

Consensus Points

Region II Science and Technical Committee—Stream Classification System and Recommended Buffers May 26, 2004

Waterbody Type	Recommendations	Notes
Riparian management areas		
All waterbody types	<p>C19: Buffers and SMZ's are measured from OHWM.</p> <p>C31: A terrace is defined as a change in elevation</p> <ul style="list-style-type: none"> ▪ > 10' for IIA1 waters or ▪ > 20' for IIB waters and <p>with a slope greater than 30%. The terrace top is the point at which the terrace slope decreases by $\geq 20\%$ as you move away from the water body (the same as the slope break definition in 11AAC95.280). If a terrace top exists within the no-cut buffer, there is no additional SMZ. See diagrams</p>	<p>C9: At peak sun angles (roughly 50 degrees in Region II during the maximum warming period from June 21-July 21), trees that average 65'-70' in height will cast shade on a stream about 60' from the stream bank. At lower sun angles, the distance increases. At an angle of 20 degrees, 65'-70' trees will cast shade about 180' from the bank. The effect of low-angle sunlight on stream temperature is unknown at this time. Low-angle radiation effects increase as the density of the canopy and understory decrease. Note: At low sun angles, understory vegetation may play an important role in shade as well.</p> <p>C11: Existing FRPA buffers appear to be working to provide adequate protection for fish habitat and water quality at current harvest levels. Effectiveness studies are limited to date. Relevant information includes the Tydingco study on the Kenai Peninsula, the productivity of Region II fish populations, and some applicable studies from elsewhere in Alaska and the Pacific Northwest.</p> <p>C12: There is a great variability among stand types in Region II. Differences include variability in stand composition, stand density, the presence or absence of trees in the riparian area under natural conditions, and differences between subregions (i.e., Copper River Basin, Kenai Peninsula, west side Cook Inlet, and Mat-Su sites).</p> <p>C20: A no-cut area of at least 100' is what has been applied on the ground in virtually all harvesting in Region II across all ownerships since the FRPA and its regulations were updated in the early 1990s. Regionwide, adverse effects to fish habitat and water quality have not been documented that are linked to timber harvest operations. (See also C11)</p> <p>C21: Little harvesting has occurred close to type IIA1 waters due to natural vegetation (i.e., extensive riparian areas that aren't forested), low tree value, land ownership patterns, and land use designations on public land. On state land, wildlife considerations have also led to wider setbacks through area plans and Forest Land Use Plans (FLUPs).</p>

Waterbody type	Recommendations	Notes
<p style="text-align: center;">All waterbody types, continued</p>		<p>C54: The recommended riparian standards for dynamic (IIA1 and IIB) waters in Region II are more restrictive than those on similar waters in Region III. Reasons for stronger standards follow.</p> <ul style="list-style-type: none"> ▪ Commercial harvesting on dynamic rivers in Region III is primarily along a single river, the Tanana River. Because of land ownership, many areas are not subject to harvesting, such as the large military reservations. The Region III committee recognized the small scale of harvesting in riparian forests in their recommendations for buffers on glacial rivers. In contrast, Region II has many rivers in the IIA1 and IIB categories, many have commercial forests, and the ownership is mixed. ▪ Typically, the volume per acre of timber in Region II is lower than that in the part of Region III where commercial harvesting occurs. In addition, a higher proportion of the riparian forest is hardwoods, which have a shorter residence time as LWD. Therefore, it takes a wider area to provide the same volume of LWD. ▪ The risk of impacts to fisheries are greater in Region II because of the greater diversity of fish species, wider distribution of fish, more intense human use of the fish populations, and higher productivity.

Waterbody type	Recommendations	Notes
<p>Type IIA1</p> <ul style="list-style-type: none"> ▪ Anadromous or HVR fish ▪ Non-glacial ▪ >50' wide at OHWM ▪ Not confined ▪ Dynamic channels ▪ Point bars, islands, obvious erosion, scour planes, active or recent side channels 	<p>C16: A no-cut zone is important, coupled with a special management zone (SMZ) to provide an adequate supply of LWD to the system. The SMZ should relate to the likelihood of the channel moving into that area. Eroding outside bends are key sites for potential LWD recruitment.</p> <p>C22: For type IIA1 waters, the committee recommends</p> <ul style="list-style-type: none"> ▪ a 150' no-cut buffer, and ▪ an SMZ on the area from 150' to 300' measured from OHWM or to the terrace top break, whichever comes first. See C31 and diagram for terrace top <p>C23: For type IIA1 waters, a no-cut buffer greater than 100' is recommended in recognition of the large size of these waters and their rapid channel movement. Timber management is allowed within the SMZ, however, harvests must be designed to maintain the supply of LWD, with particular consideration to retaining wood at sites that are more likely to recruit LWD from erosion, such as meander cutoffs and the downstream portion of outer bends.</p> <p>C32: For SMZs on IIA1 waters:</p> <ul style="list-style-type: none"> ▪ Harvest is not restricted on inside bends and straight reaches. ▪ On outside bends, harvest of up to 50% of the merchantable trees is allowed. This does not restrict the pattern of harvesting within the SMZ (i.e., it does not require single-tree selection). The intent is to keep some of the timber in the SMZ for LWD. ▪ Outside bends <i>within harvest units</i> should be identified in the DPO. ▪ Following procedures in 11 AAC 95.355(a)-(d), harvest trees may be felled into the no-cut portion of the riparian area when necessary to minimize damage to residual trees. ▪ Trees felled into the no-harvest zone may be topped to the merchantable specification and the tops left within the no-harvest zone; tops left shall be treated in accordance with 11 AAC 95.370(d)-(e) to reduce risk of insect infestation. 	<p>C7am: Type IIA1 waters are wide non-glacial streams that</p> <ul style="list-style-type: none"> ▪ Have anadromous or high-value resident fish, ▪ are not confined and have dynamic channels, and ▪ have point bars, islands, and areas of obvious bank erosion. <p>Channel morphology is an important factor in maintaining LWD in this type.</p> <p>Examples of Type IIA1 waters include the lower reaches of::</p> <ul style="list-style-type: none"> ▪ Willow Creek (Mat-Su) ▪ Montana Creek (Mat-Su) ▪ Clear Creek (Mat-Su) ▪ Peters Creek (Mat-Su [Petersville Rd.] ▪ Theodore River (W Side Cook Inlet) ▪ Chuitna River (W Side Cook Inlet) ▪ Lewis River (W Side Cook Inlet) ▪ Gulkana River (Copper River) ▪ E. Fk. Chistochina R. (Copper R.) ▪ Hanagita River (Copper R.) ▪ Anchor River (Kenai) ▪ Deep Creek (Kenai) ▪ Ninilchik River (Kenai) <p>C14: Type IIA1 channels move and LWD recruitment from erosion and avulsion is important.</p> <p>C15: In Type IIA1, LWD is important both on-site for pool formation, and in the system as a whole for channel morphology.</p> <p>C21: Little harvesting has occurred close to type IIA1 waters due to natural vegetation (i.e., extensive riparian areas that aren't forested), low tree value, land ownership patterns, and land use designations on public land. On state land wildlife considerations have also led to wider setbacks through area plans and Forest Land Use Plans (FLUPs).</p>

Waterbody Type	Recommendations	Notes
<p>Type IIA2</p> <ul style="list-style-type: none"> ▪ Anadromous or HVR fish ▪ Either: <ol style="list-style-type: none"> 1) Confined, non-glacial waters >3' wide, 2) Unconfined non-glacial waters >3' wide and ≤50' wide, 3) lakes, or 4) the Kenai, Kasilof, and Lake Fork Crescent rivers 	<p>C8: The Kenai, Kasilof, and Lake Fork Crescent rivers should be included in Type IIA2. Although glacially-fed, they have large sockeye populations because of their lake systems, and they have relatively stable channels, in part because they have relatively few, small tributaries below their settling lakes to add sediment and flow.</p> <p>C24: For type IIA2 waters, the committee recommends</p> <ul style="list-style-type: none"> ▪ a 100' no-cut buffer, and ▪ an SMZ on the area from 100' to 180' measured from OHWM. <p>C25: The committee agrees that a no-cut buffer of at least 100' is needed on IIA2 waterbodies. One hundred feet encompasses distances known to be essential for shade (i.e., shade during peak temperature periods) and LWD from treefall. Timber management is allowed within the SMZ, however harvests must be designed to maintain shading and temperature on temperature sensitive brownwater streams (i.e., not the IIA2 glacial waters). Within the SMZ, harvest design should consider the effects of harvesting on shade based on site specific conditions with respect to sun angles, tree cover, vegetation density, and stream orientation.</p> <p>C33: For SMZs on IIA2 waters: On the south, east, and west banks, if a buffer is largely unforested, consider retention of trees within the SMZ to retain shade and control stream temperature.</p>	<p>C5: Type IIA2 streams are temperature-sensitive. Maximum shading is important to protect the existing thermal regime.</p> <p>C10: Type IIA2 waters are temperature sensitive with the exception of the three glacial rivers included in this type (the Kenai, Kasilof, and Lake Fork Crescent rivers).</p> <p>C6: On Type IIA2 waters, a distance of 32-54' will provide 95% of the supply of LWD associated with treefall (i.e., not from erosion or channel migration); 48'-80' will provide 100% of LWD. These distances are likely to adequately protect most of the other habitat components. The sensitivity of this type to changes in nutrient inputs is unknown, and there is little information on the width necessary to protect the supply of nutrients and food. Previous studies have shown that 100' is adequate, but the lower limit necessary to protect nutrient and food supplies is unknown.</p> <p>C53: The Science & Technical committee clarified that non-glacial sloughs on glacial rivers are classified IIA2.</p>

Waterbody type	Recommendations	Notes
<p>Type IIB</p> <ul style="list-style-type: none"> ▪ Anadromous or HVR fish ▪ Glacial waters others than those listed in IIA2 ▪ Typically unconfined, with point bars, islands, obvious erosion, scour planes, and active or recent side channels 	<p>C27: For type IIB waters, the committee recommends</p> <ul style="list-style-type: none"> ▪ a 150' no-cut buffer, and ▪ an SMZ on the area from 150' to 500' measured from OHWM or to the terrace top, whichever comes first. <p>C28: For type IIB waters, a no-cut buffer greater than 100' is recommended in recognition of the large size of these waters and their rapid channel movement. Timber management is allowed within the SMZ, however harvests must be designed to maintain the supply of LWD, with particular consideration to retaining wood at sites that are more likely to recruit LWD from erosion such as the heads of islands and the downstream portion of outer bends. On IIB streams that are incised or have single channels rather than braided channels, the SMZ can be relatively narrow, since it just extends to the terrace top.</p> <p>C32: For SMZs on IIB waters:</p> <ul style="list-style-type: none"> ▪ Harvest is not restricted on inside bends and straight reaches. ▪ On outside bends, harvest of up to 50% of the merchantable trees is allowed. This does not restrict the pattern of harvesting within the SMZ (i.e., it does not require single-tree selection). The intent is to keep some of the timber in the SMZ for LWD. ▪ Outside bends within harvest units should be identified in the DPO. ▪ Following procedures in 11 AAC 95.355(a)-(d), harvest trees may be felled into the no-cut portion of the riparian area when necessary to minimize damage to residual trees. ▪ Trees felled into the no-harvest zone may be topped to the merchantable specification and the tops left within the no-harvest zone; tops left shall be treated in accordance with 11 AAC 95.370(d)-(e) to reduce risk of insect infestation. 	<p>C17: LWD is important in type IIB systems. LWD is important for channel morphology, e.g., formation of islands, bars, and side channels. Large quantities of LWD is needed at a single point to form log jams.</p> <p>C18: There is no data for setting buffer width on IIB waters other than full floodplain width.</p> <p>C26: Extensive reaches of IIB waters are highly dynamic and can move from terrace to terrace over time.</p>

<p>Type IID</p> <ul style="list-style-type: none"> ▪ Anadromous or HVR fish ▪ Non-glacial $\leq 3'$ wide at OHWM 	<p>C34: For IID waters, the committee recommends a 100' buffer. Within this buffer there is :</p> <ul style="list-style-type: none"> ▪ A 50' no-cut zone adjacent to the stream to provide sediment filtration, leaf litter, small woody debris, and shade. ▪ An SMZ from 50 to 100' measured from OHWM. Within the SMZ, operations should not create flow paths that could introduce sediment into the stream or ruts that could channelize sheet flow. The Science & Technical Committee recommends limiting mineral soil exposure to patches $<10'$ in length or width, and $<15\%$ of the total SMZ area. Within the SMZ, where prudent, retain low value timber. <p>C35: The riparian area on IID waters is a 100' buffer within which harvesting which doesn't disturb the ground is allowed in the landward 50'.</p>	<p>C50: IID waters are impacted by even small amounts of siltation. Filtration is a key role for IID buffers. Maintenance of shade, woody debris, and leaf litter are secondary purposes for buffers on this stream type. It doesn't take a wide buffer to protect these functions.</p> <p>C51: A key issue on IID waters is the cumulative impact of disturbance on IID streams in a watershed, rather than the impacts on any particular stream.</p>
<p>Other surface waters</p>	<p>C36: Combine type IIE waters with other surface waters. This decision can be revisited in the future if problems on IIE waters are found in the field.</p>	<p>Note: In the initial draft of a Region II classification system, the Committee identified Type IIE waters which were defined as streams without anadromous or high value resident fish that are directly tributary to anadromous or HVR waters.</p>
<p>Blockages</p>		
	<p>C2: The table in 11 AAC 95.265(g) should be used in Region II where potential blockages exist.</p> <p>C3: No change is needed to the existing standard for beaver dams in 11 AAC 95.265(g)(7).</p>	<p>C4: If a blockage exists for salmon, there is also blockage for upstream passage of high value resident fish species. However, some high value resident fish populations can exist above blockages because they don't require downstream passage. Therefore, you can't presume that the presence of a blockage means that there are no high value resident fish upstream.</p> <p>Note: In Region I, the blockage table was essential because fish distribution is commonly limited by a blockage from a falls or steep gradient. The extent of fish distribution in Region II is usually not determined by those types of blockages..</p>

Field review of stream classifications

C41: Add to 11AAC 95.265(c): In Region II, the division will base its decision on the criteria set out in the definitions of Region II stream types and the evidence or lack of evidence of anadromous fish or high value resident fish, at or upstream of the area proposed for reclassification.

C42: Add to 11AAC 95.265(d): In Region II, field reviews may be requested for presence or evidence of high value resident fish as well as anadromous fish (use the same language as adopted for Region III).

Slope Stability Standards		
	<p>C40: Because of the redundancy with other BMPs, and the high proportion of streams covered by the recommended buffers and SMZs in Region II, the slope stability standards in 11 AAC95.280 are not required in Region II.</p>	
Definitions		
<p>Temporary and permanent roads</p>	<p>C29: The committee recommended that Region II use the same definitions for “temporary road” and “permanent road” as Region III.</p>	
<p>Lake or pond</p>	<p>C30: The committee recommended that Region II use the same definition of “lake or pond” as in Region III.</p>	
<p>Estuaries</p>	<p>C52: Waterbody types include estuarine areas where they occur in Region II. Where estuaries exist, the <u>buffer</u> for the adjacent waterbody type would apply. SMZs do not apply to estuarine areas.</p>	<p>C1: There are few estuarine areas adjacent to commercial forest land in Region II. If estuaries exist in this Region, they are likely to be covered by buffers.</p>

Invasive Species

	<p>C37: The objective for disturbed sites is to</p> <ul style="list-style-type: none"> ▪ control erosion, ▪ promote recolonization of native plant cover, and ▪ prevent introduction or spread of non-native species, especially invasive species. <p>Options for achieving this objective include</p> <ul style="list-style-type: none"> ▪ Stockpiling soil from the site if the site is weed-free and using it to stabilize and revegetate disturbed areas. Local forest soils are typically acidic which discourages the growth of many non-native species, and it contains local seed or other propagules. ▪ Using other control measures such as mulching or chipping local slash and allowing natural revegetation from seedfall of native plants. ▪ Seeding with native weed-free seed or planting native plants. ▪ Planting annuals that die out such as annual rye or other annual grasses. ▪ Seeding with other weed-free seed. <p>Consultation with the Cooperative Extension Service is recommended to design effective methods to achieve the objective on individual sites.</p> <p>C38: Power-washing equipment before coming on to the site of a new operation is recommended to prevent spread of invasive species seed. Equipment washing protocols should be developed that prevent spread of seed from invasive species and prevent pollution from hydrocarbons washed off the equipment.</p> <p>C39: The S&TC recommends convening a group to develop statewide standards to prevent spread of invasive species from forest operations.</p>	
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Research needs

	<p>C13am: Additional information is needed on</p> <ul style="list-style-type: none"> ▪ The importance of low angle radiation to stream temperature control, and ▪ Effectiveness of Region II riparian buffers. ▪ Regeneration and LWD supplied in riparian zones in infested areas. ▪ The LWD pool in the Susitna River basin, including species composition and size of riparian trees. 	
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Winter roads		
	<p>C43: Add to 11 AAC 95.290: Within 50' of the OHWM of anadromous or high-value resident fish waterbodies, keep the surface organic mat intact when constructing winter roads or winter stream crossings unless authorized by the Division of Forestry</p> <p>C46: The Science & Technical Committee recommends that the DPO be changed to identify whether a winter road will be used for a single season or multiple years.</p> <p>C47: The Region III regulations on ice bridging in 11 AAC 95.300(e) should apply to Region II as well. "For all water body classes in Region III, crossing may be allowed on natural ice. Natural ice thickness may be augmented if site-specific conditions (e.g., water depth) are sufficient to protect fish habitat. The determination of whether conditions are sufficient shall consider whether increased ice thickness is likely to:</p> <ul style="list-style-type: none"> (1) cause freezedown into gravels used for spawning or fish overwintering habitat, (2) cause bed scouring that disturbs gravels used for fish spawning or fish overwintering habitat, (3) excessively reduce the quality or volume of fish overwintering habitat, (4) adversely alter stream flow patterns above or below the crossing. <p>For the purposes of this section, augmentation includes adding water or ice to the surface or removing snow to increase freezing depths."</p>	<p>C44: The Science & Technical Committee emphasized that exposed mineral soils subject to erosion need to be stabilized before the road becomes inactive during the summer season or is closed. <i>Existing</i> regulations cover this, but the S&TC wants to emphasize the importance of enforcing these requirements on winter roads.</p> <p>C45: The Science & Technical Committee wants to clarify that the BMPs in 11 AAC 95.315(e) apply to winter roads.</p>
Field Booklets		
	<p>C48: Include the classification chart, examples of waterbody types, and the diagram of the "terrace top" definition <i>and SMZ location</i> in the field booklet of FRPA regulations.</p>	
Region II-III Boundary (Copper River area)		
		<p>C49: There is no clear reason to change the boundary between Region II and III. The portion of the Copper River basin now in Region II should stay in Region II.</p>

