

BEFORE THE ENVIRONMENTAL AND LAND USE HEARINGS BOARD

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1. I have personal knowledge of the facts stated in this testimony and would be
1
2 competent to testify thereto. The remainder consists of my professional opinion based upon my
3
4 expertise in relevant fields, as discussed below:

5 **BACKGROUND**

6 **Current Position and Experience**

7. I have a Ph.D. in zoology from the University of California and I have taught and
8
9 done research in ornithology for 34 years.

10. As a Member of the Faculty at The Evergreen State College in Olympia,
11 Washington, I have focused much of my research and teaching on migratory shorebirds at
12 Washington's two major coastal estuaries Grays Harbor and Willapa Bay. I have also
13 examined colonial bird use of islands in those estuarine systems.

14. As my attached *curriculum vita* demonstrates, I can be considered the primary
15 authority on shorebirds in and around the estuaries described. Some of my other research
16 concerns the Snowy Plover (*Charadrius alexandrinus nivosus*), a federally threatened species
17 as well as a species of considerable concern in western Washington and in the vicinity of the
18 proposed project. I am considered a regional and national authority on the Peregrine Falcon
19 (*Falco peregrinus*), another species of considerable concern in Washington and which was only
20 recently removed from the 'threatened' list under the U.S. Endangered Species Act.

23. Additionally with regard to my expertise, I taught with Dr. Alfred Wiedemann for
24 some 25 years, and visited the proposed project area with him and our students; I also visited
25 other dune and interdunal sites in Washington and Oregon with Dr. Wiedemann. I know the
26 ecology and ornithology of these sites well.

6. I have reviewed a significant percentage of the literature relevant to the proposed project and the site targeted, and I have reviewed aerial photographs, technical descriptions, and the depositions of Mr. Tim Cullinan and Dr. Wiedemann.

EXPERT OPINION

7. It is my opinion that the project would cause unacceptable impacts to some of the most important habitat and resting and feeding grounds for resident and migratory birds in the State. There is no way to adequately mitigate these impacts.

Uniqueness and Importance of Site

8. The interdunal system that is proposed for this project is stunningly unique aesthetically and ecologically. The site represents the last significant remnant of this kind of habitat in Washington – indeed regionally. (Ruef 1974). It can be argued on that basis alone that this system should be given absolute protection as State Park or similar passive recreation land. The development of Ocean Shores (which has a major golf course) should be a lesson in habitat destruction, a lesson that should make obvious the ecologically fatal result of allowing the development considered here to proceed to completion.

9. The importance of this interdunal system to birds is extraordinary. As the last remnant of a physical and biological habitat that can both sustain and protect from inclement weather a percentage of the several million north-migrating spring shorebird migrants, it can be considered critical to that remarkable phenomenon and its participants. Nowhere else around Grays Harbor is there a similar habitat of similar extent. Migrants stopping over in the area can here find shelter from the wind and fiercely blown rain, can find unique food at the margins of the interdunal pools, and can bathe in the largely fresh water pooled there.

1 10. In reaching conclusions about the importance of this area for birds and likely
2 impacts from the project, Tim Cullinan relied in part upon research that I conducted. I reach the
3 same conclusions as Mr. Cullinan and rather than restate them here, I am attaching his comment
4 letter containing his expert conclusions (*Trial Exhibit A142*) and I incorporate them as my own
5 conclusions by reference. Following is a summary of Mr. Cullinan's conclusions related to the
6 importance of this site:

8 • The Grays Harbor estuary, associated wetlands, the cove at Half Moon Bay and the
9 adjacent ocean beaches is critically important for migratory birds - some of which
10 travel from winter habitat in Chile to breeding grounds in Alaska - because it provides
11 a safe area to rest and plentiful food to replenish depleted energy supplies in an
12 environment largely free of human disturbance. Studies of food and habitat
13 availability indicate that some species of migrating birds have no alternative but to
14 use site as Grays Harbor (Loth 1989).
15 • Grays Harbor is also an important wintering site for several species of shorebird and
16 for waterfowl. Because of the density of birds, this area is frequented by Peregrine
17 Falcons, an endangered species, which preys upon the shorebirds and ducks (Grays
18 Harbor Refuge Planning Team 1990, Brennan, et al. 1981b).
19 • The extraordinary habitat values of the Grays Harbor estuary have been known to
20 ornithologists for decades. In 1981 the U.S. Army Corps of Engineers sponsored the
21 first formal censuses of migratory birds at Grays Harbor (Herman and Bulger, 1981).
22 This study revealed that as many as one million shorebirds of 24 species use estuarine
23 habitat at Grays Harbor during the peak of spring migration. Results indicated that
24 Grays Harbor is the single most important staging area for migratory shorebirds on
25 the West Coast, south of Alaska.

26 **Specific Bird Habitat**

27 11. Peregrine Falcons and Merlins (*Falco columbarius*) hunt their shorebird prey in
28 this area, and in this area find a different hunting venue than that of the mudflats that surround
29 the main estuary. They perch and eat their prey on the dune tops, and themselves bathe in the
pools.

1 12. While I know of no breeding records for Snowy Plovers in the project area,
2 clearly nesting might take place there, and certainly the area represents a potential nesting area
3 for these charismatic and coastally endangered birds. Thus, I concur with the conclusion of the
4 Endangered Species Biological Review dated February 5, 2004, in which the Corps suggests that
5 the project will have likely adverse impacts on snowy plover based on the potential for nesting in
6 the project area and because potential for foraging habitat is present. (Trial Exhibit A151).
7
8 Indeed, the site has been documented for historical snowy plover use. (Trial Exhibit A8).

9 13. The extent of passerine use in the area is poorly documented, but it would not be
10 difficult to assemble a list of species that would find this area attractive and appropriate. But
11 unlike the species delineated above, passerine birds would not show as great a dependency on the
12 area.
13

14 **Likely Impacts of the Links Project**

15 14. The proposed use would degrade and essentially destroy the area for use by those
16 species of birds uniquely obligated to its ecological character. Birds are strongly sensitive to
17 human disturbance. It must be intuitively clear (as well as obvious in terms of the best available
18 science) that birds which have evolved to require and benefit from the structure and resources of
19 an interdunal system cannot find the same or equivalent requisites on the flat, manicured
20 expanses of a golf course or the vertical surfaces of condominiums.
21
22

23 15. Toxic chemicals are obligatory allegories of golf course maintenance. These and
24 the lavish nutrient loads necessary to the nutrition and relative biosterility of golf courses would
25 have a clearly adverse impact on the reduced number of birds that might be obligated to spend
26 time on such substrates, and would also severely impact any prey that might remain for the
27 shorebirds and other taxa.
28

1 16. Buffers as they are proposed would be ineffective as protectors of those values
2 that they seek to protect. The Department of Ecology's best available science recommends a
3 minimum buffer width of 150-300 feet for a wetland with high impact such as a golf course.
4 Recommended buffer width increases if the wetland contains species sensitive to disturbance,
5 including threatened and endangered species, such as the Snowy Plover. Golf carts and their
6 operators would routinely disturb and disrupt any shorebird flock that might seek degraded
7 protection on and in the vicinity of the altered habitats in the transformed area, including
8 especially the wetlands.

9
10 17. I further incorporate by reference the conclusions of Tim Cullinan about the likely
11 impacts of this project on bird habitat. See Ex. A142. Following is a summary of some of Mr.
12 Cullinan's conclusions on this point:

13

- 14 • The conversion of this undeveloped site to a golf course and resort would almost
15 certainly destroy the wetland's beneficial use as bird habitat. This use cannot be
16 mitigated by "preservation" of other wetlands, especially when these wetlands are not
17 part of a significant undeveloped wetland system like those to be impacted.
- 18 • Excess nutrients and organic matter loading from golf course runoff into the estuary
19 has the potential to detrimentally impact populations of benthic invertebrates through
20 increased eutrophication and decreased dissolved oxygen. If benthic invertebrates,
21 which are the staple of the migratory shorebirds' diet (Brennan, et al. 1981a) are
22 detrimentally impacted, the effect could extend to the entire ecosystem. Benthic
23 populations at Half Moon Bay have not been measured and may be affected by
24 continued erosion prevention attempts.
- 25 • Artificial light generated by the hotel, convention center, condominiums, and other
26 resort buildings negatively impact migrating birds, which orient themselves primarily
27 by sight. At night, especially in foggy or rainy weather, birds become confused by
28 the abruptness of intense lighting and suffer loss of spatial orientation. This is
29 particularly true of nocturnal migrants (Herbert 1970). Reports of mass mortality of
 birds resulting from nighttime collisions with human-made structures around artificial
 lights are available in the ornithological literature (Herbert 1980).
- The Applicant recognizes that ongoing intervention by the Corps will be necessary to
 protect the project from ongoing coastal erosion. Such intervention will likely take
 the form of increasing annual beach nourishment or coastal armoring. Both of these

1 options can have profound impacts on bird populations by destroying benthic
2 communities upon which birds depend or causing the loss of the sloped beach and
3 intertidal areas that are important bird habitats and foraging areas.

4 **Mitigation is Impossible**

5 18. Mitigation for the proposed actions would be impossible. The term "mitigation"
6 in this case is clearly an oxymoron, because the location and the size and extent of the interdunal
7 system cannot be created elsewhere, or even imitated regionally. Any "mitigation" would be
8 piecemeal and widely distributed, and therefore not just ineffective, but nonexistent.

9 **CONCLUSION**

10 19. If the interdunal ecosystem on the site is developed as proposed – or seriously
11 compromised in any way - the integrity of a critical support system will be degraded and
12 weakened, and the spectacle that hosts myriad shorebirds and their allies – and brings tens of
13 thousands of birdwatchers to the shores of Grays Harbor - will be diminished as a natural and
14 economic treasure.

15 20. In reaching the conclusions stated herein, I relied upon the above-referenced
16 exhibits and documents attached hereto, which I consider to be authentic and reliable. The
17 underlying facts and data within these sources are of a type reasonably relied upon by experts
18 in my field in reaching the types of conclusions set forth in this testimony.

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20
21
22
23 Stated under oath this 8th day of August, 2005, in Seattle, Washington.

24
25
26 Steven G. Herman, Ph.D.

27 *Steven G. Herman Ph.D. (electronic sig authorized)*

1 **References**

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