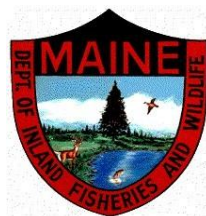


Recommended Land Use Guidelines in Shorebird Feeding and Roosting Areas



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Shorebird species include the members of the families Scolopacidae, Charadriidae, and Haematodidae, including sandpipers, plovers, etc. A complete list of species using shorebird feeding and roosting areas is found in Appendix I.

Shorebird feeding and roosting areas include a diverse array of habitats such as inland freshwater wetlands, riverine systems, grasslands, and coastal intertidal areas. Maine Department of Inland Fisheries and Wildlife [IF&W or MDIFW] survey efforts have focused on coastal habitats.

Staging areas provide migrating shorebirds with the food resources required to acquire the large fat reserves necessary to fuel their transoceanic migration to wintering areas. Shorebird staging habitats include both feeding areas where shorebirds congregate to feed and roosting areas used by shorebirds to rest during high water when feeding areas are unavailable.

Definitions of Shorebird Coastal Feeding and Roosting Areas

[Department of Environmental Protection Rules, Chapter 335]

Shorebird coastal feeding areas are defined as areas of intertidal unconsolidated shore, with a cobble, gravel, sand, or mud substrate, exposed between minimum low water and maximum high water. Shorebird feeding areas also include intertidal emergent wetland [e.g., saltmarsh] delineated by the surrounding upland boundary.

Shorebird roosting areas are defined as sand, gravel, and cobble beaches, rock ledges and outcroppings, boulders, and saltmarsh exposed at high tide. Roosting habitats must have minimal human and animal disturbance.

Procedures for Identifying Shorebird Habitats

[Department of Environmental Protection Rules, Chapter 335]

A site qualifies as significant shorebird habitat if either of the following criteria is met:

1. **Number of observations:** The mean number of shorebird observations since 1987 for the site is 10% or more of the total mean number of shorebirds surveyed in that particular shorebird survey unit [the coastline is divided into 7 shorebird survey units from Kittery to Calais(Appendix II)]: and/or
2. **Number of shorebirds:** The mean number of shorebirds for a single species since 1987 at a site is 10% or more of the overall or total mean number observed of that species in the encompassing shorebird survey unit.

Shorebird occurrence data is from the current IF&W database as described in procedures created December 22, 1993 and updated September 1, 2005. It includes all shorebird observations collected from 1987 to the present, during their southward migration starting in July and ending in November. As new data is entered, the mean of the observations is recalculated. Feeding and roosting areas are analyzed separately. The IF&W rating procedure and database information are available at IF&W offices and online at www.mefishwildlife.com.

Shorebird nesting, feeding, and staging areas and a zone surrounding those areas, are significant wildlife habitats. The zone surrounding a shorebird feeding area is 100 feet wide, and is referred to as “the feeding buffer”. The zone surrounding a shorebird roosting area is 250 feet wide and is referred to as “the roosting buffer” under the Natural Resources Protection Act [38 M.R.S.A.].

See also:

Issue Profile: Migratory Shorebird Use of the Maine Coast for more information on shorebird use of the Maine coast.

Issue Profile: Docks and Piers in Shorebird Feeding and Roosting Areas for a discussion of issues associated with placement of docks and piers in shorebird feeding and roosting areas identified as Significant Wildlife Habitat under Maine’s Natural Resources Protection Act.

Recommended Land Use Guidelines in Shorebird Feeding and Roosting Areas

For the purpose of these guidelines:

Upland edge of the Shorebird Feeding Area [SFA] is defined as the extreme high water mark.

Upland edge of the Shorebird Roosting Area [SRA] is defined as the inland [landward] edge of the roost site.

Recommended land use guidelines in shorebird feeding and roosting areas are presented in Table 1, which is organized into two parts:

Activities regulated under the Natural Resources Protection Act: Recommendations should be considered by the project review agency as a means to avoid or ameliorate anticipated negative effects on Shorebird Feeding and Roosting Areas. These recommendations may be used as the basis for permit modification or denial.

Activities not regulated under the Natural Resources Protection Act: A number of activities do not require permits under the Natural Resources Protection Act, such as driving vehicles onto mudflats, an activity that can be disruptive to shorebirds and should be avoided. Recommendations are offered for serious consideration as a means to avoid or ameliorate anticipated negative effects on Shorebird Feeding and Roosting Areas or as a means to harmoniously integrate planned activities with the surrounding shorebird habitat.

Table 1. Recommended Land Use Guidelines in Shorebird Feeding and Roosting Areas		
Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
Land Use Activities Regulated under the Natural Resources Protection Act		
Forest management activities except for timber harvesting and land management roads	Consult with IF&W regarding the application of herbicides and pesticides. IF&W has concerns about the application of herbicides and pesticides within 75 feet of the upland edge of a SFA and the potential for impacts to the invertebrate food base that shorebirds depend on. Shorebirds have a high metabolic rate, accumulating fat and burning it off quickly, and are highly susceptible to toxics, considered by some to impair navigational abilities.	Consult with IF&W regarding the application of herbicides and pesticides. IF&W has concerns about the disturbance associated with the activity of chemical applications and potential change of existing vegetative buffer within 75 feet of upland edge of SRA.
Clearing or removal of vegetation for activities other than timber harvesting	<p>Clearing or removal of vegetation within 100 feet horizontal distance from the upland edge of a SFA is prohibited except for:</p> <ol style="list-style-type: none"> 1. Cutting or removal of vegetation that meets the vegetative screening standards set forth in Title 38, section 439-A, subsection 6, and shall be no less restrictive than the following: <ol style="list-style-type: none"> a. Within a strip extending 100 feet horizontal distance from the upland edge of the SFA, there shall be no cleared opening or openings, except for approved construction, and a well-distributed stand of vegetation shall be retained; and b. Selective cutting of no more than 40% of the trees 4 inches or more in diameter, measured at 4 ½ feet above ground level, is allowed in any 10-year period, provided that a well-distributed stand of trees and other natural vegetation remains.; and c. In no event shall cleared openings for any purpose, including but not limited to, principal and accessory structures, driveways, lawns and sewage disposal areas, exceed in the aggregate, 25% 	<p>Clearing or removal of vegetation within 250 feet horizontal distance from the upland edge of a SRA is prohibited except for:</p> <ol style="list-style-type: none"> 1. Removal of a safety hazard; 2. Cutting or removal of vegetation to allow for a meandering footpath not to exceed 6 feet in width as measured between tree trunks and/or shrub stems provided that a cleared line of sight to the water is not created. 3. Cutting or removal of vegetation determined to be necessary in order to conduct other activities approved in this zone, shall be limited to that which is absolutely necessary. 4. Cutting or removal of vegetation for purposes of creating a view shall be prohibited unless IF&W determines there will be no unreasonable impact on the SRA. 5. No mechanized clearing or removal of vegetation involving the use of chainsaws, skidders, etc. shall occur from July 15 through September 15.

Table 1. Recommended Land Use Guidelines in Shorebird Feeding and Roosting Areas		
Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
	<p>of the lot area within the shoreland zone or 10,000 square feet, whichever is greater, including land previously cleared.</p> <p>2. If mechanized clearing or removal of vegetation involving the use of chainsaws, skidders, and etc. is to occur from July 15 through September 15, IF&W consultation is required to minimize disturbance to the SFA to the greatest extent possible.</p>	
Principal structures and uses: Single Family	<p>1. No principal structures [1 and 2 family residential] shall occur within 100 feet horizontal distance of the upland edge of a SFA.</p> <p>2. If a principal structure cannot be avoided, the structure shall be located as far back as possible within 100 feet horizontal distance of the upland edge of the SFA but no closer than 75 feet horizontal distance of the upland edge of the SFA.</p> <p>3. If construction of principal or accessory structures and expansions of existing structures are to occur from July 15 through September 15, IF&W consultation is required to minimize impacts to the SFA to the greatest extent possible.</p> <p>4. Principal or accessory structures and expansions of existing structures shall not exceed 35 feet in height.</p> <p>5. The total footprint area of all structures, parking lots, and other non-vegetated surfaces within 100 feet horizontal distance of the upland edge of the SFA shall not exceed 20 percent of the lot or a portion thereof, including land area previously developed.</p> <p>6. Retaining walls that are not necessary for erosion control shall meet the structure setback requirement, except for low retaining walls and associated fill provided all of the following conditions are met:</p> <p>a. The site has been previously</p>	<p>1. No principal structures [1 and 2 family residential] shall occur within 250 feet horizontal distance of the upland edge of a SRA.</p> <p>2. If a principal structure cannot be avoided, the structure shall be located as far back as possible within 250 feet horizontal distance of the upland edge of the SRA but no closer than 75 feet horizontal distance of the upland edge of the SRA.</p> <p>3. Construction of principal or accessory structures and expansions of existing structures shall not occur in an SRA from July 15 through September 15.</p> <p>4. Principal or accessory structures and expansions of existing structures shall not exceed 35 feet in height.</p> <p>5. The total footprint area of all structures, parking lots, and other non-vegetated surfaces within 250 feet horizontal distance of the upland edge of a SRA shall not exceed 20 percent of the lot or a portion thereof, including land area previously developed.</p> <p>6. Retaining walls that are not necessary for erosion control shall meet the structure setback requirement, except for low retaining walls and associated fill provided all of the following conditions are met:</p> <p>a. The site has been previously altered and an effective vegetated buffer does not exist;</p>

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Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
	<p>altered and an effective vegetated buffer does not exist;</p> <p>b. The wall[s] is[are] at least 25 feet, horizontal distance, from the normal high-water line of a water body, tributary stream, or upland edge of a wetland;</p> <p>c. The site where the retaining wall will be constructed is legally existing lawn or is a site eroding from lack of naturally occurring vegetation, and which cannot be stabilized with vegetative plantings;</p> <p>d. The total height of the wall[s], in the aggregate, are no more than 24 inches;</p> <p>e. Retaining walls are located outside of the 100-year floodplain on rivers, streams, coastal wetlands, and tributary streams, as designated on the Federal Emergency Management Agency's [FEMA] Flood Insurance Rate Maps or Flood Hazard Boundary Maps, or the flood of record, or in the absence of these, by soil types identified as recent flood plain soils.</p> <p>f. The area behind the wall is revegetated with grass, shrubs, trees, or a combination thereof, and no further structural development will occur within the setback area, including patios and decks; and</p> <p>g. A vegetated buffer area is established within 25 feet, horizontal distance, of the normal high-water line of a water body, tributary stream, or upland edge of a wetland when a natural buffer area does not exist. The buffer area must meet the following characteristics:</p> <p>i. The buffer must include</p>	<p>b. The wall[s] is(are) at least 25 feet, horizontal distance, from the normal high-water line of a water body, tributary stream, or upland edge of a wetland;</p> <p>c. The site where the retaining wall will be constructed is legally existing lawn or is a site eroding from lack of naturally occurring vegetation, and which cannot be stabilized with vegetative plantings;</p> <p>d. The total height of the wall[s], in the aggregate, are no more than 24 inches;</p> <p>e. Retaining walls are located outside of the 100-year floodplain on rivers, streams, coastal wetlands, and tributary streams, as designated on the Federal Emergency Management Agency's [FEMA] Flood Insurance Rate Maps or Flood Hazard Boundary Maps, or the flood of record, or in the absence of these, by soil types identified as recent flood plain soils; and</p> <p>f. The area behind the wall is revegetated with grass, shrubs, trees, or a combination thereof, and no further structural development will occur within the setback area, including patios and decks.</p> <p>7. No stairways or similar structures shall occur within the 250 foot buffer. If access is limited and cannot avoid the 250 foot buffer IFW consultation is required to minimize disturbance to the SRA.</p>

Table 1. Recommended Land Use Guidelines in Shorebird Feeding and Roosting Areas		
Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
	<p>native shrubs and other woody and herbaceous vegetation. Where natural ground cover is lacking the area must be supplemented with leaf or bark mulch;</p> <p>ii. Vegetation plantings must be in quantities sufficient to retard erosion and provide for effective infiltration of storm water runoff;</p> <p>iii. Only native species may be used to establish the buffer area;</p> <p>iv. A minimum buffer width of 15 feet, horizontal distance, is required, measured perpendicularly to the normal high-water line or upland edge of a wetland;</p> <p>v. A footpath not to exceed 6 feet in width as measured between tree trunks and/or shrub stems may traverse the buffer provided that a cleared line of sight to the water through the buffer strip is not created.</p> <p>7. Notwithstanding the requirements stated above, stairways or similar structures may be allowed to provide shoreline access in areas of steep slopes or unstable soils provided: that the structure is limited to a maximum of 4 feet in width; that the structure does not extend below or over the normal high-water line of a water body or upland edge of a wetland, [unless permitted by the Department of Environmental Protection pursuant to the Natural Resources Protection Act, 38 M.R.S.A. section 480-C]; and that the applicant demonstrates that no reasonable access alternative exists on the property.</p>	

Table 1. Recommended Land Use Guidelines in Shorebird Feeding and Roosting Areas		
Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
Principal structures and uses: multi-unit residential, commercial, industrial, government and institutional	No principal structures (multi-unit residential, commercial, industrial, government and institutional) shall occur within 100 feet horizontal distance of the upland edge of a SFA.	No principal structures (multi-unit residential, commercial, industrial, government and institutional) shall occur within 250 feet horizontal distance of the upland edge of a SRA.
Structures accessory to allowed uses	<ol style="list-style-type: none"> 1. No structures accessory to allowed uses shall occur within 100 feet horizontal distance of the upland edge of a SFA. 2. If the activity cannot be avoided, structures shall be located as far back as possible within 100 feet horizontal distance of the upland edge of the SFA but no closer than 75 feet horizontal distance of the upland edge of the SFA. 3. If the activity cannot be avoided and construction is to occur from July 15 through September 15, IF&W consultation is required to minimize impacts to the SFA to the greatest extent possible. 	<ol style="list-style-type: none"> 1. No structures accessory to allowed uses shall occur within 250 feet horizontal distance of the upland edge of the SRA. 2. If the activity cannot be avoided, structures shall be located as far back as possible within 250 feet horizontal distance of the upland edge of the SRA but no closer than 75 feet horizontal distance of the upland edge of the SRA. 3. No construction shall occur in an SRA from July 15 through September 15. 4. A structure accessory to an allowed use within 250 feet horizontal distance of the upland edge of a SRA shall be no closer to the upland edge of the SRA than the structure that it is accessory to.
Conversions of existing seasonal residences to year-round residences	If exterior construction activity is to occur from July 15 through September 15, IF&W consultation is required to minimize impacts to the SFA to the greatest extent possible.	No exterior construction activity shall occur from July 15 through September 15.
Private sewage disposal systems for allowed uses	<ol style="list-style-type: none"> 1. All subsurface sewage disposal systems shall be installed in conformance with the State of Maine Subsurface Wastewater Disposal Rules, and the following: <ol style="list-style-type: none"> a. Clearing or removal of woody vegetation necessary to site a new system and any associated fill extensions, shall not extend closer than 75 feet, horizontal distance, from the edge of the SFA, and b. A holding tank is not allowed for a first-time residential use in the shoreland zone. <p>NOTE: The Maine Subsurface Wastewater Disposal Rules require new systems, excluding fill extensions, to be constructed no less than 100 horizontal feet from the normal high-water line of a perennial</p>	<ol style="list-style-type: none"> 1. No private sewage disposal systems for allowed uses shall occur within 250 feet horizontal distance of the upland edge of a SRA. 2. If the activity cannot be avoided, it shall be located as far back as possible within 250 feet horizontal distance of the upland edge of the SRA but no closer than 75 feet horizontal distance of the upland edge of the SRA, and no activity shall occur from July 15 through September 15. 3. All subsurface sewage disposal systems shall be installed in conformance with the State of Maine Subsurface Wastewater Disposal Rules, and the following: <ol style="list-style-type: none"> a. Clearing or removal of woody vegetation necessary to site a new system and any

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Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
	<p>water body.</p> <p>2. If activity is to occur from July 15 through September 15, IF&W consultation is required to minimize impacts to the SFA to the greatest extent possible.</p>	<p>associated fill extensions, shall not extend closer than 75 feet, horizontal distance, from the edge of the SRA, and</p> <p>b. A holding tank is not allowed for a first-time residential use in the shoreland zone.</p> <p>NOTE: The Maine Subsurface Wastewater Disposal Rules require new systems, excluding fill extensions, to be constructed no less than 100 horizontal feet from the normal high-water line of a perennial water body.</p>
Mineral exploration and extraction including sand and gravel extraction	No mineral exploration and extraction, including sand and gravel extraction, shall occur within 100 feet horizontal distance of the upland edge of a SFA.	No mineral exploration and extraction, including sand and gravel extraction, shall occur within 250 feet horizontal distance of the upland edge of a SRA.
Shoreline stabilization projects, rip rap, retaining walls, etc.	<p>1. There shall be no activity within a SFA unless there is clear indication that the project is necessary for erosion control.</p> <p>2. If the activity cannot be avoided and is to occur from July 15 through September 15, IF&W consultation is required to minimize impacts to the SFA to the greatest extent possible.</p> <p>3. A vegetated buffer consisting of native shrubs shall be established at the top of the proposed stabilization area and grasses and shrubs established within voids of the stone.</p>	<p>1. There shall be no activity within a SRA unless there is clear indication that the project is necessary for erosion control.</p> <p>2. If the activity cannot be avoided, no construction shall occur in the SRA from July 15 through September 15.</p> <p>3. A vegetated buffer consisting of native shrubs shall be established at the top of the proposed stabilization area and grasses and shrubs established within voids of the stone.</p>
Piers, docks, wharfs, bridges and other structures and uses extending over or below the normal high-water line or within a wetland	<p>1. There shall be no activity within a SFA.</p> <p>2. If the activity cannot be avoided, consult with IF&W to minimize impacts to the SFA to the greatest extent possible. See <i>Roosting & Feeding Habitat: Guidelines for Assessing Habitat Impact [Updated August, 20, 2008]</i> and <i>Roosting and Feeding Habitat: Guidelines for Assessing Habitat Significance [Updated August 20, 2008]</i>.</p>	<p>1. There shall be no activity within a SRA.</p> <p>2. If the activity cannot be avoided, consult with IF&W to minimize impacts to the SRA to the greatest extent possible. See <i>Roosting & Feeding Habitat: Guidelines for Assessing Habitat Impact [Updated August, 20, 2008]</i> and <i>Roosting and Feeding Habitat: Guidelines for Assessing Habitat Significance [Updated August 20, 2008]</i>.</p>
Essential services [gas, electrical, or communication facilities, transmission or distribution lines and related	<p>1. Where feasible, the installation of essential services shall be limited to existing public ways and existing service corridors.</p> <p>2. The installation of essential</p>	<p>1. Where feasible, the installation of essential services shall be limited to existing public ways and existing service corridors.</p> <p>2. The installation of essential</p>

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Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
equipment]	<p>services, other than road-side distribution lines, is not allowed within 100 feet of the edge of a SFA except to provide services to a permitted use within said zone, or except where the applicant demonstrates that no reasonable alternative exists. Where allowed, such structures and facilities shall be located so as to minimize any adverse impacts on surrounding resources.</p> <p>3. Where allowed and essential services other than road-side distribution lines are to be installed from July 15 through September 15, IF&W consultation is required to minimize impacts to the SFA to the greatest extent possible.</p>	<p>services, other than road-side distribution lines, is not allowed within 250 feet of the edge of a SRA except to provide services to a permitted use within said zone, or except where the applicant demonstrates that no reasonable alternative exists. Where allowed, such structures and facilities shall be located so as to minimize any adverse impacts on surrounding resources.</p> <p>3. Where allowed, essential services other than road-side distribution lines shall not be installed from July 15 through September 15.</p>
Campgrounds	There shall be no campgrounds within 100 feet horizontal distance of the edge of a SFA.	There shall be no campgrounds within 250 feet horizontal distance of the edge of a SRA.
Road Construction	<p>1. There shall be no road construction within 100 feet horizontal distance of the upland edge of a SFA except that a road or driveway may be allowed to provide access to a permitted use within the zone.</p> <p>2. A road or driveway may also be allowed upon a finding that no reasonable alternative route or location is available outside the zone.</p> <p>3. When a road or driveway is permitted, it shall be set back as far as practicable from the edge of the SFA.</p> <p>4. When a road or driveway is permitted and construction is to occur from July 15 through September 15, IF&W consultation is required to minimize impacts to the SFA to the greatest extent possible.</p>	<p>1. There shall be no road construction within 250 feet horizontal distance of the edge of a SRA except that a road or driveway may be allowed to provide access to a permitted use within the zone.</p> <p>2. A road or driveway may also be allowed upon a finding that no reasonable alternative route or location is available outside the zone.</p> <p>3. When a road or driveway is permitted, it shall be set back as far as practicable from the edge of the SRA.</p> <p>4. When a road or driveway is permitted, no construction shall occur from July 15 through September 15.</p>
Land Management Roads	<p>1. If construction of land management roads within 100 feet horizontal distance of the upland edge of a SFA is to occur from July 15 through September 15 IF&W consultation is required to minimize impacts to the SFA to</p>	<p>1. There shall be no construction of land management roads within 250 feet horizontal distance of the upland edge of a SRA.</p> <p>2. Land management roads may be allowed upon a finding that no reasonable alternative route or</p>

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Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
	<p>the greatest extent possible.</p> <ol style="list-style-type: none"> Land management roads, including approaches to crossings of water bodies, tributary stream channels, and freshwater wetlands, ditches and other related structures, must be designed, constructed, and maintained to prevent sediment and concentrated water runoff from directly entering the water body, tributary stream or wetland. Surface water on or adjacent to water crossing approaches must be diverted through vegetative filter strips to avoid sedimentation of the watercourse or wetland. Land management roads and associated ditches, excavation, and fill must be set back at least 100 feet horizontal distance from the upland edge of a SFA. 	<p>location is available outside the zone. If that is the case, construction of land management roads shall not occur from July 15 through September 15.</p> <ol style="list-style-type: none"> Land management roads, including approaches to crossings of water bodies, tributary stream channels, and freshwater wetlands, ditches and other related structures, must be designed, constructed, and maintained to prevent sediment and concentrated water runoff from directly entering the water body, tributary stream or wetland. Surface water on or adjacent to water crossing approaches must be diverted through vegetative filter strips to avoid sedimentation of the watercourse or wetland. Land management roads and associated ditches, excavation, and fill must be set back at least 100 feet horizontal distance from the upland edge of a SRA.
Parking Facilities	<ol style="list-style-type: none"> There shall be no parking facilities within 100 horizontal distance of the edge of a SFA. If the activity cannot be avoided and the activity is to occur from July 15 through September 15, IF&W consultation is required to minimize impacts to the SFA to the greatest extent possible. If the activity cannot be avoided, parking facilities shall be located as far back as possible within 100 feet horizontal distance of the edge of the SFA but no closer than 75 feet horizontal distance of the upland edge of the SFA. A vegetated buffer shall be established within 25 feet horizontal distance of the normal high-water line with a minimum buffer width of 15 feet. 	There shall be no parking facilities within 250 horizontal distance of the edge of a SRA.
Marinas	<ol style="list-style-type: none"> There shall be no marinas within a SFA. If the activity cannot be avoided, IF&W consultation is required to minimize impacts to the SFA to the greatest extent possible. 	There shall be no marinas within a SRA.

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Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
Filling and earth moving of < 10 cubic yards	If activity is to occur from July 15 through September 15, IF&W consultation is required to minimize impacts to the SFA to the greatest extent possible.	If activity is to occur from July 15 through September 15, IF&W consultation is required to minimize impacts to the SRA to the greatest extent possible.
Filling and earth moving of > 10 cubic yards	If activity is to occur from July 15 through September 15, IF&W consultation is required to minimize impacts to the SFA to the greatest extent possible.	If activity is to occur from July 15 through September 15, IF&W consultation is required to minimize impacts to the SRA to the greatest extent possible.
Land Use Activities Not Regulated under the Natural Resources Protection Act		
Timber Harvesting	<ol style="list-style-type: none"> 1. If timber harvesting is to occur from July 15 through September 15, IF&W consultation is recommended to minimize impacts to the SFA to the greatest extent possible. 2. Selective cutting of no more than 40 percent of the total volume of trees four 4 inches or more in diameter measured at 4 1/2 feet above ground level on any lot in any 10 year period is recommended. In addition: <ol style="list-style-type: none"> a. Within 75 feet horizontal distance of the upland edge of a SFA, there shall be no clearcut openings and a well-distributed stand of trees and other vegetation, including existing ground cover, shall be maintained. b. At distances greater than 75 feet horizontal distance of the upland edge of a SFA, harvesting operations shall not create single clearcut openings greater than 10,000 square feet in the forest canopy. Where such openings exceed 5,000 square feet they shall be at least 100 feet, horizontal distance, apart. Such clearcut openings shall be included in the calculation of total volume removal. Volume may be considered to be equivalent to basal area. 	<ol style="list-style-type: none"> 1. No timber harvesting within 250 feet horizontal distance of the upland edge of a SRA is recommended from July 15 through September 15. 2. Within the strip of land extending 75 feet horizontal distance from the upland edge of a SRA, timber harvesting may be conducted from September 16 through July 14 when the following conditions are met: <ol style="list-style-type: none"> a. There is no resultant soil disturbance; b. The removal of trees is accomplished using a cable or boom and there is no entry of tracked or wheeled vehicles into the 75-foot strip of land; c. There is no cutting of trees less than 6 inches in diameter; no more than 30% of the trees 6 inches or more in diameter, measured at 4 1/2 feet above ground level, are cut in any 10-year period; and a well-distributed stand of trees and other natural vegetation remains; and d. A licensed professional forester has marked the trees to be harvested prior to a permit being issued by the municipality. 3. Beyond the 75 foot strip referred to above, timber harvesting is permitted from September 16

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Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
	<ol style="list-style-type: none"> 3. Timber harvesting operations exceeding the 40% limitation above, could be allowed upon a clear showing, including a forest management plan signed by a Maine licensed professional forester, that such an exception is necessary for good forest management. 4. No accumulation of slash shall be left within 50 feet, horizontal distance of the normal high-water line of a water body. 5. Timber harvesting equipment shall not use stream channels as travel routes except when: <ol style="list-style-type: none"> a. Surface waters are frozen; and b. The activity will not result in any ground disturbance. 6. All crossings of flowing water shall require a bridge or culvert, except in areas with low banks and channel beds which are composed of gravel, rock or similar hard surface which would not be eroded or otherwise damaged. 7. Skid trail approaches to water crossings shall be located and designed so as to prevent water runoff from directly entering the water body or tributary stream. Upon completion of timber harvesting, temporary bridges and culverts shall be removed and areas of exposed soil revegetated. 8. Except for water crossings, skid trails and other sites where the operation of machinery used in timber harvesting results in the exposure of mineral soil shall be located such that an unscarified strip of vegetation of at least 75 feet, horizontal distance, in width for slopes up to 10 percent shall be retained between the exposed mineral soil and the normal high-water line of a water body or upland edge of a wetland. For each 10 percent increase in slope, the unscarified strip shall 	<p>through July 14 in accordance with items 2 through 8 for SFAs except that in no case shall the average residual basal area of trees over 4 ½ inches in diameter at 4 1/2 feet above ground level be reduced to less than 30 square feet per acre.</p>

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Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
	be increased by 20 feet, horizontal distance. The provisions of this paragraph apply only to a face sloping toward the SFA, provided, however, that no portion of such exposed mineral soil on a back face shall be closer than 25 feet, horizontal distance, from the SFA.	
Wildlife management practices	IF&W consultation is recommended.	IF&W consultation is recommended.
Soil and water conservation practices	<ol style="list-style-type: none"> 1. If any activity is to occur from July 15 through September 15, IF&W consultation is recommended to minimize impacts to the SFA to the greatest extent possible. 2. All activities which involve filling, grading, excavation or other similar activities which result in unstabilized soil conditions and which require a permit shall also require a written soil erosion and sedimentation control plan. The plan shall be submitted to the permitting authority for approval and shall include, where applicable, provisions for: <ol style="list-style-type: none"> a. Mulching and revegetation of disturbed soil. b. Temporary runoff control features such as hay bales, silt fencing or diversion ditches. c. Permanent stabilization structures such as retaining walls or rip-rap. 3. In order to create the least potential for erosion, development shall be designed to fit with the topography and soils of the site. Areas of steep slopes where high cuts and fills may be required shall be avoided wherever possible, and natural contours shall be followed as closely as possible. 4. Erosion and sedimentation control measures shall apply to all aspects of the proposed project involving land disturbance, and shall be in operation during all stages of the activity. The amount of exposed soil at every phase of 	<ol style="list-style-type: none"> 1. No activity within 250 feet horizontal distance of the upland edge of a SRA is recommended from July 15 through September 15 without prior consultation with IF&W. 2. All activities which involve filling, grading, excavation or other similar activities which result in unstabilized soil conditions and which require a permit shall also require a written soil erosion and sedimentation control plan. The plan shall be submitted to the permitting authority for approval and shall include, where applicable, provisions for: <ol style="list-style-type: none"> a. Mulching and revegetation of disturbed soil. b. Temporary runoff control features such as hay bales, silt fencing or diversion ditches. c. Permanent stabilization structures such as retaining walls or rip-rap. 3. In order to create the least potential for erosion, development shall be designed to fit with the topography and soils of the site. Areas of steep slopes where high cuts and fills may be required shall be avoided wherever possible, and natural contours shall be followed as closely as possible. 4. Erosion and sedimentation control measures shall apply to all aspects of the proposed project involving land disturbance, and shall be in operation during all stages of the activity. The amount

Table 1. Recommended Land Use Guidelines in Shorebird Feeding and Roosting Areas

Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
	<p>construction shall be minimized to reduce the potential for erosion.</p> <p>5. Any exposed ground area shall be temporarily or permanently stabilized within 1 week from the time it was last actively worked, by use of riprap, sod, seed, and mulch, or other effective measures. In all cases permanent stabilization shall occur within 9 months of the initial date of exposure. In addition:</p> <p>a. Where mulch is used, it shall be applied at a rate of at least 1 bale per 500 square feet and shall be maintained until a catch of vegetation is established.</p> <p>b. Anchoring the mulch with netting, peg and twine or other suitable method may be required to maintain the mulch cover.</p> <p>c. Additional measures shall be taken where necessary in order to avoid siltation into the water. Such measures may include the use of staked hay bales and/or silt fences.</p> <p>6. Natural and man-made drainage ways and drainage outlets shall be protected from erosion from water flowing through them. Drainageways shall be designed and constructed in order to carry water from a 25 year storm or greater, and shall be stabilized with vegetation or lined with riprap.</p> <p>7. All land uses shall be located on soils in or upon which the proposed uses or structures can be established or maintained without causing adverse environmental impacts, including severe erosion, mass soil movement, improper drainage, and water pollution, whether during or after construction.</p> <p>8. No activity shall deposit on or into the ground or discharge to the waters of the State any pollutant that, by itself or in combination</p>	<p>of exposed soil at every phase of construction shall be minimized to reduce the potential for erosion.</p> <p>5. Any exposed ground area shall be temporarily or permanently stabilized within 1 week from the time it was last actively worked, by use of riprap, sod, seed, and mulch, or other effective measures. In all cases permanent stabilization shall occur within 9 months of the initial date of exposure. In addition:</p> <p>a. Where mulch is used, it shall be applied at a rate of at least 1 bale per 500 square feet and shall be maintained until a catch of vegetation is established.</p> <p>b. Anchoring the mulch with netting, peg and twine or other suitable method may be required to maintain the mulch cover.</p> <p>c. Additional measures shall be taken where necessary in order to avoid siltation into the water. Such measures may include the use of staked hay bales and/or silt fences.</p> <p>6. Natural and man-made drainage ways and drainage outlets shall be protected from erosion from water flowing through them. Drainageways shall be designed and constructed in order to carry water from a 25 year storm or greater, and shall be stabilized with vegetation or lined with riprap.</p> <p>7. All land uses shall be located on soils in or upon which the proposed uses or structures can be established or maintained without causing adverse environmental impacts, including severe erosion, mass soil movement, improper drainage, and water pollution, whether during or after construction.</p> <p>8. No activity shall deposit on or into the ground or discharge to the waters of the State any pollutant</p>

Table 1. Recommended Land Use Guidelines in Shorebird Feeding and Roosting Areas		
Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
	with other activities or substances, will impair designated uses or the water classification of the water body, tributary stream or wetland.	that, by itself or in combination with other activities or substances, will impair designated uses or the water classification of the water body, tributary stream or wetland.
Aquaculture	IF&W consultation with the Department of Marine Resources is recommended.	IF&W Consultation with the Department of Marine Resources is recommended.
Agriculture	<ol style="list-style-type: none"> 1. All spreading of manure shall be accomplished in conformance with the Manure Utilization Guidelines published by the Maine Department of Agriculture on November 1, 2001, and the Nutrient Management Law [7 M.R.S.A. sections 4201-4209]. 2. Manure shall not be stored or stockpiled within 75 feet horizontal distance of the upland edge of a SFA. All manure storage areas within 250 feet horizontal distance of the upland edge of a SFA shall be constructed or modified such that the facility produces no discharge of effluent or contaminated storm water. 3. Agricultural activities involving tillage of soil greater than 40,000 square feet in surface area within 250 feet horizontal distance of the upland edge of a SFA shall require a Conservation Plan. 4. There shall be no new tilling of soil within 75 feet horizontal distance of the upland edge of a SFA. 5. Newly established livestock grazing areas shall not be permitted within 75 feet horizontal distance of the upland edge of a SFA. Livestock grazing associated with ongoing farm activities, and which are not in conformance with the above setback provisions may continue, provided that such grazing is conducted in accordance with a Conservation Plan. 	<ol style="list-style-type: none"> 1. All spreading of manure shall be accomplished in conformance with the Manure Utilization Guidelines published by the Maine Department of Agriculture on November 1, 2001, and the Nutrient Management Law [7 M.R.S.A. sections 4201-4209]. 2. Manure shall not be stored or stockpiled within 75 feet horizontal distance of the upland edge of a SRA. All manure storage areas within 250 feet horizontal distance of the upland edge of a SRA shall be constructed or modified such that the facility produces no discharge of effluent or contaminated storm water. 3. Agricultural activities involving tillage of soil greater than 40,000 square feet in surface area within 250 feet horizontal distance of the upland edge of a SRA shall require a Conservation Plan. 4. There should be no new tilling of soil within 75 feet horizontal distance of the upland edge of a SRA. 5. Newly established livestock grazing areas shall not be permitted within 75 feet horizontal distance of the upland edge of a SRA. Livestock grazing associated with ongoing farm activities, and which are not in conformance with the above setback provisions may continue, provided that such grazing is conducted in accordance with a Conservation Plan.
Service drops, as defined, to allowed uses	Yes	Yes
Public and private	IF&W consultation is recommended.	IF&W consultation recommended.

Table 1. Recommended Land Use Guidelines in Shorebird Feeding and Roosting Areas		
Land Use	Shorebird Feeding Area [SFA]	Shorebird Roosting Area [SRA]
recreational areas involving minimal structural development		
Individual, private campsites	<p>Individual private campsites not associated with campgrounds are acceptable provided the following conditions are met:</p> <ul style="list-style-type: none"> a. One campsite per lot, or 30,000 square feet of lot area within 250 feet horizontal distance of the upland edge of a SFA, whichever is less, may be permitted. b. Campsite placement on any lot, including the area intended for a recreational vehicle or tent platform, shall be set back 75 feet horizontal distance from the edge of a SFA. 	<p>There shall be no individual, private campsites within 250 feet horizontal distance of the upland edge of a SRA. If a private campsite within 250 feet horizontal distance of the upland edge of a SRA is not avoidable, IF&W consultation is recommended to minimize impacts to the SRA to the greatest extent possible.</p>
Signs	Yes, except signs shall be illuminated only by shielded, non-flashing lights.	Yes, except signs shall be illuminated only by shielded, non-flashing lights.

Appendix I

Migratory Shorebird Species Documented in Significant Wildlife Habitats (September 1, 2005)

American Oystercatcher	(<i>Haematopus palliatus</i>)
Whimbrel	(<i>Numenius phaeopus</i>)
Red Knot	(<i>Calidris canutus</i>)
Semipalmated Sandpiper	(<i>Calidris pusilla</i>)
Ruddy Turnstone	(<i>Arenaria interpres</i>)
Sanderling	(<i>Calidris alba</i>)
Willet	(<i>Catoptrophorus semipalmatus</i>)
Greater Yellowlegs	(<i>Tringa melanoleuca</i>)
Hudsonian Godwit	(<i>Limosa haemastica</i>)
American Golden Plover	(<i>Pluvialis dominica</i>)
Black-bellied Plover	(<i>Pluvialis squatarola</i>)
Least Sandpiper	(<i>Calidris minutilla</i>)
Dunlin	(<i>Calidris alpina</i>)
Short-billed Dowitcher	(<i>Limnodromus griseus</i>)
White-rumped Sandpiper	(<i>Calidris fuscicollis</i>)
Stilt Sandpiper	(<i>Calidris himantopus</i>)
Buff-breasted Sandpiper	(<i>Tryngites subruficollis</i>)
Solitary Sandpiper	(<i>Tringa solitaria</i>)
Western Sandpiper	(<i>Calidris mauri</i>)
Semipalmated Plover	(<i>Charadrius semipalmatus</i>)
Lesser Yellowlegs	(<i>Tringa flavipes</i>)
Pectoral Sandpiper	(<i>Calidris melanotos</i>)
Baird's Sandpiper	(<i>Calidris bairdii</i>)

Other shorebirds not included in defining shorebird Significant Wildlife Habitat

Killdeer ¹	(<i>Charadrius vociferous</i>)
Spotted Sandpiper ¹	(<i>Actitis macularia</i>)
Purple Sandpiper ²	(<i>Calidris maritima</i>)
Piping Plover ³	(<i>Charadrius melodus</i>)

¹ Inland-nesting shorebird species that also use coastal areas during migration.

² Wintering shorebird species using offshore rocky islands and ledges.

³ Shorebird species with nesting habitat protected by Essential Habitat under Maine's Endangered Species Act.

Appendix II

Map of Shorebird Survey Units

