pedestrian use tends to be concentrated on the wet sand, where walking is easier (Lyons pers comm. 2005, Lafferty et al. in press). While we have no specific estimates of the extent of that concentration, a conservative estimate would likely be that half the people that would otherwise be assumed on the upper sand are actually on the lower sand. This means that the above estimate of average annual visits per mile should be cut in half when applied to the fenced areas at Half Moon Bay, resulting in 43,990 x 0.5 = 21,995 annual visits affected by the fenced areas.

An estimate of forgone visits should also account for visitors that are simply displaced to other parts of the beach rather than forgoing their visit altogether. We lack specific data with which to estimate this, but given that the fenced areas are situated so that they
neither block access, nor use of the lower beach, nor significant use of the upper beach, an estimate of half the people that might otherwise have been found in those areas deciding to forego their trip entirely would seem conservative. Accordingly, a more accurate, but still conservative estimate of the average annual visits lost would be (21,995 \times 0.5), or about 11,000. This is about 3.5 percent of the 317,232 forgone trips estimated in Exhibit 4-9.

**Estimating Future Extent of Fencing:**

The above analysis only accounts for present fencing. The dEA attempts to account for future fencing by assuming the entire length of the critical habitat unit will be fenced. The California Department of Parks and Recreation (State Parks) erects fencing to protect existing nests, not in anticipation of additional nesting (Kerbavaz *in litt.* 2005). While it is not possible to say with certainty that particular areas will or will not be used for nesting, areas with high human use are likely to result in high levels of disturbance to the birds and hence to be unattractive as nesting sites (Lafferty *et al.* in press). Additionally, Half Moon Bay has already exceeded its management goal for breeding plovers as established in the draft recovery plan (Service 2001, Stenzel *in litt.* 2004), which the dEA cites as a primary guidance for State Parks plover management (dEA at 3-7). Accordingly, it would likely be highly conservative to expect the current fencing area to double within the next 20 years. This would double the above estimate of annual forgone trips to about 7 percent of the estimate provided in the dEA.

**Adjusted Estimate of Welfare Losses and Regional Economic Impacts for Half Moon Bay:**

Based on the discussion above, the present value of welfare losses resulting from plover management at Half Moon Bay should be 7 percent of the dEA’s current estimate, or about 3.38 million dollars.

Similarly, the regional economic impact should be 7 percent of the value provided in Exhibit 4-29, or about 1.48 million dollars and 22 jobs.

**Newport Fish and Wildlife Office**

In reviewing this document, we sought the opinions of Dr. Bo Shelby, Oregon State University, and Terry Bergerson, Outdoor Recreation Planner for Oregon Parks and Recreation, on the assumptions used in the economic analysis. Their comments are incorporated below. We also completed a re-analysis of the recreation use data for the Oregon shore using data from Shelby and Tokarczyk (2002). The re-analysis methods and results are presented in a separate document. The data used in the re-analysis provides more specific information on the level and types of recreation use at the proposed critical habitat units.
The analysis assumes that recreators (pedestrian, visitors, horseback riders and motor vehicle visitors) in these groups will take fewer trips to the beach as a result of management efforts to prohibit access to breeding sites.

One of the purposes of the Oregon shore recreation use study conducted by Shelby and Tokarczyk (2002) was to identify areas of relatively concentrated beach use. This information was used to identify snowy plover emphasis areas in the habitat conservation plan that coincided with low-levels of visitation. The general lower-levels of visitation in proposed critical habitat may not significantly discourage visitors to take fewer trips because they are not using many of these areas.

Although there is no data in Oregon to directly address this assumption, it is more likely that visitors will use the beach at some level and/or redistribute to adjacent beaches. Snowy plover management will probably not have much of an effect on visitor trips (B. Shelby, Oregon State University, pers. com., April 28, 2005). Shelby and Tokarczyk found that 70 percent of respondents would be willing to change their behavior to improve plover habitat. This might mean fewer trips, however, it is more likely that most visitors would simply move to comparable areas to recreate.

In the absence of a publically-available economic model of recreator’s preferences, this analysis makes the simplifying assumptions that a percent of beach users proportional to the length of beach experiencing fencing will not visit the site in question.

In Oregon, restricting the dry sand is an important plover management measure in breeding areas from March 15 to September 15. The “dry” sand area is considered the portion of the ocean beach between mean higher high water and the edge of the vegetative foredune. A portion of the restricted areas is often marked by using signs and symbolic fencing (a strand of rope tied between posts to delineate an area) near the most important breeding areas. It is not practical to symbolically fence the entire extent of critical habitat so only a portion is usually fenced by the management agencies.

Storm conditions require that symbolic fencing is place above the high tide line to reduce maintenance. Therefore, the dry sand restriction is on the upper beach. This placement location, coupled with Oregon’s daily cycles of two unequal high tides and two unequal low tides and a large tidal amplitude (a maximum of about 12 feet), does not prevent either pedestrians or equestrians from using a beach with a dry sand restriction. The “wet” sand area is available and often the preferred location for recreating because it is easier to walk on and provides access to wrack for beachcombing.

One also needs to understand how the beaches are used in Oregon. Unlike the Atlantic Coast (south of Cape Cod), Gulf Coast and southern Pacific Coast, the conditions are not often suitable for sunbathing or swimming. The water is cold and difficult to swim in for any length of time without a wet suit. There are often strong winds that require warm clothing or can make the make the upper beach inhospitable from windblown sand.
Consequently, most recreators use the beach in ways that are compatible with these conditions, which favors recreating along the “wet” sand.

Page 4-16, 1st Paragraph. The analysis assumes that the annual visitors are distributed evenly along the entire length of publicly available beach.

The work of Shelby and Tokarczyk showed that areas in and around population centers, access points, and adjacent to facilities experienced higher use levels than those areas located farther away. They estimated daily use levels for 6 study segments for both weekend and weekdays during the period from June 29 and September 3, 2001. Segment 3 (Roads End to Yaquina River) had the highest use level, with 49 visitors per mile on weekdays and 97 visitors per mile on weekends. In comparison, Segment 6 (Sixes River to Crissie Field Beaches) had 5 visitors per mile on weekdays and 7 visitors per mile on weekdays. These distributional differences are even more pronounced in the proposed critical habitat. Three of the sites have no reported visitor use during the study (OR-3, OR-4 and OR-11), 10 of the sites had less than 1 visitor per mile, and only two sites had over 1 visitor per mile (see attached re-analysis).

The 2002 Oregon Outdoor Recreation Study (a part of the Oregon Statewide Outdoor Recreation Plan) was designed to estimate statewide and regional annual outdoor recreation participation for a long list of outdoor recreation activities over a one-year period. According to the survey report, there were 6,041,082 annual user occasions (a user occasion is defined as each time an individual participates in a single outdoor recreation activity) for the activity “Beach Activities Including Swimming” (Fresh & Salt) in SCORP planning region 1 (including Clatsop, Tillamook, Lincoln and Coastal Lane Counties). There were 1,147,085 Beach Activity user occasions in region 4 (including coastal Douglas, Coos and Curry Counties) during the same period of time. Some beaches also have extremely high visitation use. Oregon Parks and Recreation Department visitor data show that Short Sands at Oswald West State Park, and Indian and Ecola beaches at Ecola State Park receive about half a million visitors each year (T. Bergerson, in litt., 2005). As a result, we know that there are considerably more beach visits occurring on the North Coast and that there are some highly visited beaches.

Page 4-16, 1st Paragraph. This analysis...assumes that 85 percent of beach visitation occurs during the plover nesting season, while the remaining 15 percent of beach visitation occurs during the wintering season.

No information is available in Oregon to substantiate or refute this assumption.

Page 4-16, 1st Paragraph. Annual Trips Foregone = attendance per mile*linear miles of plover protection* percent participation in recreational activity.

Shelby and Tokarczyk reported weekday and weekend visitor averages for the entire coast (212.5 miles of beach area). The average use levels were 18 visitors per mile on weekdays and 33 visitors per mile on weekends. An analysis of the visitor use in the proposed critical habitat show much lower average use levels (most under 1 visitor per mile).
Page 2-13, Exhibit 2-8. *Annual payroll and number of establishments by industry.*

In Oregon, a county-wide analysis will underestimate the poverty rate and overestimate the economic conditions for those counties that extend to the Willamette Valley (Douglas and Lane County). The coast and the valley represent much different social and economic conditions, which may significantly change the economic activity identified in Exhibit 2-8. This can be confirmed by comparing the Oregon and Washington values on the exhibit. All the counties in Washington are coastal-oriented and the values are much lower. This difference may reflect that the counties are not associated with the more affluent valley (Puget Sound Trough and I-5 Corridor). If county data is used to establish economic value, then another technique may be needed to accurately represent the economies of the coastal portions of Douglas and Lane Counties.

Page 4-23, Exhibit 4-10. *Plover pedestrian and equestrian restrictions in Oregon potential critical habitat.*

All proposed critical habitat areas should be identified as potential areas for both exclosures and symbolic fencing. These management measures are routinely used in breeding areas. Given the length of the economic forecast (to 2025) and the progress towards recovery in Oregon, it is likely that some of the currently unoccupied areas will become occupied during the analysis period. Symbolic fencing and exclosures are currently used at OR-7 Sutton/Baker Beaches, OR-8A Siletz River Spit, OR-8B Dunes Overlook/Tahkenitch Creek Spit, OR-8D Tenmile Creek Spit, OR-9 Coos Bay North Spit, and OR-10A Bandon/Floras Lake. It is not feasible to maintain symbolic fencing in an entire unit, therefore the areas are often limited to those sites with active nesting and brooding.

Page 4-31, Exhibit 4-18. *Vehicle beach access and plover restrictions in potential critical habitat in Oregon.*

Exhibit 4-3. The proposed critical habitat areas where beach driving by street legal vehicles is currently lawful are:

- OR-5A North Sand Lake October 1 to April 30 (weekdays)
- OR-5B South Sand Lake October 1 to April 30 (weekdays)
- OR-6 Nestucca River Spit Year-round
- OR-8C North Umpqua River Spit Year-round
- OR-9 Coos Bay North Spit Year-round
- OR-10A Bandon/Floras Lake Year-round in a portion of unit
- OR-10C Elk River Spit Year-round

Each year, Oregon Parks and Recreation Department prohibits driving at the Coos Bay North Spit and Bandon/Floras Lake breeding areas through an emergency closure.

**Western Washington Fish and Wildlife Office**
**Comment 1)** P. 4-14. Measuring Reduced Recreational Opportunities. The Washington State Parks and Recreation Department does not collect data on pedestrian beach use. Visitation to Griffith-Priday State Park (WA-1) and Damon Point (WA-2) declined after the access roads washed out to these two sites. There are no symbolic fences or beach restrictions in these two units.

**Comment 2)** Visitation at Grayland Beach (WA-3) has not changed significantly from 1990-2003 (WSPR 2005). Because 2/3 of this subunit is on private property, traffic counts likely represent a high degree of local use.

**Comment 3)** At Leadbetter Point (WA-4), visitation increased after the plover was listed and then declined back to pre-listing numbers in 1999. Traffic counts have remained virtually constant since 1999 (WSPR 2005).

**Comment 4)** Based on data collected over the past 14 years, recreational use has remained relatively constant at the plover beaches in Washington State. Assuming a 2 percent increase in visitation per decade is likely an overestimate for these areas.

**Comment 5)** Figure 1
Traffic count data for Washington State Parks in Proposed Critical Habitat for the western snowy plover (source WA state parks, 2005)

Access to the posted beaches at Leadbetter Spit (WA-4) is limited. The section of beach within Willapa National Wildlife Refuge and Leadbetter Point State Park is closed to motor vehicles year round. The motor vehicle restrictions were in place long before the plover was listed and are covered under the Washington Administrative Codes and refuge administrative rules. The closest parking area is on the east side of the spit. From the
parking lot, a 1.3-mile-long trail is the shortest route to the beach. The trail is rough and frequently flooded. Because visitors must walk at least 2.6 miles round trip just to get to the ocean, potential welfare losses and economic impacts associated with plover restrictions are likely lower in this unit than units with direct access to the beach.

Comment 6) P. 4-24 Exhibit 4-12. Table that estimates average annual loss of recreation due to beach restrictions. There are no beach restrictions or symbolic fences at WA-1 and WA-2. Most of WA-3 (Midway Beach) is on private property. Potential for applying beach restrictions in this subunit is limited to the state park (Grayland Beach). The park currently has informational signs at the beach access, but does not restrict public use. As stated above, beach access is difficult in WA-4 and the impacts of plover restrictions are likely very low in this unit.