

BIOLOGICAL ASSESSMENT**FOR THE MANAGEMENT OF FEDERAL LANDS ON THE NORTH SPIT OF COOS BAY DURING THE 2000-2001 WESTERN SNOWY PLOVER NESTING AND WINTERING SEASONS**

May 17, 2000

Prepared by:

Kevin Kritz, wildlife biologist, Umpqua Field Office, Coos Bay District, Bureau of Land Management

Reviewed by:

Geoffrey Dorsey, wildlife biologist, Portland District, U. S. Army Corps of Engineers

Eric Braun, project coordinator, Portland District, U. S. Army Corps of Engineers

INTRODUCTION

The Bureau of Land Management (BLM) has managed federal lands on the North Spit of Coos Bay since 1984. Management direction for these public lands is provided by BLM's Coos Bay Shorelands Plan (USDI-BLM 1995). The Coos Bay Shorelands Plan (CBSP) provides guidance in managing for botanical, cultural and wildlife values as well as for recreational activities and public access.

The Army Corps of Engineers (ACOE) also owns federal lands on the North Spit of Coos Bay. One parcel of ACOE land is covered under the CBSP and managed by BLM according to the direction provided in that plan. The ACOE has not developed a management plan for the other public lands on the North Spit under its jurisdiction. These other ACOE lands are managed primarily to ensure and maintain the integrity of the North Jetty, to maintain existing navigational aids associated with the Coos Bay channel and for the benefit of the western snowy plover. The Oregon Department of Fish and Wildlife (ODFW) is licensed to manage these ACOE lands under Department of the Army License No. DACW57-3-91-0014. ODFW has not developed a management plan for these lands either but their intent is to conduct and support snowy plover habitat management and to provide for public hunting, fishing and clamming opportunities. Public access on one of the ACOE parcels is managed by BLM and on the other this is managed jointly by the ACOE and ODFW.

On February 4, 1999 the M/V New Carissa, a 639 foot freighter ship designed to carry wood chips, went aground about 3.1 miles north of the North Jetty of Coos Bay. The New Carissa grounded in shallow water a few hundred yards off BLM managed lands on the North Spit of Coos Bay. Attempts to burn fuel oil present on board the New Carissa resulted in the vessel being fractured into two pieces.

On March 2, 1999 the 440 foot bow section of the ship was pulled away from the North Spit with the intent of disposal at sea. Later that day the bow section broke free and proceeded to ground again further north near Waldport. Finally on March 11, 1999 the bow section was sunk at sea.

The stern section of the New Carissa is still present just offshore of the North Spit. The United States Coast Guard (USCG) and its contractors completed their operations to remove oil from the 200 foot stern section in May 1999. On February 1, 2000 USCG terminated active involvement with the incident stating that they had no reason to believe that anything other than small amounts of oil are present on the vessel, with very small discharges posing a negligible risk of adverse impact to the environment, or to public health or welfare (Unified Command Decision Memo 2000). USCG further stated that if circumstances were to change, such as during wreck removal by destructive methods, they would re-evaluate the situation at that time (Unified Command Decision Memo 2000). Stern salvage work was initiated by contractors working for the New Carissa Responsible Party (RP) in June, 1999. Salvage operations ended in late October, 1999 due to adverse weather conditions. During salvage work contractors removed about a third of the wreck and a large amount of oil and other pollutants. Salvage efforts are expected to begin again in the summer of 2000 although the alternative of leaving the stern on the North Spit also is being considered. With USCG withdrawing from the incident decisions about the ultimate disposition of the stern are under state authority.

During 1999 oil continued to leak from the stern of the New Carissa after the bow section was towed away, typically resulting in tarball episodes on the nearby North Spit beaches. In January 2000 there were again several tarball episodes on the beaches of the North Spit but since that time RP monitoring crews have detected only minor amounts of oil on these beaches. The USCG has estimated that about 70,000 gallons of oil were released into marine waters during the Coos Bay phase of the New Carissa incident although a National Oceanic and Atmospheric Administration modeling effort, that is part of Natural Resource Damage Assessment (NRDA) process, indicated that releases may have totaled as much as 140,000 gallons during the incident. At present the RP continues to monitor and cleanup oil on key segments of the North Spit beaches as requested by the state of Oregon.

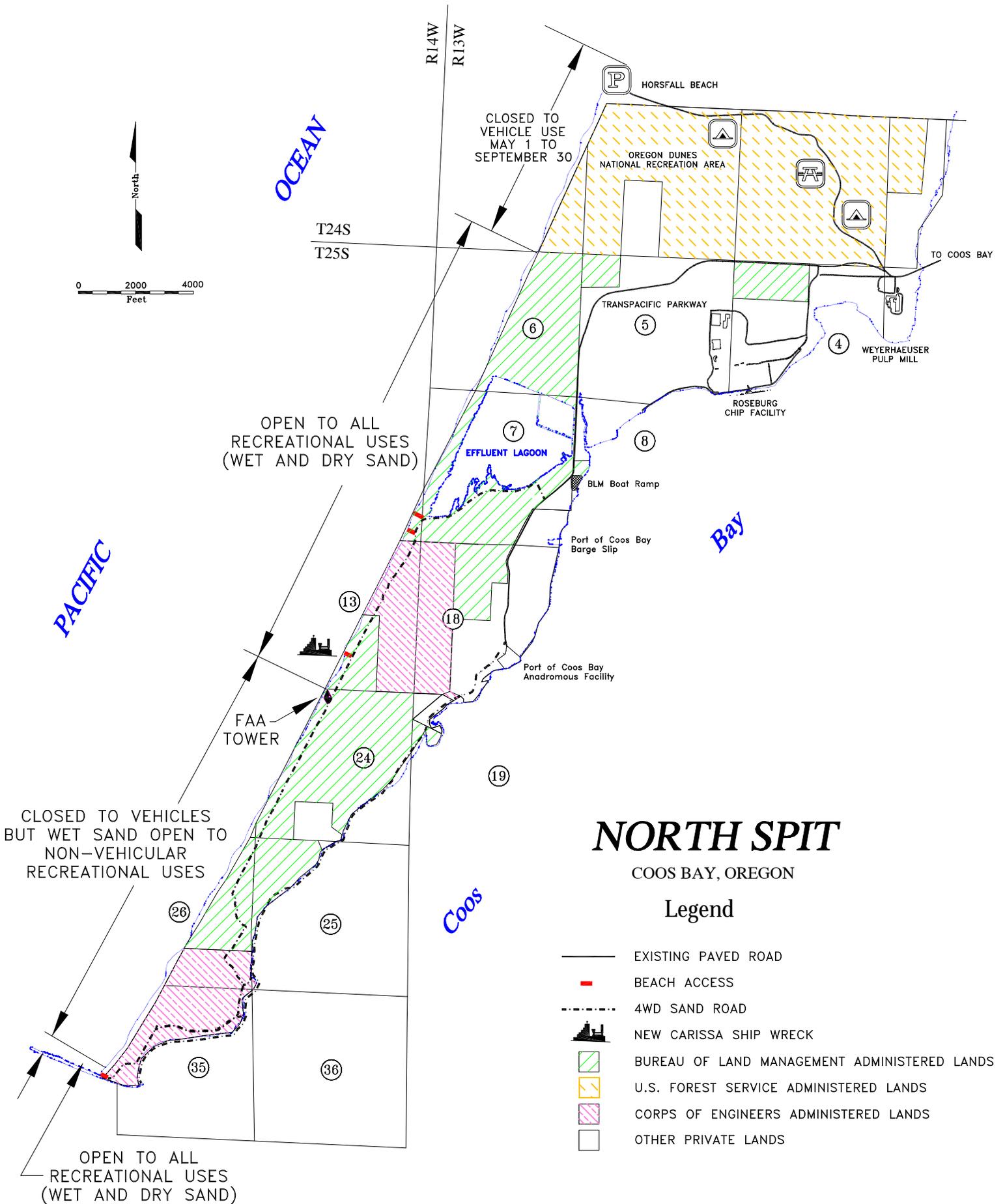
The New Carissa incident has impacted Western snowy plover populations on the North Spit of Coos Bay in several ways. Many snowy plovers were oiled as a result of the incident and several were reoiled. Beach cleanup work, a wide variety of monitoring activities, and stern salvage operations all resulted in increased disturbance to plovers. The continued presence of the stern had the effect of increasing the number of visitors to the North Spit which also likely resulted in increased disturbance. Future impacts could include some disturbance associated with oil monitoring and cleanup and potentially noise disturbance if stern salvage operations are reinitiated. Also plovers are still at some risk of being oiled as tarballs continue to wash up on the beach and they could potentially be at much greater risk of being oiled if salvage operations are continued, since cutting activities are expected to release oil trapped in the stern. Finally the continued presence of the stern section serves as an ongoing attraction to the general public and hence visitor levels on the North Spit are expected to remain higher than they would otherwise be if the stern were gone.

Interagency discussions in March, 1999 between BLM and Carrie Phillips of the U.S. Fish and Wildlife Service (USFWS) resulted in a request that BLM and ACOE initiate formal consultation on a plan for managing North Spit lands before public access could be restored. The USFWS cited the New Carissa incident and the continued presence of the stern section as a fundamental change in the environmental baseline under which the BLM previously consulted for the CBSP (USFWS biological opinion 1-7-95-F-405) as a basis for this request. Baseline conditions had changed significantly so the biological opinion for the CBSP was no longer valid in light of the New Carissa incident. Also except for some snowy plover specific management actions ACOE had not previously consulted with the USFWS on a general plan of public access and management for the ACOE land and this became a requirement because of the ship grounding incident. BLM and ACOE submitted a biological assessment to the USFWS in June, 1999 and after the USFWS issued a biological opinion (USFWS biological opinion 1-7-99-F-358) the North Spit was reopened to public access in early August, 1999. However that biological opinion only covered management actions through the end of the 1999 plover nesting season and is now expired. Since the stern is still present on the North Spit the environmental baseline conditions for the area are still different from what was consulted on for the CBSP by BLM. So there is a need for BLM and ACOE to again consult with USFWS regarding their management of the North Spit. Section 7 (a) of the Endangered Species Act (ESA) of 1973, as amended, directs federal agencies to ensure that any action it authorizes, funds or carries out is not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitat.

The purpose of this biological assessment is to address public access management of federal lands on the North Spit of Coos Bay until the New Carissa incident is resolved, another management scenario is proposed, or other changes indicate re-initiation of consultation is appropriate, and the effects on the Western snowy plover (*Charadrius alexandrinus nivosus*) and designated critical habitat for this federally threatened species. Interagency discussions in the fall of 1999 resulted in a proposal for how the North Spit would be managed by BLM and ACOE/ODFW during the 2000 nesting season. The USFWS concurred with this plan and since the start of the 2000 plover nesting season BLM and ACOE/ODFW have been implementing it on the North Spit, while this formal consultation is completed. The key components of nesting season management are outlined below (see Description of the Proposed Action section). The brown pelican (*Pelicanus occidentalis*) and the Northern bald eagle (*Haliaeetus leucocephalus*) also occur on federal lands on the North Spit but since the proposed action is a no effect for these species they will not be considered any further in this biological assessment.

DESCRIPTION OF THE PROPOSED ACTION

Public lands managed by BLM on the North Spit of Coos Bay (Map 1) were closed in early February, 1999 shortly after the New Carissa ran aground under an emergency closure notice published in the Federal Register. This closure was implemented in response to a request from the Unified Command for the New Carissa incident. ACOE lands were not closed under a Federal Register notice but public access was effectively blocked off because they have BLM lands north of them and all the roads leading into these lands go through BLM land (Map 1). As previously discussed management actions by BLM and ACOE/ODFW, for the 1999 nesting



season, were consulted on with USFWS and the North Spit public lands were reopened in August, 1999. Management actions on the North Spit since September 16, 1999 (when the 1999 biological opinion from USFWS expired) to the present have been reviewed and approved by USFWS through informal means.

BLM and ACOE propose to manage federal lands on the North Spit of Coos Bay during the 2000-2001 Western snowy plover nesting and wintering seasons to provide for public access and recreational use after concurrence from the USFWS through this formal consultation. Access and management for most of the BLM lands on the inland and bayside of the North Spit would be provided as per normal operations under the Coos Bay Shorelands Plan (USDI-BLM 1995). This includes the north parcel of ACOE land which the BLM was recently issued a permit to manage by ACOE. Access and management on the ACOE lands along the bayside, at the south tip of the North Spit and at the North Jetty would be the same as under normal operations.

However the proposed management during the 2000-2001 snowy plover nesting and wintering seasons for providing public access and management of federal lands on the North Spit along the ocean beach and in and near the snowy plover habitat areas is different than what happened in the past under the CBSP and normal ACOE operations prior to the New Carissa incident. At the same time the proposed actions are similar to those implemented during the 1999 nesting season with a key exception in that there are fewer restrictions on ocean beach access. The proposed actions are warranted because of all the direct and indirect impacts to snowy plover populations from the New Carissa incident as previously mentioned and the likelihood that this species will continue to be impacted by the incident. The following actions taken together comprise a management plan for snowy plover habitat areas on the ocean beach and inland portions of the North Spit for the 2000-2001 snowy plover nesting and wintering seasons:

A. Nesting Season Management (March 15, 2000 to September 15, 2000)

1. Ocean beach management- In a February 25, 2000 letter the BLM made a request to the Oregon Parks and Recreation Department (OPRD) for the authority to implement emergency beach closures for the BLM part of North Spit beaches during the 2000 snowy plover nesting season. OPRD granted this authority in a March 14, 2000 letter to BLM. Similarly ODFW requested authority to implement an emergency beach closure for the ACOE part of North Spit beaches during the 2000 nesting season in a March 16, 2000 letter to OPRD. OPRD granted the requested authority in an April 3, 2000 letter to ODFW. The net result of the coordinated beach closure requests is that from March 15 to September 15 recreational use would not be allowed on the dry sand part of the ocean beach between the FAA tower and a point 200 yards north of the North Jetty (Map 1). This includes non-motorized recreational uses such as walking, jogging, horseback riding as well as motor vehicle entry. At the same time the wet sand portion of the ocean beach between the FAA tower and a point 200 yards north of the North Jetty would be open to all nonmotorized recreational uses such as hiking, horseback riding, etc (Map 1).

There would be some exceptions to the above mentioned beach access restrictions to allow for agency law enforcement and required administrative access as well as legitimate access related to the New Carissa incident. In the dry sand part of the ocean beach between the FAA tower and the point 200 yards north of the North Jetty law enforcement officers and BLM personnel would have walking access to remove violators or repair/replace ropes or sign posts as needed. BLM, ODFW and other agency and contract wildlife biologists would be allowed to walk in the areas to conduct beach inspections, pursue violators or perform administrative tasks (ie repair signs, ropes, etc). Oregon Natural Heritage Program (ONHP) biologists would be allowed entry as part of their efforts to monitor snowy plover nesting activities. Biologists conducting NRDA sponsored studies on seabird carcass persistence would have foot access. The beach cleanup crew working for the RP for the New Carissa incident would be allowed in the closed areas on foot as part of ongoing oil monitoring and cleanup operations and RP salvage personnel would be allowed entry if needed. USCG also would have foot access along with beach inspection teams if further beach inspections are required.

Although foot access would be permitted for various personnel they would be instructed to limit entry to only the amount needed for specific tasks and to make reasonable attempts to mask their tracks upon leaving the closed area. Finally since the areas are closed administratively under OPRD authority a permit is required to enter this part of the beach. BLM has requested and OPRD has granted the permit. Permits would be distributed to all appropriate personnel requiring foot entry and they would be instructed to carry the permit with them in the field.

Another exception to the above mentioned beach access restrictions would be to allow for vehicle access for law enforcement, required administrative activities, and legitimate operations related to New Carissa incident. In the wet sand part of the ocean beach, between the FAA tower and the point 200 yards north of the North Jetty, law enforcement officers and BLM personnel would have vehicle access to remove violators or inspect/ repair/replace ropes or sign posts as needed. ONHP biologists would be allowed vehicle entry as part of their efforts to monitor snowy plover nesting activities and biologists conducting NRDA sponsored studies on seabird carcass persistence also would have this access. Personnel employed by the RP for the New Carissa incident for beach monitoring and cleanup and salvage activities would be allowed in this area. Finally USCG personnel would be allowed to drive vehicles in this area. Vehicles used by these personnel could include street legal vehicles or ATV's. There would be no authorized vehicle use inside the dry sand part of the beach between the FAA tower and the point 200 yards north of the North Jetty.

Although there would be exceptions granted to allow some vehicle use south of the FAA tower on the wet sand beach personnel would be instructed to minimize any potential impacts while in the areas by riding on the lower part of the beach closer to the water and to travel at slower speeds (ie. 10-15 mph). They also would be instructed to limit vehicle use on the wet sand beach to the minimum required for their work. Also since OPRD has granted closures for this part of the North Spit beaches a permit is required to enter the areas with a vehicle. BLM has requested and been granted permits by OPRD to enter the area with a vehicle. These permits would be distributed to any personnel requiring vehicle

access in this part of the beach and they would be instructed to carry the permit with them in the field.

In general the part of the ocean beach on BLM ownership north of the FAA tower and the part of the beach south of the point 200 yards north of the North Jetty on ACOE ownership would not be restricted during the nesting season. These portions of the ocean beach on the North Spit would be open to all non-motorized recreational uses and street legal vehicles (Map 1). ATV's would not be allowed on the ocean beach as per existing OPRD rules for this part of the Oregon coast. The only exception to the approach of keeping beaches north of the FAA tower open to public use would occur if snowy plovers nest on this part of the ocean beach. If this occurs the part of the dry sand beach within a 1/4 mile of the nest would be closed seasonally to protect it. The closure would be to all recreational uses and entry but would only affect the dry sand beach. The adjacent wet sand beach would remain open to use. The only entry allowed into the closed dry sand beach within a 1/4 mile of the nest would be for agency law enforcement and other personnel and RP crews performing legitimate New Carissa incident duties. This exception would be the same as those allowed in relation to the dry sand beach closure south of the FAA tower.

2. Bay Beach Management- The Bay Beach is located at the very south tip of the North Spit of Coos Bay. It is a crescent-shaped beach about 0.75 miles long and relatively narrow. It has been used irregularly in past nesting seasons by snowy plovers for feeding and there may have been some plover nest scrapes on this beach in previous years (Mark Stern, pers. comm.). During the 1999 nesting seasons plovers were sighted on this beach several times and a few nest scrapes were documented (David Lauten and Kathy Castelein, pers. comm.).

During the 2000 nesting season if snowy plovers actually nest on this beach or brood young on it then it would be closed to public uses. This would include walking, hiking, horseback riding, driving vehicles and all other forms of recreational use. ONHP biologists conducting plover monitoring work would be responsible for monitoring snowy plover use of this beach and reporting any plover nesting or brood rearing activities on Bay Beach. If snowy plovers do not nest or brood young on this beach it would remain open to all traditional recreational uses. Should a closure be necessary it would be marked with rope fences and appropriate signs. Also if a closure is necessary it would in no way restrict or jeopardize vehicle access to the North Jetty.

3. Ocean Beach Access Points- There would be 4 authorized public access points to the beach under this management plan. Of these access points 2 would be near the southwest corner of the effluent lagoon, 1 would be near the New Carissa stern section and 1 would be near the North Jetty (Map 1). All the access points except the 1 near the North Jetty would be on BLM land. The 3 access points on BLM land were improved in late April with funding provided by the RP. Improvement work was completed with a small bulldozer and all 3 ramps were bladed to sufficiently improve access. Work was completed in less than a day and did not result in disturbance to snowy plover habitat. The access ramps are presently being used by the general public as well as RP cleanup crews, law enforcement officers, BLM personnel and wildlife biologists monitoring snowy plover

nesting. These access points could require additional future maintenance with a bulldozer to keep them open and functional. Future maintenance work also could be completed in a short time if needed. Public use of these access points under this management plan would be for both motor vehicles and non-vehicular recreational activities.

4. Federal Register Notices- The existing Federal Register notice for motor vehicle access on federal North Spit lands (BLM 1996) would be revised and the portion regarding a seasonal dry sand closure for North Spit beaches would be deleted. This part is not consistent with current management as proposed in this biological assessment. BLM would write and submit a new Federal Register notice covering snowy plover dry sand beach and inland habitat areas on BLM land. The new notice would seasonally close the dry sand beach from the FAA tower south to the BLM-ACOE property line and all portions of the 1995 and 1998 Habitat Restoration Areas (HRA) on BLM land. Under this notice these areas would be closed to all public uses from 15 March to 15 September except for agency administrative use. The RP would have access to the ocean beach closed areas as needed for incident related work. These uses would include snowy plover monitoring work by ONHP or agency biologists, BLM administrative work to install/maintain ropes and signs or document violations or remove violators, law enforcement personnel efforts to document violations or remove violators or otherwise enforce the closure, and for the ocean beach legitimate use by New Carissa RP oil cleanup and monitoring crews or salvage crews. The main purpose of the notice is to give BLM and other agency law enforcement personnel a useful means of enforcing the closure for these plover areas while at the same time allowing legitimate monitoring and administrative work to occur.

BLM also would request the ACOE to write and publish a similar Federal Register notice for snowy plover dry sand beach and inland habitat areas on ACOE land. This notice should match the language and intent of the BLM notice. Hence the net effect would be to put the key section of dry sand beach, south of the FAA tower, and all inland habitat areas for snowy plovers on the North Spit under the same type of closure regardless of the federal landowner. This should greatly enhance law enforcement capabilities to enforce seasonal closures for snowy plover habitat. At present the only law enforcement provision applying to BLM and ACOE inland habitat areas and ACOE dry sand beaches is the Section 9 provision against take under ESA. However take is typically difficult to prove under ESA except in the most blatant cases and hence the legal value it provides to prosecute violators is limited.

5. Law Enforcement- Basic law enforcement presence for the federal lands on the North Spit would be provided by BLM. BLM would provide about 10-20 hours per week, on average, of law enforcement coverage by a District ranger during the plover nesting season. BLM also would request that the RP fund the Coos County reserve deputies so that they could provide weekend coverage on the North Spit for the plover nesting season to supplement BLM coverage. BLM would request enough funding so that Coos County deputies could patrol about 10-20 hours per weekend with coverage occurring mostly from Friday to Sunday. The net effect would be to provide about 20-40 hours per week of law enforcement coverage. However if the RP decides to not fund the Coos County deputies BLM would not be accountable to make up this difference, although BLM may explore ways internally to fund the

deputies. If the RP does not fund the County deputies then the basic law enforcement coverage that BLM is accountable for is the previously mentioned 10-20 hours per week level. Other law enforcement coverage could periodically be provided by U.S. Forest Service rangers and Oregon State Police officers. However this coverage would be incidental to these agencies regular patrols and would likely occur at infrequent and unscheduled intervals.

In general patrol hours will vary but will emphasize coverage during hours of the day when recreational activities on the North Spit are most likely to conflict with plover nesting activities. Extra emphasis will be placed on providing enhanced law enforcement coverage for the three summer holiday weekends (Memorial Day, 4th of July and Labor Day) when public use is typically the greatest.

To address current jurisdictional problems in terms of law enforcement on the ocean beach the BLM is developing an issue paper on enforcement of beach restrictions and presenting this to the Oregon State Office of the BLM for review. If possible BLM would seek authority to enforce beach restrictions on OPRD land on the ocean beach (wet sand). Preliminary indications from OPRD are that this would be acceptable to them.

6. Compliance Monitoring Patrols- In addition to the law enforcement patrols another BLM employee would patrol BLM and ACOE lands during the snowy plover nesting season. This person would patrol at least two days per week with a main emphasis on covering the inland snowy plover habitat areas and the ocean beach, although other non-plover monitoring would occur. These patrols would be scheduled to minimize overlap with patrols by law enforcement personnel with the net effect of providing more of a BLM presence on the North Spit over a greater number of hours each week. The BLM patrol person would be in a full BLM uniform.

The BLM patrol person would observe public compliance with the closures for inland and ocean beach plover areas. All violations would be recorded and later incorporated in a monitoring report to be produced at the end of the nesting season. In addition to these duties this person would do any required repair or maintenance of signs, ropes fences, barriers, etc.

BLM or ODFW wildlife biologists also may do compliance monitoring patrols. These would likely occur on weekends, especially the three major summer holiday weekends. They would be in full uniform and note and record any violations. As part of these patrols they also would do repair or maintenance on signs, rope fences, etc if required.

7. ATV Use Restrictions- During the 2000 nesting season ATV use on the North Spit would occur as per guidance in the CBSP (BLM 1995), normal ACOE management for inland areas and under existing OPRD rules for the ocean beach. On BLM lands ATV's would only be allowed on the foredune road, south dike road and the bayside road. ATV's would not be allowed on any inland areas away from these major access roads.

On the ocean beach portion of the North Spit ATV's are not allowed under existing OPRD rules. OPRD rules only allow street legal vehicles to use this part of the Oregon coast. However there would be some exceptions to the general prohibition against ATV use on the North Spit beaches. ONHP biologists and law enforcement personnel would be allowed to use ATV's as part of their beach work. Other personnel performing legitimate duties related to the New Carissa incident also would be allowed to use ATV's. These include the RP cleanup oil cleanup and monitoring crews, salvage crew members, beach inspection teams, and USCG employees. ATV use by these personnel, for a beach otherwise closed to ATV entry, is necessary so they can perform their duties in the most efficient manner.

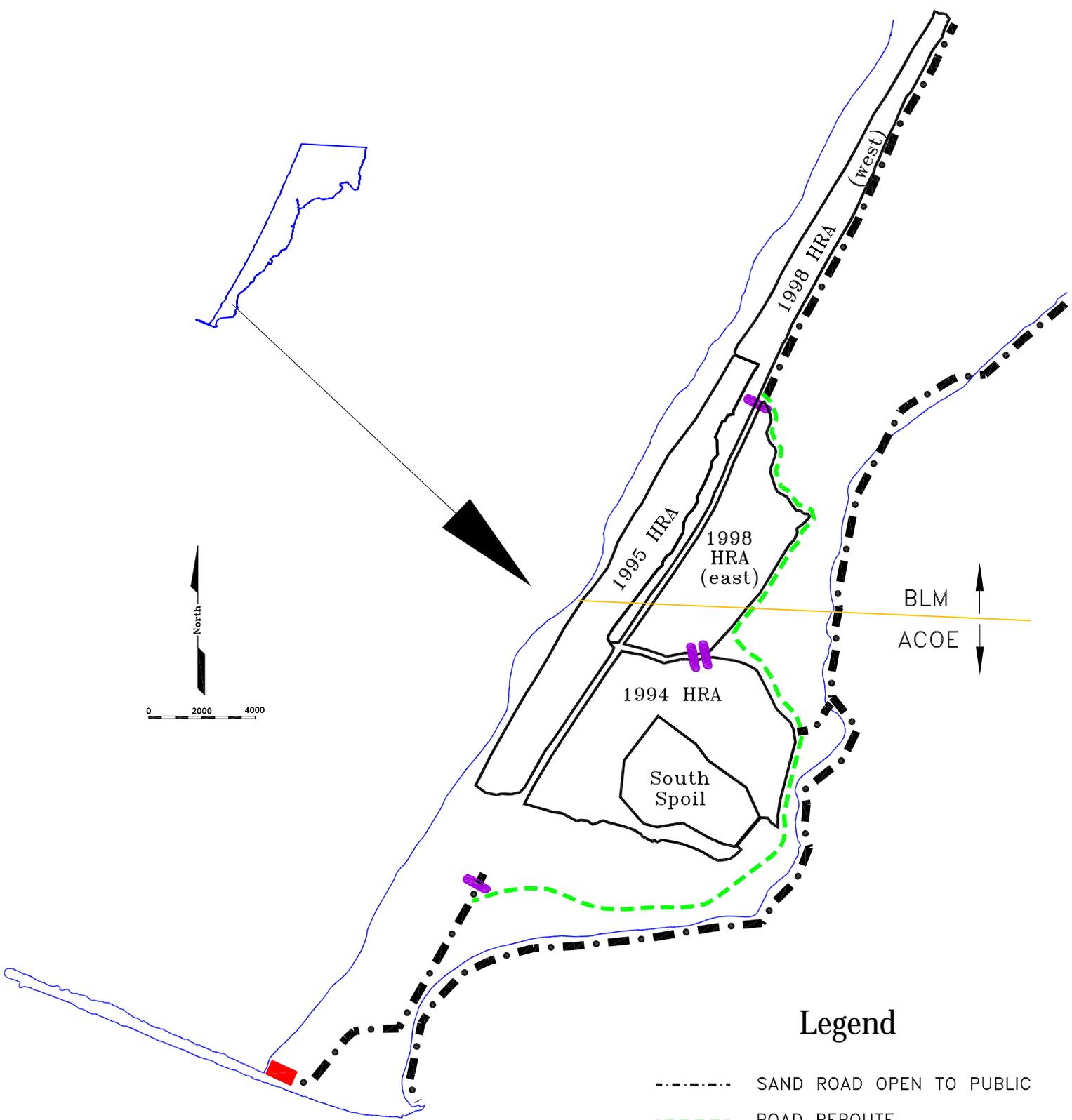
8. Road Access Management- During the 2000 nesting season the foredune road, south dike road and bayside road would all be open to vehicle traffic. This includes both ATV's and street legal vehicles. Vehicles would be allowed on these roads as per normal operations under existing management for the BLM and ACOE lands with a key exception. Vehicle traffic has been routed around the snowy plover HRA's along the east side of them (Map 2). Traffic has been eliminated along a 0.9 mile portion of the foredune road that runs between the 1994 and 1995 HRA. Motor vehicles also are not allowed to travel a 0.2 mile portion of the sand road that runs between the 1994 HRA and the east part of the 1998 HRA. Prior to 1999 the public was allowed to drive vehicles on these portions of the roads during the nesting season. The net effect of these actions has been to keep all vehicle traffic on the perimeter of the HRA's and not allow traffic in the interior portion of them.

The only exceptions to the general prohibition on vehicle use on the roads between the HRA's is that ONHP biologists and law enforcement personnel would be allowed to operate ATV's on the 2 closed road segments. ONHP require access to these road segments to perform their duties in the most efficient manner. Law enforcement personnel need this access so that they are able to pursue and remove violators.

By March 15, 2000 BLM had installed rope and post fences as a stopgap measure to block the 0.9 mile part of the foredune road and the other 0.2 mile road discussed previously above. These were replaced with sand blockades in late April, 2000 because the blockades are a more effective deterrent to entry than the rope and post fences. Blockades were installed at 2 locations on the foredune road and 1 location on the east end of the 0.2 mile road length between the HRA's (Map 2).

Another blockade on a short road that leads to the ocean beach, on ACOE land, was enhanced. This short spur road off of the foredune road was blockaded in 1999 to prevent vehicle access to the ocean beach but it had deteriorated and needed to be built back up to be fully effective. A short section of the foredune road (about 500 feet) that is just south of the south blockade on this road was bladed with a bulldozer to discourage vehicles from driving off the west edge of it onto old access spurs to the ocean beach. All other minor roads on ACOE land would be open to vehicle traffic as under normal operations. Vehicle access would be allowed at the North Jetty.

Blockades were constructed using sand. Work was done with a bulldozer with funding provided by the



Legend

- SAND ROAD OPEN TO PUBLIC
- - - ROAD REROUTE
- PUBLIC BEACH ACCESS
- ROAD BLOCKADES

RP to conduct the project in response to a BLM request. The work on all blockades and blading the short section of the foredune road occurred in late April, 2000 and took less than a day of bulldozer time.

9. Rope and Post Fences- During the 2000 plover nesting season the dry sand portion of the ocean beach will be roped off with rope and post fences from the FAA tower south to a point about 200 yards north of the North Jetty. This area was roped off by BLM as of the start of the 2000 nesting season. The intent is to prevent all public access to this part of the ocean beach for the duration of the nesting season. Some administrative and monitoring access would be allowed in the roped area (see Ocean Beach Management section above).

Also if snowy plovers nest or brood their young on the bayside beach BLM would put up rope and post fences to restrict public access to this beach. For the bayside beach this would mean roping off the access point on either end and where current beach access roads meet the beach. Access to the North Jetty, via the existing roads, would in no way be impeded or compromised by restricting access to the bay beach should this latter action become necessary. If snowy plovers nest on the beach north of the FAA tower rope and post fences would be put up to protect the nest. The dry sand portion of the ocean beach within a 1/4 mile of the nest would be roped off and public use (non-motorized and motor vehicle) would be excluded until the nesting season was over. The rest of the dry sand beach areas north of the FAA tower, not within a 1/4 mile of a nest, would remain open to all public uses.

Finally some limited rope and post fences have been installed along the reroute around the plover HRA's to discourage vehicles from driving off the road. These were put up in locations most susceptible to this activity. Unlike in 1999, rope and post fences would not be put up along the east side of the 1998 HRA (west part) north of the foredune road blockade or along the full length of the reroute road around the HRA's, unless there are multiple incidents with vehicles driving onto the HRA's or attempting to do so. Currently there are sand berms present along the east edge of the 1998 HRA and the road reroute around the HRA's. These were installed in 1999 and should generally provide an adequate deterrent to prevent vehicles from driving onto the HRA's. The vehicles most likely to attempt to drive over the existing sand berms are ATV's and motorcycles. If multiple incidents occur then BLM would erect rope and post fences as an additional deterrent to augment the existing sand berms.

10. Management Signs- Several types of signs would be erected for the plover nesting season at key locations as part of this management plan. Snowy plover "Do Not Enter" signs (Figure 1) have already been placed at about 200-300 foot intervals around the perimeters of the 1995 HRA and 1998 HRA. These signs also are already up on site all along the fence that surrounds the 1994 HRA and South Spoil.

On the ocean beach Carsonite sign posts with the snowy plover "No Entry Beyond This Point" stickers (Figure 2) have already been placed along the line between the wet and dry sand from the FAA tower south to a point 200 yards north of the North Jetty. The sign posts are right along the rope fence that was put up along this same key stretch of ocean beach. Carsonite sign posts were placed at a spacing

Snowy Plover Nesting Area

DO NOT ENTER

The western snowy plover is protected under the Endangered Species Act of 1973 as amended (16 U.S.C. et. seq.). It is unlawful to harm, harass, pursue, hunt, shoot, wound, kill, capture, or collect species protected under the Endangered Species Act. Violations of the Endangered Species Act may be punishable by fines up to \$100,000 or up to one year of imprisonment, or both.

Closures 43 CFR 8364.1 and 43 CFR 8365.1-6

Closure 43 CFR 8360 / Special Closure 36 CFR 261.53A

Closure 36 CFR 327.12 / General Regulation OAR 736-021-0040

Thanks for your cooperation



Figure 1. Example of snowy plover "Do Not Enter" sign; actual size of sign is 9 inches by 11 inches.

**SNOWY
PLOVER
NESTING
AREA**

**NO
ENTRY
BEYOND
THIS
POINT
MARCH 15
THRU
SEPT. 15**

Closure 43 CFR 8360
Closure 36 CFR 327.12
Special Closure 36 CFR 261.53A
Closures 43 CFR 8364.1 & 8365.1-6
General Regulation OAR 736-021-0040



Figure 2. Example of snowy plover "No Entry Beyond This Point" sticker for sign post. Actual sticker size is about 3 inches wide by 16 inches long.

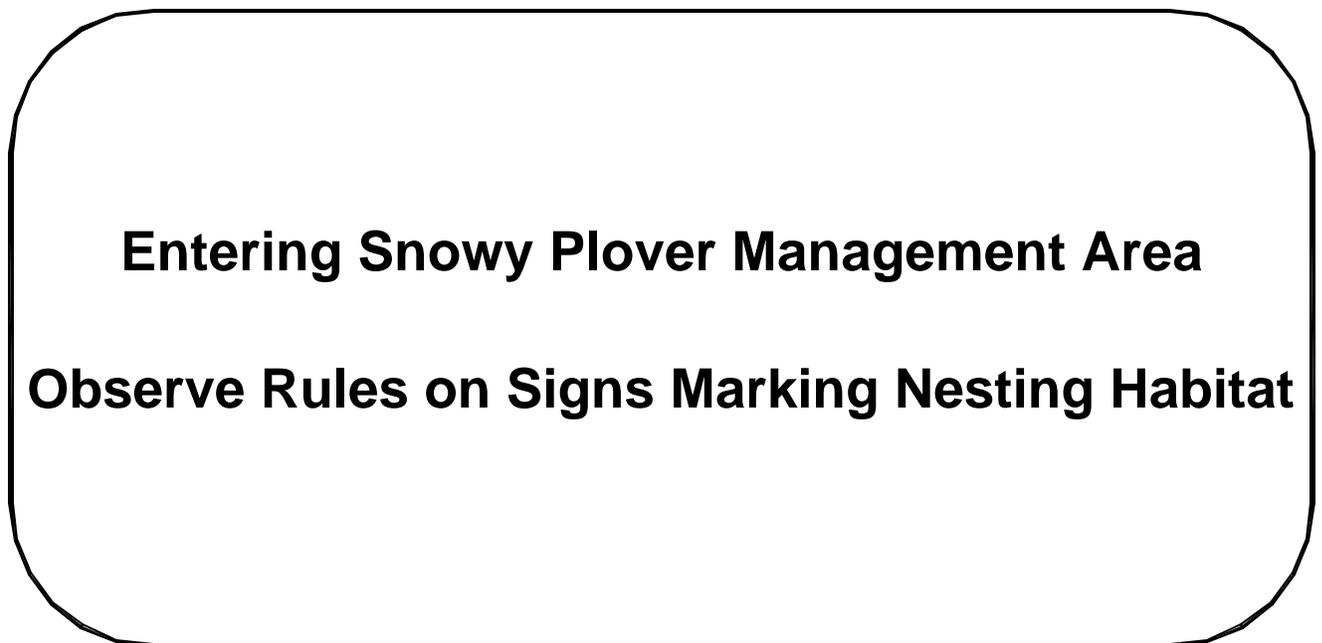


Figure 3. Example of snowy plover "Entering Snowy Plover Management Area" sign. Actual size is 1 foot high by 2 feet wide.

of at least 1 post every 200-300 feet. If warranted more could be added so that one would occur every 100 feet. If snowy plovers nest on the ocean beach north of the FAA tower these same sign posts would be put up along a rope fence, within a 1/4 mile of the nest, in the same way they were put up south of the FAA tower. Similarly if plovers nest on the bayside beach these sign posts would be put up in conjunction with rope and post fences there.

Another sign type that was put up is the “Entering Snowy Plover Management Area” signs (Figure 3). These were placed along authorized access roads at key locations where the general public approaches the inland plover habitat areas.

Additionally the BLM, in conjunction with OPRD, has placed signs at 2 key locations on the ocean beach. One location is right at the FAA tower. The sign here explains that vehicle use on the beach south of this point to the point 200 yards north of the North Jetty is not allowed but that non-motorized recreational uses are allowed on the wet sand beach. It also informs the public that the dry sand portion of the beach from the FAA tower south to within 200 yards of the North Jetty is closed to all entry, both vehicular and non-motorized. The other sign is located on the ocean beach 200 yards north of the North Jetty. It explains that vehicle use on the ocean beach north from this point to the FAA tower is not allowed but that non-vehicular recreational use is allowed on the wet sand part of the beach. This sign also explains that the dry sand beach is closed to all recreational uses from this point north to the FAA tower.

BLM put up all previously mentioned signs by March 15, 2000. They will remain up through the duration of the nesting season. Other key signs relative to ocean beach management have been put up by BLM at beach access ramps. These include signs that indicate: that ATV’s are not allowed on the ocean beach, that only street legal vehicles are allowed on the ocean beach and that the speed limit on the beach is 25 miles per hour. These signs all reflect current OPRD regulations for the beach. In 1999 BLM requested that OPRD provide a large sign that includes all 3 of the previously mentioned beach restrictions on it. OPRD had the sign made as requested and BLM will put this up at the large steel beam on the ocean beach right at the north limit of BLM ownership. This sign would face north and provide key messages to visitors traveling south onto BLM from US FS lands.

Finally the large sign board located at the entrance to the south dike road off of the TransPacific Parkway would be revised as needed to reflect current management rules. This sign was installed by BLM in 1999.

11. Provide Public Information- As part of implementing this management plan, BLM, in conjunction with ACOE and ODFW, would produce news releases notifying the public about special restrictions being implemented for the plover nesting season. These news releases could be distributed through various media including newspapers, radio and television. The news releases would include a description of what areas are open and which are seasonally closed, a warning that public access could be closed again if there is a lack of compliance with the plan and repeated violations occur, and

information about the snowy plover. BLM has already produced and issued 2 news releases this year (one in late February and the other in mid March) that provided these messages for the North Spit. Another news release is planned for May to coincide with the start of the summer tourism season and the expected increase in recreational users.

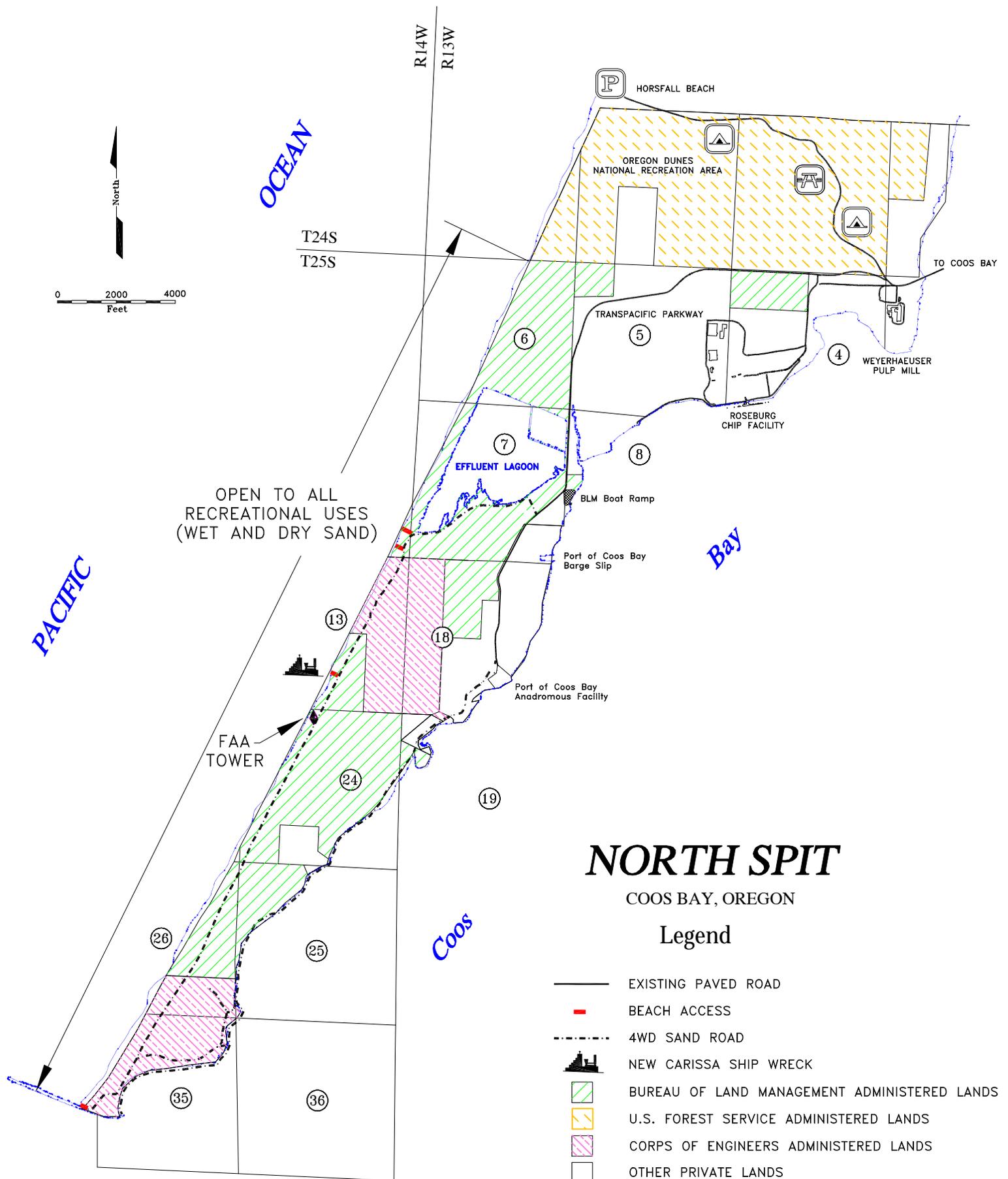
BLM also would update the “North Spit Update” general information bulletin developed to provide public information in 1999 (see Appendix A in BLM 1999). The bulletin would explain the concerns for snowy plovers and why some access is still restricted, explain restrictions and request public compliance with them and state what measures might be undertaken if the public does not comply. The bulletin also would include an updated map showing restricted areas on the ocean beach, inland areas and the road reroute around the snowy plover areas. This bulletin would be made available to the public through a wide variety of outlets including agency offices, Chamber of Commerce visitor centers and other appropriate tourist outlets.

Additionally BLM would update existing message boards present on the North Spit. These include the existing bulletin board located by the entrance to the south dike road off of the TransPacific Highway and the information kiosk at the BLM boat ramp. Maps that show current access areas and the ocean beach and inland areas seasonally restricted would be posted. Also the same key visitor messages regarding visitor access, snowy plover concerns and the potential for further restrictions, that are present in the news releases and the updated news bulletin, would be posted at these locations. Potentially another temporary bulletin board with similar maps and messages could be posted at the end of the TransPacific Parkway where the bayside road begins.

12. Other Potential Closures of Federal Lands- The New Carissa stern section is still present on the North Spit and it contains an unknown quantity of oil that could potentially be released during the plover nesting season. Also stern salvage operations could be reinitiated during this summer and continue until fall. Hence it may become necessary for BLM and ACOE/ODFW to close portions of the ocean beach and/or the foredune road to all public access due to safety or logistical concerns related to beach cleanup and/or stern salvage operations. If the RP requests these type of closures BLM and ACOE/ODFW would comply and public notices would be issued. Closures could be readily implemented since the RP has already funded construction of a steel gate near the entrance to the south dike road (Map 1).

B. Winter Season Management (September 16, 2000 to March 14, 2001)

1. Ocean Beach Management- Between September 16, 2000 and March 14, 2001 there would not be any restrictions on recreational use for North Spit beaches except that the OPRD prohibition against ATV use on these beaches would still be in effect. The beaches would be open completely to all non-motorized recreational uses as well as street legal vehicle use (Map 3). Law enforcement personnel and RP employees associated with either beach monitoring and cleanup or salvage would likely need to use ATV's on the ocean beach. BLM would request the necessary permit from OPRD to allow this



OPEN TO ALL RECREATIONAL USES (WET AND DRY SAND)



specific type of administrative and incident use to occur. Permits would be distributed by BLM to pertinent individuals and they would be instructed to carry the permit with them while in the field.

2. Bay Beach Management- The Bay Beach was used by snowy plovers during the winter. A banded pair was consistently found here during the winter of 1999. However the beach is not known to be a significant wintering location for snowy plovers on the North Spit. Therefore the Bay Beach would be open to all normal recreational uses from September 16, 2000 to March 14, 2001.

3. Ocean Beach Access Points- The same 4 access points to the ocean beaches of the North Spit previously discussed (see Ocean Beach Access Points section under Nesting Season Management) would likely be kept open and maintained during the fall and winter. Maintenance would occur on an as needed basis with a bulldozer and it should not require more than 1 day to complete the work for all of the access ramps.

4. Law Enforcement- The primary law enforcement presence for the fall and winter on the North Spit federal lands would be provided by BLM. BLM would provide an average of 2-8 hours of law enforcement presence per week during this time period. Similar to the nesting season, other law enforcement coverage could periodically be provided by U.S. Forest Service rangers and Oregon State Police officers. However this coverage would be incidental to these agencies regular patrols and would likely occur at infrequent and unscheduled intervals.

5. Compliance Monitoring Patrols- In addition to the law enforcement patrols another BLM employee would patrol BLM and ACOE lands during the fall and winter. This person would patrol the North Spit federal lands at least 1 day per week. These patrols would be scheduled to minimize overlap with patrols by law enforcement personnel with the net effect of providing more of a BLM presence on the North Spit over a greater number of hours each week. The BLM patrol person would be in a full BLM uniform.

The BLM person would observe compliance with a general vehicle closure for inland areas on BLM land. Under the CBSP all inland areas except for the foredune, south dike and bayside roads are closed to vehicle use. The ocean beach is open to street legal vehicles. This person also would check compliance with a bayside closure of a tidal area to protect Special Status plant species. In addition to these duties this person would do any needed repair or maintenance of signs.

6. ATV Use Restrictions- During the fall and winter period ATV's would continue to be allowed on the foredune road, south dike road and bayside as per guidance under the CBSP and normal ACOE management for inland areas. On BLM inland areas ATV use would not be allowed in contrast to CBSP guidance, which allows access to an inland dune area by permit.

ATV's would not be allowed on the ocean beach as per OPRD regulations for the North Spit beaches. However there would be exceptions to the general prohibition against ATV use on the North Spit. Law

enforcement personnel would be allowed to use ATV's as needed for beach patrols and RP crews may still require ATV access for monitoring and cleanup. Required permits for ATV use on the ocean beach would be obtained from OPRD.

7. Road Access Management- During the fall and winter period the foredune road, south dike road and bayside road would continue to be open to vehicle traffic for both ATV's and street legal vehicles. The section of the main foredune road, that runs between the HRA's, would be opened up to vehicle traffic after the nesting season (Map 3). This is the 0.9 mile stretch previously discussed (see Road Access Management section under Nesting Season Management). Also the 0.5 mile reroute around the HRA's would be closed down after the nesting season (Map 3). The road blockades on the main foredune road created for the nesting season would be removed and new blockades would be created at both ends of the reroute to prevent it's use. The 0.2 mile segment of road that runs between the 1994 HRA and east part of the 1998 HRA would remain blockaded. The net effect would be to direct vehicle traffic back along the main foredune road and allow straight north-south access to the North Jetty while eliminating traffic on the reroute, which is subject to flooding in the winter.

Blockades at both ends of the reroute would be created with sand, large wood or by installing multiple posts and roping them together. The blockades on the foredune road could be removed with the BLM tractor. Work would occur in September and take less than 1 day to complete.

8. Rope and Post Fences- Immediately after the plover nesting season ends the rope and post fence on the dry sand part of the ocean beach between the FAA tower and the point 200 yards from the North Jetty would be taken down. Also if rope and post fences are installed along the edges of the HRA's during the nesting season these would be taken down after September 15, 2000.

9. Management Signs- The special snowy plover management signs previously discussed (see Management Signs section under Nesting Season Management) would be taken down right after the nesting season ends. The exception to this is that the "Do Not Enter" signs would be left up on the fence that surrounds the 1994 HRA and South Spoil. This area was recently shown to be a winter use site and so to prevent or minimize disturbance leaving the signs up is appropriate.

The large sign boards on the ocean beach at the FAA tower and at the point 200 yards north of the North Jetty also would be taken down right after the 2000 nesting season ends. The signs at the ocean beach access points indicating that: the speed limit is 25 miles per hour, ATV's are not allowed on the beach, and that only street legal vehicles are allowed on the beach would all be left up. These signs are appropriate messages throughout the year and hence would be maintained for the fall and winter period. Finally the large sign board at the entrance to the south dike road off of the TransPacific Parkway would be adjusted if needed to reflect current management rules.

10. Provide Public Information- BLM would update the "North Spit Update" bulletin so that the general public knows that the seasonal restrictions for the plover areas are no longer in force and full access to the beach is available. The updated bulletin would include a map showing that the North Spit

beaches are all open to non-motorized recreational activities and street legal vehicles but not ATV's. This updated bulletin would be made available to the public through a wide variety of outlets including agency offices, Chamber of Commerce visitor centers and other appropriate tourist outlets. BLM also may put out a news release jointly with ACOE/ODFW explaining the changes in management for the fall and winter on the North Spit.

Additionally BLM would update existing message boards present on the North Spit. These include the existing bulletin board located by the entrance to the south dike road off of the TransPacific Highway and the information kiosk at the BLM boat ramp. Maps that show current ocean beach access for the fall and winter would be posted. If BLM puts up a bulletin board at the at the end of the TransPacific Parkway it would also be updated to provide the public with current access information.

11. Other Potential Closures of Federal Lands- Stern salvage operations and potential oil releases could still result in the need to close public lands on the North Spit for logistical and/or safety considerations. If a closure were necessary public notices would be issued and it would be implemented.

12. Complete 1998 HRA project- The work that remains unfinished on the east part of the 1998 HRA would be completed in the fall of 2000. There is a total of about 1-2 weeks worth of work left to complete the project.

Live trees and shrubs need to be removed from a 3 acre area on the northeast corner of the HRA and put in piles for later burning. The small dunes on this northeast corner need to be leveled to facilitate future disking operations. About 9-14 acres still require final leveling and shaping with a bulldozer and sand berms (5-6 feet high) need to be built along the west and south edges of the area to complete the perimeter work started in 1999. Also several small sedge meadow wetlands would be enhanced on the northeast part of the HRA. The portions of these wetland basins that currently support upland plants and European beachgrass would have the soil profile lowered slightly (0.5-1.5 feet) so that they would instead support wetland plants.

Project work would be completed primarily with a bulldozer and excavator. Some work on the wetland basins might be completed with a work crew using hand tools. Piles resulting from removal of trees and shrubs would be burned by BLM after they dry out. Burning would be completed no later than February 15, 2001. Work on the 1998 HRA was previously consulted on with USFWS and an Environmental Analysis was completed by BLM.

In addition to completing work on the east part of the 1998 HRA some leveling might be completed on the south end of the 1995 HRA. This additional leveling with a bulldozer is necessary to eliminate a steep area that inhibits ongoing disking operations required to maintain the area.

13. Habitat Maintenance/Enhancement Work- BLM would conduct disking operations with a tractor

and disk on all of the HRA's and a part of the South Spoil as part of normal operations to maintain the open character of snowy plover habitat areas and keep vegetation under control. Disking would occur in the fall sometime after the nesting season ends and again in the spring prior to the start of the 2001 nesting season. Spring disking operations would be completed by March 1, 2001. Disking operations would be completed as quickly as possible to minimize disturbance to wintering plovers using the areas. Typically the disking can be completed at the rate of 15-30 acres per day and the plovers are able to settle back into an area right after it is complete.

BLM also would do maintenance work on the fence around the 1994 HRA and South Spoil. The work would be completed no later 1 March, 2001 and would probably be done much earlier. If funding is available BLM would arrange for the addition of oyster shell hash to the 1994 HRA. The goal would be to add 100 to 200 cubic yards of shell hash to this area. Finally if arrangements can be made herbicide would be sprayed on at least part of the South Spoil and/or the 1994 HRA to control European beachgrass. The project would occur if funding were available. The herbicide used would be Roundup as was the case with previous applications. This is a low toxicity herbicide used by both BLM and USFS to control European beachgrass at plover habitat areas in coastal Oregon. Other projects that could occur include feral cat trapping and removal of garbage from inside the fence with an inmate crew.

Biological Assessment-Management Plan Thresholds

The following thresholds would be used as trigger points such that if they occur BLM and ACOE would reinitiate consultation with USFWS and consider further adjustments to ongoing management of public access for federal lands on the North Spit. These thresholds will serve to guard against unacceptable impacts to snowy plovers and include the following:

- If 1 snowy plover is killed or 1 plover nest is destroyed by vehicle use on the ocean beach.
- If 1 snowy plover is killed or 1 nest is destroyed by nonvehicular recreationists such as walkers, joggers, people with dogs, horseback riders, etc. on the ocean beach area closed seasonally to all entry.
- If there is 1 incident of tampering with, removal, or destruction of exclosures put up around a snowy plover nest on the ocean beach that results in nest loss or abandonment.
- If there is 1 or more incidents where a violation of the closures for the ocean beach by a single or multiple recreational users such that in the combined opinion of state, federal and ONHP wildlife biologists a single snowy plover pair or multiple pairs have been effectively excluded from nesting and there is a high probability that take under ESA has occurred. The ultimate determination on take would be made by USFWS biologists and law enforcement officers.

-If 1 snowy plover is killed or 1 plover nest is destroyed by vehicle use on any of the inland snowy plover habitat areas.

-If 1 snowy plover is killed or 1 snowy plover nest is destroyed as a result of unauthorized entry by a walker, jogger, horseback rider, person with dog, etc. (ie. nonvehicular recreational use) into any of the inland snowy plover habitat areas.

-If there is 1 incident of tampering with, removal, or destruction of exclosures put up around a snowy plover nest at any of the inland snowy plover habitat areas that results in nest loss or abandonment.

-If there is 1 or more incidents where a violation of the closures for the inland snowy plover habitat areas by a single or multiple recreational users such that in the combined opinion of state, federal and ONHP wildlife biologists a single snowy plover pair or multiple pairs have been effectively excluded from nesting and there is a high probability that take under ESA has occurred. The ultimate determination on take would be made by USFWS biologists and law enforcement officers.

DESCRIPTION OF THE AFFECTED ENVIRONMENT

BLM manages about 1462 acres on the North Spit of Coos Bay immediately south of the USFS Oregon Dunes National Recreation Area and adjacent to the cities of Coos Bay and North Bend within Coos County, Oregon (Map 1). This includes 1148 acres owned outright by BLM and another 314 acres owned by ACOE but managed by BLM through the authority of Department of the Army Permit No. DACW57-4-99-0028 (issued to BLM on May 3, 1999). Access to these lands on the North Spit is via U.S. Highway 101 and the TransPacific Parkway.

There are a wide variety of habitats present on BLM lands on the North Spit including: fresh-water and salt-water marshes, sedge meadows, sandy beaches, sand dunes, dredge spoils, upland grass, shrub and grass-shrub communities and coniferous forest (Ruediger 1988, USDI-BLM 1995). The introduction of non-native plant species such as European beachgrass (*Ammophila arenaria*) and scotch broom (*Cytisus scoparius*) in the last century has altered the vegetation on the North Spit and has contributed to many of the current natural resource concerns. The BLM recognizes that the establishment of European beachgrass has altered recent historical geologic processes and that restoration of those processes is contingent upon beachgrass control (USDI-BLM 1995).

Under the CBSP BLM lands on the North Spit are managed as a predominantly natural area that conserves botanical, cultural and wildlife resource values while providing educational, interpretive and recreational opportunities for the benefit of local and regional visitors and economies. The objective of the CBSP is to provide a broad range of recreational opportunities while simultaneously managing for the protection, maintenance, and rehabilitation of natural systems present on the area (USDI-BLM

1995).

ACOE owns a total of 619 acres on the North Spit which are divided into 2 parcels (Map 1). The north ACOE parcel (314 acres) managed by BLM is mostly open sand dune and upland grass habitat. Other habitat types present on this parcel include: freshwater marsh, shrub and grass-shrub communities. The south ACOE parcel (305 acres) is located at the end of the North Spit (Map 1). Habitat types present on this area include open sand dune, sedge meadow, dredge spoils, upland grass, shrub and grass-shrub communities and small conifer forest islands.

Western Snowy Plover-

The Pacific Coast population of the western snowy plover was listed as a threatened species under ESA in March 1993 (USFWS 1993). Poor reproductive success resulting from human disturbance, predation and inclement weather, in combination with the loss of nesting habitat attributed to the establishment of the exotic European beachgrass and urban development, were cited as factors contributing to the decline of the Pacific coast population of snowy plovers (USFWS 1993). Currently it is estimated that about 2000 snowy plovers breed along the Pacific coast of the United States and at least another 2000 along the west coast of Baja California (USFWS 1999b). A detailed summary of the taxonomy and life history of this population occurs in the listing Final Rule for the western snowy plover (USFWS 1993).

In Oregon, snowy plovers historically nested at 29 locations on the coast (USFWS 1993). By 1999 there were only 7 historic areas on the Oregon coast and 1 newly developed area on the Oregon Dunes National Recreation Area where plovers nested (Castelein et al 1999). Hence the total number of nesting areas on the Oregon coast has declined 72% from historic levels. The 1999 breeding season population estimate of 95-96 snowy plovers present on the Oregon coast was down about 32% from the 1997 population level which was the highest recorded population count since intensive monitoring of coastal plover populations was initiated (Castelein et al. 1999). The 1999 level was very similar to the 1998 breeding season count (Castelein et al. 1999) and this is a positive given the concerns related to the New Carissa incident. Snowy plovers also winter on Oregon's coast in several locations (USFWS 1993).

Snowy plover occurrence and nesting on the North Spit of Coos Bay has been well documented (Casler et al. 1993, Castelein et al. 1997, Castelein et al. 1998, Castelein et al. 1999, Craig et al. 1992, Estelle et al. 1996, Hallett et al. 1994, Hallett et al. 1995, Ruediger 1988, Stern et al. 1990, Stern et al. 1991, Wilson-Jacobs and Dorsey 1985 and Wilson-Jacobs and Meslow 1984). Snowy plovers use a variety of habitats on the North Spit for nesting and wintering (Castelein et al. 1999, Ruediger 1988 and Wilson-Jacobs and Dorsey 1985). The most intensive monitoring efforts for nesting snowy plovers on the Oregon coast have occurred from 1990-1999. During this period the combined productivity of the North Spit habitat areas, expressed in terms of number of young fledged per year, has been greater than for any other coastal site (Table 1). The North Spit sites have accounted for 46%

of all the snowy plover young fledged on the coast during this time period (Table 1). Habitat areas on the North Spit for the snowy plover include: South Beach, South Spoils, 1994 HRA, 1995 HRA and 1998 HRA. The North Spoils area was used by snowy plovers in the past for nesting but it no longer serves this purpose.

South Beach- The south beach is the last 2.5 miles of ocean beach on the south end of the North Spit. Management of this beach is divided between 3 different agencies. ACOE is the owner of the dry sand part of the beach for the first mile and BLM is the owner for the next 1.5 miles on the north end of it. The wet sand portion of the beach is under state ownership for the full length and is under the direct management authority of OPRD. This divided ownership creates challenges in managing the beach to benefit plovers.

Snowy plovers have historically nested along this beach and from 1990 to 1999 a total of 41 young were fledged here which is about 11% of all young fledged on the Oregon coast during this time period (Table 1). However during the 1999 nesting season there was no nesting on South Beach and this may have been the result of impacts due to the New Carissa incident (Castelein et al. 1999). Overall the most important values of this beach to snowy plovers are probably as wintering habitat and foraging habitat during the nesting season (Wilson-Jacobs and Dorsey 1985). Plovers also use South Beach for brood rearing activities (Kathy Castelein pers. comm.) and a recent winter study of snowy plovers by ONHP indicated that South Beach is an important wintering area on the North Spit (David Lauten pers. comm.).

There have been continuing conflicts on South Beach between vehicle traffic and nesting snowy plovers (Craig et al. 1992, Hallett et al 1993 and Castelein et al. 1998). In 1998 BLM put up a rope fence along most of this beach (about 80% of it) after repeated violations of the seasonal dry sand closures by recreationists (most were vehicular violations). The rope fence was put up near the line between the wet and dry sand portions of the ocean beach. Erecting the rope fence proved beneficial as few violations of the dry sand closure occurred after it was put up. During the 1999 nesting season most of South Beach (about 95%) was closed to general public entry so rope fences and signs were placed perpendicular to the beach. Despite the closure there were still violations that occurred.

South Spoil- The 26 acre south spoils site is located on ACOE land on the south end of the North Spit (Map 2). It was first created in 1978 when the ACOE deposited dredge materials on the site.

In 1991 ODFW erected a fence around about 20 acres of this dredge spoil site to keep out mammalian predators of the snowy plover. Another purpose in erecting the fence was to keep out ATV and other recreational traffic. By 1997 this fence was still an effective deterrent to people and vehicles but it had deteriorated and numerous holes were present so that it no longer functioned as a barrier to mammalian predators. In the winter of 1998 ACOE with the assistance of BLM tore down most of the existing fence and replaced it with a new fence that encompassed both the South Spoil and the 1994 HRA. The net effect was an increase of fenced plover habitat from 20 acres to 70 acres.

Table 1. Number of western snowy plover young fledged on the Oregon Coast, 1990-99^a.

Site	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Sutton							0	1	1	0	2
Siltcoos:											
North Spit					1		0	0	2	4	7
South Spit					1	2	0	0	4	2	9
Oregon Dunes Overlook	N/A ^b	3	3								
Tahkenitch					1	12	8	7	1	1	30
Tenmile:											
North Spit					0	1	0	0	0	0	1
South Spit			14	7	3	3	4	4	3	7	45
Coos Bay											
North Spit:											
South Spoil	3	2	4	13	17	17	22	9	6	5	98
South Beach		11	9	2	6	2	2	7	2	0	41
Habitat Restoration Areas	N/A ^c	N/A ^c	N/A ^c	N/A ^c	7	2	1	1	1	22	34
Bandon		1	1	3	5	0	1	0	1	1	13
Floras Lake/ New River overwash	0	2	1	11	9	6	1	3	0	0	33
New River Spit			4	0	7	12	8	9	11	8	59
Total	3	16	33	36	57	57	47	41	32	53	375

^a Data source is Castelein et al. 1999. Some numbers have been modified since the original nesting season reports were issued. These modifications were based on subsequent reviews of the data or later field sightings of color-banded individuals.

^b N/A = Not applicable since this area was not created until after the 1998 nesting season

^c N/A= Not applicable since these habitat restoration areas did not exist prior to 1994

Since the dredge spoil was created there have been a variety of management actions on the area to control European beachgrass. These include several hand pulling efforts, some control burning, subsoiling and disking on the east end of it and several herbicide applications. About 30% of the South Spoil was treated during a salt water irrigation project conducted by ACOE in summer 1996. Several areas within the site are presently unsuitable for nesting plovers as dense clumps of European beachgrass have become established there. This site, and the other HRA's, require continuous management to control European beachgrass since they would eventually become unsuitable for nesting without these efforts.

Between 1990 and 1999 a total of 98 young fledged off the South Spoil, which is about 26% of all young fledged during the period, making it the single most productive site on the Oregon coast (Table 1). In 1999 there were 2 nests on the South Spoil area and a total of 5 young were fledged from these nests (Castelein et al. 1999). There were fewer nests on the South Spoil area in 1998 than on the adjacent 1994 HRA and this was the first time this happened since the HRA was created (Castelein et al. 1998). In 1999 fewer young were fledged off the South Spoil than the HRA (Table 1) and this was the first year this happened since the HRA was created. The shift in nesting activity and production from the South Spoil to the 1994 HRA is not a concern. These two areas are immediately adjacent to one another and are both enclosed by the same fence. This shift in use has likely resulted in part from habitat improvement efforts on the 1994 HRA by BLM and ACOE/ODFW (Castelein et al. 1999). The 1998 project to both erect a new fence around both the South Spoil and the 1994 HRA, and remove the existing fence that only enclosed the South Spoil, is very likely another key reason why this shift has occurred.

North Spoils- These former dredge spoil sites are located on BLM land. One area is a 10 acre site located along the west side of the TransPacific Parkway immediately north of both the entrance to the south dike road and the steel gate. The other is a 3 acre site just south of the BLM boat ramp and across the TransPacific Parkway from the 10 acre site.

A fence was erected around 3 sides of the 10 acre spoil area in 1988 because of concerns about conflicts between nesting snowy plovers and off-road vehicle traffic (Ruediger 1988). Other management actions initiated by BLM to maintain the site included hand pulling of beachgrass, mechanical removal of beachgrass with heavy equipment and prescribed fire. These efforts ended about 1993 and the site has not been maintained since. European beachgrass currently covers most of the site.

The North Spoils have been used in the past for nesting (Ruediger, 1988 and Wilson-Jacobs and Dorsey 1985) by snowy plovers. The last time nesting occurred at the 10 acre site was 1992 (Craig et al. 1992). The lack of nesting activity since 1992 can be attributed primarily to heavy encroachment of the site by European beachgrass. Other factors that make the site undesirable include a fence that has fallen into disrepair and the vehicle traffic on the adjacent sand roads and TransPacific Parkway.

1994 HRA- The 1994 HRA surrounds the South Spoil and occurs entirely on ACOE land (Map 2). It

is about 50 acres in size. The 1994 HRA was created in March, 1994 when the area was burned and leveled with a bulldozer. The objective was to remove predator cover, remove encroaching beachgrass and expand on the existing South Spoil site thus creating an area for the plover to nest within that is large enough to lessen possible detection of nests and chicks by predators.

The 1994 HRA has received a wide variety of other treatments since it was created. These have included hand pulling, subsoiling, prescribed fire, disking and herbicide application to control beachgrass. In summer 1996 ACOE conducted a salt water irrigation project which resulted in salt water being applied to about 60% of the 1994 HRA in another attempt to control European beachgrass. In 1998 and 1999 oyster shell hash provided by a local oyster grower was distributed on the HRA in a joint BLM-ACOE-ODFW project.

The 1994 HRA was used almost immediately by the plovers as there were 4 nesting attempts in the 1994 season and it was also used that season by all the plovers that nested on the South Spoil for brood rearing (Hallett et al. 1994). From 1995 to 1998 it was used for both nesting and brooding (Hallett et al. 1995, Estelle et al. 1996, Castelein et al. 1997 and Castelein et al. 1998). There were 12 nests on the area in 1999 and there were more young fledged from it in 1999 than any other area on the Oregon coast (Castelein et al. 1999). As previously discussed plover nesting activity on the 1994 HRA relative to the South Spoil, has been increasing since 1998. Since the HRA's were developed on the North Spit there has been a total of 34 young fledged from them (Table 1). There have been 287 young fledged from the Oregon coast since 1994 (Table 1) and the total fledged from the HRA's is about 12% of all young fledged from 1994-1999. Most of the total number of young fledged from the HRA's since their creation have been from the 1994 HRA.

In addition to use for nesting and brood rearing the 1994 HRA also is used by plovers for foraging (Kathy Castelein pers. comm.). Also the recent winter study of snowy plovers by the ONHP indicated that this area is an important wintering area on the North Spit for this species.

1995 HRA- The 1995 HRA occurs just inland from the South Beach area and is immediately west of the 1994 HRA (Map 2). It is about 35 acres in size with about half of the total occurring on BLM land and the other half on ACOE land.

The 1995 HRA was created in February 1995 using the same method that was used to create the 1994 HRA. As for the 1994 HRA the objective was to remove all existing vegetative cover which provided cover for plover predators. Other key objectives were to link the South Spoil and South Beach areas and to generally create additional open sand areas for plover nesting and brood rearing. Since the area was created the only method used to control vegetation on the area is disking. Snowy plovers nested on the 1995 HRA during the 1995 nesting season (Hallett et al. 1995). It was used in both the 1997 and 1998 nesting seasons for both nesting and brood rearing (Castelein et al. 1997 and Castelein et al. 1998). It appears the main value of this area is for brood rearing although it also serves as a dispersal corridor for plovers moving between the 1994 HRA and South Spoil to the east of it and the ocean

beach immediately west of the area (David Lauten and Kathy Castelein pers. comm.).

During the nesting season there has been unauthorized recreational use within the area although the level has not been as high as for the adjacent South Beach area. Still there were occasions during both the 1997 and 1998 nesting season when ATV's drove across the area in the vicinity of nests. The sand berm around it's perimeter effectively excludes four wheel drive vehicles but ATV's and motorcycles are still able to go over these. In 1999 ATV's were not allowed on the North Spit and there were no incidents of vehicles driving on the area. However there were many instances where people entered the area on foot in violation of the seasonal closure.

1998 HRA- The 1998 HRA has an east part and a west part. The east part is north of the 1994 HRA and the west part is immediately north of the 1995 HRA and essentially a part of it (Map 2). The total acres for the 2 parts is about 60 with 53 acres on BLM land and the other 7 on ACOE land.

The objectives for creating the 1998 HRA were similar to those for the 1994 and 1995 HRA's. The intent was to remove existing vegetation (grass, grass-shrub, shrub and tree island communities) and eliminate hiding and perching habitat for plover predators and to create more open sand dune habitat that they can use for nesting and brood rearing. Another objective is to retain and enhance existing sedge wetland features present on the east part thereby providing habitat for other shorebirds and wildlife species that will benefit from this.

Initial work on the 1998 HRA was conducted by BLM from early December 1998 to early January, 1999. Additional work was conducted by RP contractors from late February to early March, 1999 and in July 1999. Project work began with attempts to do prescribed burning on the west part. After this a bulldozer and excavator were brought in to remove trees and shrubs and place them in piles for burning. A bulldozer was used to level the areas so that BLM would be able to do followup disking treatments to inhibit regrowth of vegetation. Sand berms were created along the edges of the project areas using either a bulldozer or excavator. In September 1999 BLM completed pile burning operations to eliminate all the vegetation piles generated during previous work on the project. Work on the west part has been completed but the east part requires some additional work. BLM plans to finish work on the east part of the project after the 2000 nesting season.

The west part of the 1998 HRA was completely cleared and leveled prior to the 1999 nesting season. It was not used for nesting but part of it right adjacent to the 1995 HRA was probably used for brood rearing in 1999 (Kathy Castelein pers. comm.). The east part of the 1998 HRA was not completed prior to the 1999 nesting season. Most of the vegetation on it had been cleared and placed in piles but the northeast part of it had not been cleared yet. The many vegetation piles present on it were used by American crows as perches and other predators also may have used these piles. The fact that work had not been completed on the east part of the 1998 HRA in 1999 may be the reason why plovers did not nest on it last year, although there are other possible explanations. As of the start of the 2000 nesting season all work had been completed on about 50-60% of the area and all the burn piles present

in 1999 were gone so it could potentially be used by plovers during the 2000 nesting season.

The 1998 HRA project area was closed to general public access during the 1999 nesting season. However there were many instances where individuals violated this closure and walked across them.

Designated Snowy Plover Critical Habitat- On December 7, 1999 the USFWS published a Final Rule designating critical habitat for the Pacific coast population of the western snowy plover (USFWS 1999a). In determining which areas to designate as critical habitat they considered those physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection (USFWS 1999a). These include, but are not limited to the following: space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring germination, or seed dispersal; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species (USFWS 1999a). The USFWS considers the primary constituent elements for the western snowy plover to be those habitat components that are essential for the primary biological needs of foraging, nesting, rearing of young, roosting, and dispersal, or the capacity to develop these components (USFWS 1999a) .

In their Final Rule the USFWS also provided a list of 7 types of activity that could adversely affect critical habitat of the coastal population of the western snowy plover (USFWS 1999a). Of the categories listed the one that relates directly to the management actions proposed in this biological assessment is projects or management activities that cause, induce, or increase human-associated disturbance on beaches, including operation of off-road vehicles on the beach (USFWS 1999a). These activities may reduce the functional suitability of nesting, foraging, and roosting areas (USFWS 1999a).

The Final Rule identified 28 critical habitat areas along the coast of California, Oregon and Washington as critical habitat for the coastal population of the western snowy plover (USFWS 1999a). Of the 28 critical habitat areas 7 were proposed for Oregon (USFWS 1999a). The Oregon critical habitat unit that applies to the North Spit is OR-6 which was labeled as Horsfall Beach to Coos Bay, Coos County and was divided into 2 units in the final critical habitat listing (USFWS 1999a). Unit 1 of OR-6 covers the entire ocean beach from Horsfall to the North Jetty of Coos Bay and all of the federal lands at the south end of the North Spit. This would include ocean beach on both the BLM and ACOE administered lands as well as inland snowy plover habitat areas. Unit 2 of OR-6 , under the final listing, does not apply to the North Spit as this is the Bastendorf Beach area which is located south of the South Jetty of Coos Bay.

In the original proposed critical habitat designation OR-6 consisted of Units 1, 2 and 3 (USFWS 1995). Unit 1 in the final listing is the same as Unit 1 in the proposed listing but Unit 2 of the proposed listing was dropped and Unit 3 of the proposed listing became Unit 2 in the final listing (USFWS 1999a). Unit 2 in the proposed listing was the North Spoils area on the North Spit (USFWS 1995).

This area consisted of 13 acres of dredge spoils on BLM land near the boat ramp and entrance to the south dike road. USFWS dropped Unit 2 of the original proposed critical habitat listing because survey data shows the area lacks any recent use by plovers and it is small and isolated (USFWS 1999a).

EFFECTS OF THE PROPOSED ACTION

Western Snowy Plover

Direct Effects- Implementing the proposed management plan will have direct effects on the snowy plover. Closing the dry sand beach from the FAA tower to a point near the North Jetty (200 yards) to the general public, not allowing any vehicles on the ocean beach from south of the FAA tower to a point near the North Jetty (200 yards), implementing closures for the ocean beach north of the FAA tower and the bay beach if plovers do nest there, putting up rope and post fences south of FAA tower on the dry sand beach and inland as needed, closing the foredune road and other minor roads with blockades, and implementing a Federal Register notice that seasonally closes the inland plover areas would better protect nesting plovers from disturbance and give them a greater chance to nest successfully. Putting up management signs on the North Spit and providing updated information through news releases, bulletins and sign boards also should benefit the snowy plover by making the public more aware of areas they need to avoid and thereby result in better compliance with the closures. Making the public more aware of the plight of the snowy plover also may help build increased support for conserving the species.

Providing a law enforcement presence on the North Spit, including Coos County deputy weekend patrols (at least potentially), should result in better all around compliance with closures for key plover areas. Compliance monitoring patrols by BLM personnel or other agency employees in uniform also should improve compliance with seasonal closures on the beach and for inland areas. Overall there should be fewer violations than there would otherwise be without the patrols, since people would realize there is a definite agency presence and hence a greater chance of being caught if they enter a closed area. Additionally publishing a new Federal Register notice, that seasonally closes key plover areas, would provide law enforcement personnel with a more useful enforcement tool and make it much easier to issue citations to violators. Closure violations should decline as more violators are cited. Overall the net effect is that with fewer violations occurring plover nesting success should increase.

Rerouting the road around the inland snowy plover areas during the nesting season should significantly reduce any potential for disturbance that is associated with all types of traffic since it would all occur on the periphery of the plover areas instead of in between them as in past seasons. However some of the bulldozer work to construct road blockades could potentially generate noise disturbance to nesting snowy plovers.

Indirect Effects- There are many potential indirect effects associated with the proposed action. Providing continued public access to most federal lands on the North Spit to recreational uses means

that the public whether on foot, horseback or driving a vehicle, will have access much closer to key plover habitat areas on the beach and inland than they would if the access were not provided and hence more opportunity to violate closures in these areas and disrupt plover nesting activities. Providing improved beach access ramps for use by non-motorized recreational users and motor vehicle use also means that, during the nesting season people on foot, horseback or with pets could violate the dry sand closure on the beach south of the FAA tower and that people in motor vehicles could violate the ocean beach closure (wet and dry sand) along the same beach area. These types of violation could disrupt plover nesting, foraging, and brood rearing activities. Maintaining beach access ramps and allowing full beach access for all non-motorized recreational uses (except for dry sand south of FAA to within 200 yards of jetty) and partial beach access for street legal vehicles means that recreationists could potentially disturb plover wintering activities on the North Spit.

Allowing ATV use on the perimeter roads of the North Spit as per the CBSP and normal ACOE management means that these vehicles could violate the general prohibition against them on the ocean beach since beach ramps would be open and maintained. It also means they could potentially drive up over sand berms on the perimeter of the inland plover habitat areas and onto these areas as they are capable of doing this. Illegal use or entry by ATV's could disrupt plover nesting or wintering activities.

Given the continued presence of the stern section and the potential for salvage operations, public interest in getting out on the North Spit is expected to remain greater than it was for nesting seasons prior to the New Carissa incident. Many of the people now interested in visiting the North Spit would probably not have this interest if the New Carissa stern were not present or if there were no salvage operations. Increased visitor use on the North Spit translates into more potential for violations and conflicts with plover nesting attempts. Hopefully the key parts of the management plan such as law enforcement presence, the presence of uniformed agency personnel, the road reroute around inland plover areas, seasonal beach closures south of FAA to near the North Jetty, installing road blockades on the foredune road, putting up signs and rope fences and providing public information and education can offset the potential for negative impacts to the snowy plover

Work to complete the 1998 HRA project has some potential to disturb wintering snowy plovers on the adjacent 1994 HRA in the short term but should have multiple long term benefits for the species. Completing the conversion of this area to open sand dune habitat should provide more nesting and wintering habitat for the species over the long term. Hopefully this work would help to increase populations and thereby aid in the recovery of the species. At a minimum completing this project should reduce populations of plover predators as the conversion would eliminate habitat for these species. Previous habitat restoration projects on the North Spit have been used readily by snowy plovers after completion.

Ongoing habitat maintenance or potential enhancement actions such as disking the inland habitat areas, spraying herbicide to control European beachgrass, adding oyster shell hash, and fence maintenance also have the potential to disturb wintering snowy plovers. However the disturbance associated with

these activities is relatively short in duration. Also over the long term the habitat improvements and protection these actions provide is expected to more than offset the negative effects of short term disturbance.

Providing public access as per the proposed management actions creates a situation where disturbances in plover nesting areas are more likely to occur than if public access to most of the North Spit federal lands were not provided. However not providing public access would very likely result in considerably less public support for snowy plover management on the North Spit. This would ultimately prove to be more harmful to snowy plover conservation efforts over the long term.

Cumulative Effects- The Department of Interior and Department of Commerce jointly defined cumulative effects as those effects of future state or private activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (USDI and USDC 1986). State lands present within the action area include portions of the ocean beach and tidal areas on the bayside. There are no known actions on adjoining state lands that are reasonably certain to occur. Private landowners with holdings on the North Spit include Weyerhaeuser Company and Roseburg Resources. There has been much speculation about future industrial development on private lands on the North Spit. However at this point it would be inaccurate to say that any of these developments are reasonably certain to occur. There have been numerous proposals for new industrial development on the North Spit over many decades but very few have actually been implemented. Therefore there are no cumulative effects associated with the proposed action by BLM and ACOE.

Western Snowy Plover Designated Critical Habitat

Direct Effects- Work to complete the 1998 HRA, install some of the road blockades associated with the road reroute, fence maintenance work, and plover habitat maintenance and enhancement actions all have the potential to create short term disturbances to wintering snowy plovers. Hence these actions would be a direct effect to designated critical habitat since one of the factors considered in selecting critical habitat areas is habitats that are protected from disturbance (USFWS 1999a). However another selection criteria is habitats that are representative of the historic, geographic and ecological distributions of a species (USFWS 1999a). Actions undertaken on the North Spit to create, maintain or enhance plover habitat all serve to restore habitats that occurred here historically within the geographic range of the coastal population of snowy plovers. These actions also serve to provide the primary constituent elements of snowy plover critical habitat of foraging, nesting, rearing of young, roosting and dispersal. Overall the direct effects that are negative for snowy plovers, in all likelihood, would be offset greatly by the effects that are positive.

Indirect Effects- Management actions undertaken to improve beach access ramps, allow nonvehicular recreational activities on the ocean beach (especially the wet sand adjacent to the fenced dry sand area south of the FAA), permit motor vehicles on the ocean beach, and provide vehicle access around inland snowy plover areas all could result in indirect effects to designated

critical habitat. All these actions allow for public access near either plover habitat areas on the ocean beach or inland portions of the North Spit. The public would have the opportunity to violate closures and thereby compromise the ability of the plan to deliver on the intent of providing plover habitats that are protected from disturbance. This is especially true for the plover areas on the ocean beach as the Final Rule designating critical habitat for the snowy plover specifically mentioned projects or management activities that cause, induce, or increase human-associated disturbances on beaches including operation of off-road vehicles on the beach as the types of activity that could adversely affect designated critical habitat (USFWS 1999a).

Cumulative Effects- As for the western snowy plover and again given the definition of cumulative effects under ESA (USDI and USDC 1986), there are no cumulative effects for the proposed action.

BIOLOGICAL ASSESSMENT CONCLUSIONS

Implementation of the proposed management plan for federal lands on the North Spit by the BLM and ACOE would be a may affect, likely to adversely affect for the western snowy plover and may affect for western snowy plover designated critical habitat. Therefore we request formal consultation for the BLM and ACOE proposed 2000-2001 management plan for the North Spit.

LITERATURE CITED

- Bureau of Land Management. 1996. Closed/limited access restrictions on public land; Coos Bay District, Oregon. Federal Register 61(55):11427.
- Bureau of Land Management. 1999. Biological assessment for the management of federal lands on the North Spit of Coos Bay during the 1999 western snowy plover nesting season. Coos Bay District Office, Bureau of Land Management.
- Casler, B.R., C.E. Hallett, M.A. Stern and M. Platt. 1993. Snowy plover nesting and reproductive success along the Oregon coast - 1993. Unpublished report for the Oregon Department of Fish and Wildlife-Nongame Program, Portland and Coos Bay District Bureau of Land Management, Coos Bay and United States Forest Service- Oregon Dunes National Recreation Area, Reedsport.
- Castelein, K.A., D.J. Lauten, K.J. Popper, J.A. Fukuda and M.A. Stern. 2000. Snowy plover distribution and reproductive success along the Oregon coast- 1999. Unpublished report for the Oregon Department of Fish and Wildlife-Nongame Program, Portland and Coos Bay District Bureau of Land Management, North Bend and United States Forest Service- Oregon Dunes National Recreation Area, Reedsport and TMM Co., LTD and U.S. Fish and Wildlife Service, Newport

- Castelein, K.A., D.J. Lauten, R. Swift and M.A. Stern. 1997. Snowy plover distribution and reproductive success along the Oregon coast- 1997. Unpublished report for the Oregon Department of Fish and Wildlife-Nongame Program, Portland and Coos Bay District Bureau of Land Management, Coos Bay and United States Forest Service- Oregon Dunes National Recreation Area, Reedsport.
- Castelein, K.A., D.J. Lauten, R. Swift, M.A. Stern, and K.J. Popper. 1998. Snowy plover distribution and reproductive success along the Oregon coast- 1998. Unpublished report for the Oregon Department of Fish and Wildlife-Nongame Program, Portland and Coos Bay District Bureau of Land Management, Coos Bay and United States Forest Service- Oregon Dunes National Recreation Area, Reedsport.
- Craig, D.P., M.A. Stern, K.A. Mingo, D.M. Craig and G.A. Rosenberg. 1992. Reproductive ecology of the western snowy plover on the south coast of Oregon, 1992. Unpublished report for the Oregon Department of Fish and Wildlife-Nongame Program, Portland and the Coos Bay District Bureau of Land Management, Coos Bay.
- Estelle, V.B., C.E. Hallett, M.R. Fisher and M.A. Stern. 1997. Snowy plover distribution and reproductive success along the Oregon coast- 1996. Unpublished report for the Oregon Department of Fish and Wildlife-Nongame Program, Portland and Coos Bay District Bureau of Land Management, Coos Bay and United States Forest Service- Oregon Dunes National Recreation Area, Reedsport.
- Hallett, C.E., B.R. Casler, M.A. Stern, M. Platt and H. Voght. 1994. Snowy plover distribution and reproductive success along the Oregon coast - 1994. Unpublished report for the Oregon Department of Fish and Wildlife-Nongame Program, Portland and Coos Bay District Bureau of Land Management, Coos Bay and United States Forest Service- Oregon Dunes National Recreation Area, Reedsport.
- Hallett, C.E., B.R. Casler, M.A. Platt and M.A. Stern. 1995. Snowy plover distribution and reproductive success along the Oregon coast- 1995. Unpublished report for the Oregon Department of Fish and Wildlife-Nongame Program, Portland and Coos Bay District Bureau of Land Management, Coos Bay and United States Forest Service- Oregon Dunes National Recreation Area, Reedsport.
- Ruediger, R.A. 1988. Habitat management plan for the western snowy plover on Coos Bay North Spit, Oregon. U.S. Department of the Interior, Bureau of Land Management, Coos Bay, OR 15 pp.

- Stern, M.A., J.S. McIver, G.A. Rosenberg. 1990. Investigations of the western snowy plover at the Coos Bay North Spit and adjacent sites in Coos and Curry Counties, Oregon. 1990. Oregon Natural Heritage Program. Portland, Oregon.
- Stern, M.A., J.S. McIver, G.A. Rosenberg. 1991. Nesting and reproductive success of snowy plovers along the south Oregon coast, 1991. Unpublished report for the Oregon Department of Fish and Wildlife-Nongame Program, Portland and the Coos Bay District Bureau of Land Management, Coos Bay.
- Unified Command Decision Memo. February 1, 2000. Closure of federal removal actions, continued operations under state oversight. M/V New Carissa Grounding. North Spit, Coos Bay, OR.
- U.S. Department of the Interior, Bureau of Land Management. 1995. Coos Bay Shorelands Final Management Plan. 26 pp.
- U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, National Oceanic and Atmospheric Administration. 1986. Interagency cooperation- endangered species act of 1973, as amended; final rule. Federal Register 51 (106):19926-19963.
- U.S. Fish and Wildlife Service. 1993. Endangered and threatened wildlife and plants; determination of threatened status for the Pacific coast population of the western snowy plover; final rule. Federal Register 58(42): pp 12864-12874.
- U.S. Fish and Wildlife Service. 1995. Endangered and threatened wildlife and plants; designation of critical habitat for the Pacific coast population of the western snowy plover; proposed rule. Federal Register 60 (41):11768-11809.
- U.S. Fish and Wildlife Service. 1999a. Endangered and threatened wildlife and plants; designation of critical habitat for the Pacific coast population of the western snowy plover; final rule. Federal Register 60 (234):68507-68544.
- U.S. Fish and Wildlife Service. 1999b. Biological and Conference Opinion for management of Federal lands on the north spit of Coos Bay for the remainder of the 1999 western snowy plover nesting season. Oregon State Office, Portland, Oregon. 22 pp.
- Wilson-Jacobs, R and G.L. Dorsey. 1985. Snowy plover use of Coos Bay North Spit, Oregon. The Murrelet 66:75-81.
- Wilson-Jacobs, R and E.C. Meslow. 1983. Distribution, abundance, and nesting characteristics of snowy plovers on the Oregon coast. Northwest Science 58(1):40-48.

