guidelines. Water-dependent uses are defined as those that must have direct access or proximity to, or be located in, the water to fulfill their purpose. When located in the floodplain, uses and structures must also comply with the borough flood damage prevention ordinance.

Conservation Buffer

Description: The conservation buffer includes all the land in the Recreation Rivers that is located outside the protection area and above ordinary-high-water mark. This also includes non-contiguous wetlands that are not directly connected by surface waters with the Recreation Rivers or their tributaries and located outside the 100-year floodplain. Also included in this area are lakes under 50 acres and non-navigable, non-fish bearing streams.

Intent: The purpose of the conservation area is to provide a vegetative shield for critical resources in the protection area. Removal of natural vegetation in this area should be minimized. Without the pollution dissipation function provided by the conservation buffer, the inner protection area would be vulnerable to degradation.

Modifications to Floodplain and Wetland Maps. Floodplains and wetlands are shown in *Appendix H, Wetlands and Floodplains in the Recreation Rivers.* Rivers are dynamic and floodplains and wetlands may change. In addition, there may be cases where the map scale does not accurately depict these areas. If field verification or other sources of information indicate errors in the wetland and floodplain boundaries in the appendix to the plan, changes may be made through a *"Minor Change"* to the plan. See *Procedures for Plan Review, Modification, and Amendment* in Chapter 4.

UPLAND DEVELOPMENT

Management Guidelines

General Guidelines. The following general guidelines should be applied to development one-hundred feet or more landward from ordinary high water in the Recreation Rivers:

1. *Vegetation.* Removal of vegetation shall be limited to the minimum necessary to accomplish the allowed use.

2. *Disturbance.* Surface disturbance, particularly in the protection areas, shall be minimized.

3. *Fill.* Fill shall be limited to that needed for the structural integrity of the project.

4. *Revegetation.* Disturbed soil areas shall be revegetated as soon as feasible and prudent after disturbance and no later than the next growing season. Natural revegetation is acceptable if the site is suitable and will revegetate itself within the next growing season.

5. *Contours.* Pre-existing contours should be maintained when feasible and prudent.

6. *Consolidation.* Joint use and consolidation of facilities will be encouraged wherever it is feasible and prudent to do so. Facilities shall be designed and sited to accommodate future development and avoid unnecessary duplication of facilities. The feasibility of using an existing facility shall be evaluated before the construction of a new facility is authorized.

7. *Ordinances.* Projects in the floodplain shall comply with the borough floodplain hazard protection ordinance which requires engineering plans prior to construction.

Resource Management Camps. Resource management camps are facilities established for resource or recreation management, or for scientific study. They are generally constructed by natural resource agencies such as DNR or DFG, the borough, or non-profit groups such as the Cook Inlet Aquaculture Association and the University. Resource management camps must be authorized by a land use permit.

These facilities benefit a wide range of river users and therefore may be authorized in any subunit. The following guidelines should be followed where feasible and prudent:

1. To avoid contributing to crowding at public use sites, camps unrelated to the management or protection of the resources in these sites should not be located in or near these sites unless the location of the camp at the site complements the public use of the site.

2. To avoid damaging new sites and for more efficient management of the rivers by different agencies, new camps should be located near existing resource management camps, such as near the DFG camps on the Lower Deshka River, Lake Creek, and Talachulitna River.

3. Camps should be located at least 100 feet from the rivers and should be sited to minimize evidence of human use as seen from the river. This may not always be possible for water-dependent structures such as weirs, sonar sites, fish counting stations, or fish trap devices. If such facilities must be located on the river, they should be rustic in nature, and constructed of materials that visually blend into the surroundings.

Remote Cabins and Trapping Cabins. Construction of private cabins on state lands is not compatible with the management intent for these rivers. Remote cabins and trapping cabin permits will not be authorized in the corridors. Existing trapping cabin permits may be renewed if they do not create conflicts with fish or wildlife, habitat, recreation, or other uses in the subunit.

Unauthorized Cabins. DNR should remove unauthorized cabins on state land from the corridors. Actions should first focus on unauthorized cabins in Class I subunits (particularly where cabins are visible from the river), where they represent a significant liability, or are located in important habitat areas. Unauthorized cabins in Class II and III areas will be evaluated for their suitability as public use cabins, consistency with the management intent for the subunit, habitat and recreation use considerations, structural design and integrity, and consistency with the public use cabin guidelines described elsewhere in this chapter. Trespassers may be removed but the cabin may remain for cabins with historic values, as determined by the State Office of History and Archeology. Also see *Recreation, Public Use Cabins* and *Heritage Resources, Site Protection* in this chapter.

Removal of the unauthorized A-frame cabin on Moose Creek and the unauthorized cabin on Shovel Lake are a priority. The existing unauthorized mining cabin at the north end of Chelatna Lake will be considered for conversion to a public use cabin. See Subunits in 2g, 4c, and 4e in Chapter 3 and *Recreation, Public Use Cabins* in this chapter.

Communication Towers, Antennae, and Long Wires. These should be sited to avoid or minimize visibility from the river and conflicts with air traffic patterns for airports and landing areas.

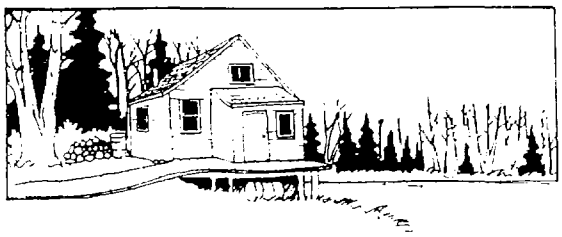
Utilities (including powerlines, telephone lines, and pipelines). Oil and gas gathering and feeding lines will be addressed on a case-by-case basis. Also see Fish and Wildlife Habitat, Trumpeter Swans, and Bald Eagles and *Subsurface Resources, Oil and Gas* in this chapter.

Guidelines for construction of these are listed below:

- Utilities shall be designed so as not to be a hazard to river or air navigation or public safety.
- Utilities shall be designed so that there is little or no maintenance required.
- Utilities shall be designed to cross the river and the corridors at 90 degrees or as near perpendicular as possible.
- Construction of utility projects below ordinary high water or in the airspace above waterbodies may be allowed if the project is in the best public interest. Utilities which serve only a few users and cross waterbodies that receive high public use shall be discouraged.
- All construction below ordinary high water shall normally occur between May 15 and July 15 when there is the least potential for damage to fish. This period may vary depending on the DFG Title 16 Permit.

Other Guidelines Affecting Upland Development. Several other guidelines may affect upland development. See the following sections of this chapter.

Shoreline Development
Recreation
Fish and Wildlife Habitat
Commercial



SHORELINE DEVELOPMENT

Management Guidelines

The following guidelines should be used for all types of shoreline development below or within 100 feet of ordinary high water.

1. *Title 16 Permit.* A fish habitat (Title 16) permit is required from DFG for all in-water and shoreline construction work, including the placement of docks in the Recreation Rivers. This permit will specify measures required of the applicant to protect fish habitat. The DFG Habitat Division will evaluate proposed project design for effects on riverflows, hydraulics, and fish habitat before construction begins.

2. *Ordinary High Water.* Only water-dependent uses may be allowed below or within 100 feet of ordinary high water. Water dependent uses are those that can be carried out only on, in, or adjacent to water areas because the use requires access to the waterbody.

3. *Storage of Petroleum Products.* To help protect waterbodies from oil spills, no more than 55 gallons of fuel, oil, or other liquid petroleum products may be stored on state land, water, or associated structures within 100 feet of a waterbody.

4. *Bank Disturbance.* Bank disturbance shall be minimized.

5. *Water Velocity.* Projects below ordinary high water or along the banks of a waterbody shall be located, designed, and maintained so that natural water circulation patterns are not significantly interrupted, unless the changes are an integral part of the project purpose.

6. *Engineering.* The project will be reviewed through applicable agency review processes including the U.S. Army Corps of Engineers 404 process. Within DNR, DGGS should have the opportunity to review project designs to assess their potential effects on the hydrology of the river. Projects in floodplains shall comply with the borough flood damage protection ordinance which requires engineering plans. A structure will not be allowed if there is little likelihood of success or the project is not sufficient to withstand a 100-year flood event.

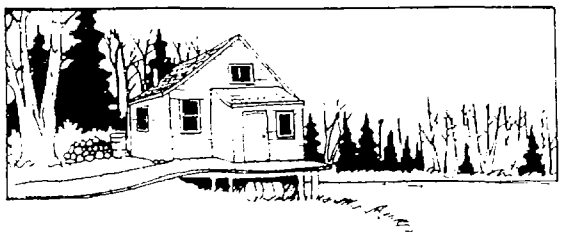
7. *Temporary Fills.* Temporary fill shall be completely removed after the completion of a project requiring fill.

8. *Use of Shorelands Where Uplands are in Private Ownership.* DNR will consult with the private upland landowner and use its best professional judgement to determine if a proposed use occurs on state-owned shorelands. DNR will retain the right to issue a permit or lease for uses that are not prohibited over the objection of adjacent landowners. However, DNR will carefully consider comments from the private landowners and others when making a decision.

Applications for shoreland uses that require use of private uplands will not be considered until there is a written agreement between the applicant and the upland owner(s) approving the

Other Guidelines Affecting Upland Development. Several other guidelines may affect upland development. See the following sections of this chapter.

Shoreline Development
Recreation
Fish and Wildlife Habitat
Commercial



SHORELINE DEVELOPMENT

Management Guidelines

The following guidelines should be used for all types of shoreline development below or within 100 feet of ordinary high water.

1. *Title 16 Permit.* A fish habitat (Title 16) permit is required from DFG for all in-water and shoreline construction work, including the placement of docks in the Recreation Rivers. This permit will specify measures required of the applicant to protect fish habitat. The DFG Habitat Division will evaluate proposed project design for effects on riverflows, hydraulics, and fish habitat before construction begins.

2. *Ordinary High Water.* Only water-dependent uses may be allowed below or within 100 feet of ordinary high water. Water dependent uses are those that can be carried out only on, in, or adjacent to water areas because the use requires access to the waterbody.

3. *Storage of Petroleum Products.* To help protect waterbodies from oil spills, no more than 55 gallons of fuel, oil, or other liquid petroleum products may be stored on state land, water, or associated structures within 100 feet of a waterbody.

4. *Bank Disturbance.* Bank disturbance shall be minimized.

5. *Water Velocity.* Projects below ordinary high water or along the banks of a waterbody shall be located, designed, and maintained so that natural water circulation patterns are not significantly interrupted, unless the changes are an integral part of the project purpose.

6. *Engineering.* The project will be reviewed through applicable agency review processes including the U.S. Army Corps of Engineers 404 process. Within DNR, DGGS should have the opportunity to review project designs to assess their potential effects on the hydrology of the river. Projects in floodplains shall comply with the borough flood damage protection ordinance which requires engineering plans. A structure will not be allowed if there is little likelihood of success or the project is not sufficient to withstand a 100-year flood event.

7. *Temporary Fills.* Temporary fill shall be completely removed after the completion of a project requiring fill.

8. *Use of Shorelands Where Uplands are in Private Ownership.* DNR will consult with the private upland landowner and use its best professional judgement to determine if a proposed use occurs on state-owned shorelands. DNR will retain the right to issue a permit or lease for uses that are not prohibited over the objection of adjacent landowners. However, DNR will carefully consider comments from the private landowners and others when making a decision.

Applications for shoreland uses that require use of private uplands will not be considered until there is a written agreement between the applicant and the upland owner(s) approving the

necessary use. The term of the lease or permit should not be longer than the term of agreement between the applicant and the upland owner. If the applicant has not applied for the use of adjacent uplands, the application must show how all the necessary associated uses will be accommodated on the shorelands.

9. *Construction Season.* All in-water construction shall occur in the shortest practical time.

10. *Revegetation.* Disturbed soils shall be revegetated as soon as feasible and prudent after disturbance and no latter than the next growing season. Natural revegetation is acceptable if the site is suitable and will revegetate itself within the next growing season.

Types of development

Erosion Control Projects. Requests for permits for erosion control projects on the Recreation Rivers will be evaluated on a case-by-case basis by DLW and other appropriate agencies. While riprap, gabions, drop structures, trees cabled to the bank, and projects using native vegetation are the preferred types of erosion control methods, as technologies and materials improve, other techniques may be approved. General criteria that will be used to evaluate a proposed project include whether the project is in the best public interest, effects the hydrology of the river, impacts fish and wildlife habitat, and is a hazard to navigation.

1. *Structures to Protect Private Property.* Building erosion control structures to prevent the erosion of private property is generally discouraged because of its detrimental effects on the river and adjacent property. Before a project is approved, the applicant shall demonstrate that there is no feasible or prudent alternative to constructing an erosion control structure. Bank protection may be allowed as part of bridge construction.

2. *Reclamation.* Structures or improvements designed to reclaim land from the river will not be allowed, except when determined to be in the best public interest. Structures will not be authorized to create additional private property by filling in a river.

3. *Maintenance.* Erosion control projects should be designed to minimize the need for maintenance. Bank erosion control measures shall be limited to the areas where erosion is excessive and should not create further bank disturbance.

4. *Materials.* No materials shall be removed from below ordinary high water except to create a flat base for the toe of a structure.

5. *Removal of Vegetation.* Removal of vegetation shall be limited to that which is necessary to accomplish the allowed use. Organic materials such as trees, brush, or soil shall not be deposited in the waterbody unless specifically authorized. The structure will be revegetated above ordinary high water by spreading overburden and planting native species such as grasses and woody vegetation such as willows and alders. The materials used shall be free of loose dirt or gravel below ordinary high water. For some types of structures, materials may be required to be placed on filter fabric.

6. *Construction Period.* All in-water construction and maintenance shall normally occur between May 15 and July 15 when there is the least potential damage to fish. This period may vary depending on the DFG Title 16 permit.

7. *Design.* The structure shall be designed so as not to be a hazard to river navigation.

Cabled Trees. Trees cabled to the bank for bank protection may be allowed. In some areas this method has proven to be cost effective, successful in reducing erosion, and in providing fish habitat. Using trees already in the river or which are moved from another area where they were a hazard to navigation are preferred but not required. If cut from banks, trees should be taken from sufficiently far from the bank so as not to accelerate bank erosion. Trees shall be firmly cabled to the bank to withstand a 100-year flood event.

Drop Structures. These are structures which are placed on the bed of the river to redirect flows. Drop structures have proven effective in controlling bank erosion and have less potential to damage fish habitat than many other erosion control methods. However, they can be a

hazard to navigation unless properly designed, constructed, and maintained. Drop structures may be considered on streams not used by boats. On navigable rivers they must be designed, constructed, and operated to maintain or enhance navigation before they will be authorized.

Dolphins, Groins, Bulkheads, and Jetties. Because these structures cause adverse effects on river hydrology, such as increasing sedimentation and loss of fish habitat, they are prohibited in the Recreation Rivers. Exceptions may be made on a case-by-case basis for bulkheads and other in-water structures associated with approved bridge construction. See *Stream Crossing* in this section.

Diversion Channels, Navigation Channels, Canals, Boat Slips, and Boat Harbors. These types of improvements significantly alter stream banks, bank vegetation, river flow characteristics, and fish habitat. They are prohibited on the Recreation Rivers, except where channelization is necessary adjacent to public bridges.

Flood Control Levees. Flood control levees are prohibited in the Recreation Rivers unless they are found to be in the best public interest. They may be authorized in areas adjacent to communities such as Talkeetna with numerous public and private improvements subject to flooding. Temporary sand bagging during a flood may be allowed.

Dams. Under Section 41.23.440(2), the plan will develop long-range guidelines and management priorities to "protect, maintain, or enhance the free flowing nature of the river." Dams are prohibited on the main stem of the six rivers and their major tributaries. Major tributaries include those that are either boatable, have high value fish runs, or are frequently used for bank fishing. These include: Nancy Lake Creek and Government Creek (Little Susitna River); Kroto Creek, Moose Creek, Trapper Creek, No-name Creek (RM 14), Cabin Creek, Amber Lake Creek, and Gate Creek (Deshka River); Clear Creek, Larson Creek, Sheep River, Disappointment Creek, Iron Creek, Fish Creek, Prairie Creek, Cache Creek (Talkeetna River); Yenlo Creek, Camp Creek, Home Creek, Sunflower Creek, Coffee Creek, Friday Creek, Talachulitna Creek, Upper Talachulitna River, and Wolf Lake Creek (Talachulitna River); Sucker Creek, Pierce Creek, and Trail Creek (Alexander Creek). These guidelines apply only to these portions of the above-listed streams that are in the Recreation River designated boundaries.

Dams may be allowed on minor tributaries approved by DFG including for fisheries enhancement programs. Dams on minor tributaries containing fish must allow for fish passage.

Trams and Cables. Trams may be authorized under permit if there is a demonstrated public need, and the structure is not a hazard to river or air navigation.

Anchor Buoys and Anchor Markers. Because the rivers are generally too narrow to safely accommodate anchor buoys and markers and these devices are often used to reserve prime fishing spots or other high value areas, they are prohibited with a few exceptions. They may be allowed at the mouth of Lake Creek under the conditions listed below. They are also generally allowed on lakes if they are not a hazard to boat or float plane navigation, and they are clearly marked with the owner's name. These guidelines will be established by regulation.

Although the confluence area of Lake Creek and the Yentna River is wide enough to safely accommodate anchor buoys and markers, the public has expressed concern that these have been used in the past to reserve fishing spots. However, buoys are needed to safely fish in the fast-flowing water of the Yentna River. To address this concern, at the mouth of Lake Creek the following guidelines apply to anchor buoys and anchor marker buoys:

1. *Navigation.* Buoys shall not block the primary navigation channel to Lake Creek.

2. *Time.* Buoys and markers shall not remain in place for more than six hours after which they must be pulled and cannot be reset for one hour in the same vicinity from which they were removed.

3. *Unattended Buoys.* Buoys shall not remain unattached to boats for more than 30 minutes after which they will be subject to removal. Unoccupied boats shall not be attached to buoys for any length of time.

4. *Switching Occupants.* Boats may not switch off using the same buoy in the same location unless the buoy is pulled.

The buoy can not be reset in the same location for one hour.

5. *Marking Buoys.* Buoys shall have the name of the business or name of the individual using the buoy. If an individual or company has more than one buoy, each buoy shall have a different number to ensure that they can be monitored.

Other Types of Buoys. Buoys or signs on floats may be allowed by permit to mark floatplane landing areas and no-wake areas, or placed by agencies for resource or recreation management purposes. They may also be authorized for non-profit or other groups serving a public purpose if the use is consistent with the management intent for the subunit. Also see *Anchor Buoys and Anchor Markers* in this section and Education, Signs in this chapter.

Boat Storage. Boat storage is defined as keeping a boat in one place more than four days in summer (from May 15 to August 31) and more than 14 days in winter (from September 1 to May 14). This includes boat attached to the bank by a line, pulled up on the shorelands, or placed on the uplands. Boat storage does not include boats tied to anchor or marker buoys, anchored to the bottom, or attached to docks. See guidelines for *Docks, Buoys* and *Marinas* in this section. Keeping a boat in one spot for less than 4 days in summer and up to 14 days in winter does not require a permit. Storage of boats may be allowed for longer than these periods consistent with the following guidelines:

1. *Winter.* To avoid boats being washed away during spring break-up, during the period when waterbodies are frozen, boats may not be kept below ordinary high water.

2. *Private Land.* Boats may be stored on state shorelands or tied to the bank immediately adjacent to private land by the landowner without a permit during the ice-free season.

3. *Camps.* Boats may be stored by the permittee when the boats are adjacent to authorized commercial or resource management camps.

4. *Designated Storage Areas.* Any other boat storage shall be authorized by permit in designated areas. Any boat owner or agency may apply to designate an area for boat storage. Approved areas should be located so that boats: do not hinder navigation, are not likely to wash away, are consolidated as much as possible to avoid a proliferation of sites, do not block public access, and do not result in damage to the banks of waterbodies.

Boat storage guidelines shall be established by regulation. Boats that are not stored consistent with these guidelines may be impounded. The need for a designated boat storage areas has been identified in Chapter 3 by subunit for Neil Lake, the mouth of the Deshka, Chelatna Lake airstrip, and the middle Talachulitna River.

Boat Ramps. Boat ramps are prohibited in Class I areas. Ramps may be authorized in Class II areas, Class III areas, and special management areas. Boat ramps shall be designed and constructed consistent with the following guidelines:

1. No material shall be removed from the affected waterbody except that which is necessary for placement of the boat ramp.

2. Ramps will not be located in important fish spawning or rearing areas.

3. Ramps shall be designed so that little or no maintenance is required.

4. In-water construction work shall be completed in the shortest practicable time.

5. Ramps will be designed so as not to increase erosion or significantly alter hydraulic characteristics either upstream or downstream of the project.

Also see *Recreation, Public Facilities* in this chapter.

Floating Docks. Community docks, marinas, and docks located in public use sites may be authorized by permit if they meet the guidelines listed below. All other floating docks are generally allowed and do not need a DNR permit as long as they meet the guidelines listed below. All docks require a DFG Title 16 Permit if they are in waters containing anadromous fish.

Floating docks shall be removed prior to ice forming on the waterbody. During winter, docks and associated boats and equipment must be stored

consistent with the boat storage guidelines in this section. It is the responsibility of the boat owner to retrieve docks or parts of docks if they break loose from the site where they were stored.

The total surface area of the dock may not exceed 100 square feet. Docks shall not extend more than 15 feet from the edge of the water of a lake or river at any water level. Walkways or ladders extending beyond the ordinary-high-water for purposes of connecting docks with the shoreline shall not exceed four feet in width.

Docks shall be designed and the boats tied to them in a manner that they do not create a hazard to, or impede, or restrict water or air navigation. Boats tied to any docks in the water do not require a boat storage permit.

To avoid contaminating waterbodies, non-treated or pressure-treated construction materials are preferred over surface-treated materials that do not hold toxic preservatives well. Surface-treated or creosote-treated materials shall not be used in contact with bodies of water. Barrels used in the construction of floating docks shall be clean and sealed to prevent escape of hazardous materials into waterbodies.

Docks are prohibited on rivers in Class I areas. Docks are generally allowed or may be authorized by permit on lakes in Class I areas and in Special Management Areas as long as they are consistent with the dock guidelines. Docks in public use sites require a permit and will only be authorized if they are consistent with the dock guidelines and management intent for the public use site and are either located immediately adjacent to privately owned uplands or will be used for public purposes such as for a public campground. Also see *Floating Facilities, Commercial Marinas, and Floating Mobile Docks* in this section.

Stationary Docks. Cantilevered docks, and docks supported by fill, rocks, log cribbing, or other materials affixed to the shorelands are prohibited. Pile-supported docks may be allowed on lakes consistent with applicable floating dock guidelines.

Floating Facilities. The public was generally opposed to allowing floating facilities that provided overnight accommodations on the six rivers. They also opposed commercial operations that sold goods and food in the six rivers, particularly when these activities occurred in public use sites. The public thought that this type of activity was incompatible with the public use of state waterways and their recreation values. They also thought that there were already ample opportunities for this type of activity on private lands. Use or storage of floating facilities will not be authorized in the planning area. Floating facilities include floathomes, floating stores, floating food vendors, floatcamps, floating lodges, and floating residential or commercial facilities located on state waters or grounded on state shorelands. Floating facilities may, however, temporarily pass through the Recreation Rivers when enroute to other areas along the Susitna, Yentna, and Skwentna Rivers. Engaging in soliciting, selling, or peddling liquids or edibles for human consumption, or distributing circulars, or hawking, peddling, or vending goods, wares, services, or merchandise from floating facilities or boats is generally prohibited. There are some exceptions for marinas. Also see *Marinas* (below) and *Commercial, Prohibited Commercial Activities* elsewhere in this chapter.

Marinas and Community Docks. Marinas include docks used for commercial or public purposes, such as those associated with lodges or campgrounds. Marinas used for commercial purposes may provide limited services such as boat moorage, boat rentals, fuel, and oil which may be required by the public for access to the Recreation Rivers, particularly in those areas furthest from the railbelt. Community docks are docks built and maintained by more than one landowner. Adjoining property owners are encouraged to cooperatively design and construct community floating docks instead of building one dock for each landowner. All guidelines for floating docks, stationary docks, and floating facilities described in the previous sections apply. However, the minimum size of the dock may be larger than 100 square feet to serve more users. Also see *Commercial,* in this chapter.

Floating Mobile Docks. These are self-propelled floating, mobile docks which are often used for fishing. Their use is allowed if they have U.S. Coast Guard numbers and comply with DNR boating and commercial use regulations (if they are used for commercial use).

Ladders, Ramps, Walkways and Steps. These structures require DNR land use permits. Below ordinary high water the following guidelines apply. They are prohibited during the ice-free season and in Class I areas year-round. Surface-treated or creosote-treated materials shall not be used in contact with bodies of water. Their width shall not exceed 4 feet. They shall not block, impede, or be a hazard to public access and navigation. They require a DFG Title 16 Permit. They shall not be authorized if they cause significant disturbance to banks of waterbodies. Structures located in public use sites should be consistent with the management intent for those sites.

Existing Erosion Control Projects, Docks, Ladders, Walkways, Boat Ramps, Pedestrian Ramps, and Steps. The structures or parts of structures that were located below ordinary high water or on a waterbody prior to August 1989 when aerial photos were taken of the Recreation Rivers; and that met the guidelines for these types of structures may be authorized by permit, but may be required to be brought into compliance with plan guidelines. DFG Title 16 requirements have no statute of limitations and require compliance. Improvement or expansion of existing structures will require authorization from both DNR and DFG. Those constructed after this date must be brought into compliance. Unmaintained structures must be removed if they pose a threat to public safety or to navigation. This guideline may be modified in regulations without an amendment to the plan if, after review of regulations by the Attorney General's office, they are found inconsistent with water access statutes.

Stream Crossings. The findings and intent section of the Recreation Rivers Act states, "The designation of the six rivers and their corridors is not intended to become an undue impediment to .... the development of access within, across, and around the rivers and their corridors." The following guidelines are to accommodate stream crossings while mitigating effects on recreation, water quality, and fish and wildlife habitat. (Also see *Trails Action Plan* in Chapter 4 and *Upland Access, Roads* in this chapter).

Preferred Type of Stream Crossing. In areas where there is frequent vehicle traffic, bridges or culverts are the preferred method for crossing streams, rather than fording. Fording should be avoided in spawning areas when spawning fish or eggs are present. If culverts are used, bottomless-arch culverts are preferred over round or elliptical culverts in fish spawning habitat. Any crossing of streams containing anadromous fish must be in compliance with Title 16.

Habitat. Road and trail crossings must provide for fish passage and habitat protection. All water crossings should be engineered to avoid interference with spawning areas.

Hydrology. At a minimum, bridges and culverts shall be designed to pass a 50-year flood event without damage to the structure or road. Any anticipated impact of bridge or culvert construction affecting stream volume, velocity, backwater, direction, sediment transport, or substrate characteristics shall be evaluated for significance. Bridges and culverts shall be designed to comply with all federal, state, and borough permit requirements. Where a regulatory floodway has been designated or where studies are underway to establish a regulatory floodway, the design of bridges and culverts shall be consistent with standards established by federal, state, and local government agencies for the administration of the National Flood Insurance Program. Freeboard shall be provided, where practicable, to protect bridge structures from debris and scour-related failure. Road drainage should not be discharged directly over the edges of a stream bank.

Clearance. Bridges and culverts shall provide adequate clearance for boat, pedestrian, horseback, and large game passage whenever these uses occur or are anticipated. All bridges shall be designed to provide adequate clearance for all watercraft that normally use the river during normal annual high water.

Construction Period. All in-water construction and maintenance shall occur normally between May 15 and July 15 when there is the least potential to damage fish habitat. This period may vary depending on the DFG Title 16 Permit.

Season. In-water construction work shall be completed in the shortest practicable time.

Materials and Fill. Only the minimum amount of material necessary to form the base for a bridge or culvert shall be removed from below the ordinary high water level in the immediate vicinity of the structure. All fill materials shall be obtained from upland sources. Fine sediments shall be prevented from entering the river by using clean fill, geotextile barriers, or other measures where necessary. Any waste material shall be disposed of outside the protection area.

Bank Disturbance. Bank protection measures may be allowed in areas where engineers have determined that erosion is excessive for that particular river.

Consolidation of Access. Where feasible and prudent, stream crossings shall be consolidated.

Bank Protection. Bank protection measures should be considered for all areas where disturbance has occurred. All exposed areas should be protected or revegetated.

Spawning and Rearing Areas. When feasible and prudent, crossings of waterbodies should be located outside of important spawning and rearing areas.

Priority for Bridge Sites. Where feasible and prudent, the following criteria for consideration of alternate bridge crossing sites should be used (listed below in descending order of priority).

1. Crossing outside rather than inside the Recreation Rivers.

2. Crossing in Class II or III areas or in special management areas.

3. Crossing in Class I areas where there are no restrictions on motorized transport.

4. Crossing in Class I areas where there are restrictions on motorized transport.

Private Bridges. Private bridges are prohibited across the following main stems of rivers frequently used for boating unless they are determined to be in the public interest. This guideline applies only to the portions of the below-listed streams that are in the Recreation River boundaries.

1. Little Susitna River - Downstream from the Shushana Road bridge and upriver from the Edgerton-Parks Road bridge

2. Deshka- Downstream of Amber Lake Creek on Kroto Creek and downstream from the Oilwell Road crossing on Moose Creek

3. Talkeetna River - Entire river

4. Lake Creek - Chelatna Lake downstream to the Yentna River

5. Talachulitna River - Forks downstream to the mouth

6. Talachulitna Creek - Judd Lake downstream to the Forks

7. Alexander Creek - Alexander Lake downstream to the Susitna River

Ice Bridges. Ice bridges may be authorized on a case-by-case basis and must be consistent with Title 16 guidelines. Ice bridges should be located in areas that require little or no disturbance to river banks.

Other Guidelines Affecting Shoreline Development. Several other guidelines may affect shoreline development. See the following sections of this chapter.

Upland Development
Commercial
Upland Access
Water & Solid Waste
Materials
Education