

1 **5.3.2 Water Resources**

2 This section describes the potential effects and compares the resource value of the Land
 3 Exchange Proposed Action on water resources of the federal and non-federal lands to be
 4 exchanged, as well as for Land Exchange Alternative B and the Land Exchange No Action
 5 Alternative. The effects on the federal and non-federal lands are discussed together to facilitate
 6 comparison between the water resources of the lands exchanged. The total yield and quality of
 7 surface and groundwater currently leaving the non-federal tracts and flowing into the federal
 8 estate would not be altered by any of the Land Exchange alternatives. Under the Land Exchange
 9 Proposed Action and alternatives, the Superior National Forest would retain its ongoing
 10 responsibility for managing water resources on USFS lands in accordance with the Forest Plan.
 11 Table 5.3.2-1 shows the effects of the Land Exchange Proposed Action and Land Exchange
 12 alternatives on acreage of surface water and wild rice beds.

13 Under the Land Exchange Proposed Action, a net increase of 95.2 acres of DNR-designated
 14 public water lakes (2.1 miles of shoreline) and 4.6 miles of public water streams would be added
 15 to the federal estate. By comparison, under Land Exchange Alternative B, a net increase of 116.8
 16 acres of public water lakes (2.6 miles of shoreline) and 3.6 miles of public water streams would
 17 be added to the federal estate. One difference is that, under the Land Exchange Proposed Action,
 18 all of Mud Lake (30.5 acres) would be exchanged for the private lands, while under Land
 19 Exchange Alternative B only about 8.9 acres of Mud Lake would be included in the land
 20 exchange. Both the Land Exchange Proposed Action and Land Exchange Alternative B would
 21 result in a net increase of wild rice beds to the federal estate. Hay Lake Lands (Tract 1) contain
 22 known wild rice beds (approximately 126 acres).

23 **Table 5.3.2-1 Net Change in Surface Water and Wild Rice Beds to the Federal Estate**
 24 **Resulting from the Land Exchange Proposed Action Compared to the Land**
 25 **Exchange Alternative B**

Alternative	Net Increase/(Decrease) of Water Resources			
	Public Water Lakes acres	Public Water Lakes miles of shoreline	Public Water Streams miles	Wild Rice Beds acres
Land Exchange Proposed Action	<u>95.2</u>	2.1	<u>4.6</u>	> <u>125.7</u> ¹
Land Exchange Alternative B	<u>116.8</u>	<u>2.6</u>	<u>3.6</u>	> <u>125.7</u> ¹
Land Exchange No Action	0	0	0	0

26 ¹ Excludes area of wild rice beds in Pike River. Presence of wild rice in the Pike River, which runs through Rice Lake, was
 27 noted in Barr's surveys (Barr 2010a, 2011a and 2012a), but the area of rice was not calculated.

28 There is limited groundwater or surface water quality data available for the non-federal tracts,
 29 with the exception of sulfate data for the Hay Lake Lands. There are, however, no known
 30 reasons to suspect surface water or groundwater contamination of any of the tracts from human
 31 activities. In general, water quality is expected to reflect natural conditions as similar to that
 32 found from MPCA regional studies (see Section 4.3.2.2.3).

33 **5.3.2.1 Methodology and Evaluation Criteria**

34 The area of analysis for water resource effects of the Land Exchange alternatives included the
35 federal and non-federal tracts proposed for the exchange.

36 Since the Land Exchange Proposed Action would not actually result in any direct effects, as
37 there are no construction or other activities proposed that would affect water resources, this
38 assessment focuses on a comparison of the net change in the quantity and quality of water
39 resources between the federal and non-federal tracts involved in the exchange.

40 **5.3.2.1.1 Groundwater Evaluation Criteria**

41 Groundwater resource evaluation criteria for the Land Exchange Proposed Action include a
42 qualitative assessment of potential for groundwater contamination of the non-federal properties
43 using MDNR and MPCA groundwater quality data.

44 **5.3.2.1.2 Surface Water and Wild Rice Evaluation Criteria**

45 Surface water evaluation criteria for the Land Exchange Proposed Action include a comparison
46 of the length of public water streams/rivers, public water lake acreage, and shoreline length
47 between the federal and non-federal lands. This was used to determine the net change in quantity
48 of waterbodies. In addition, a qualitative assessment of surface water quality was conducted
49 taking into consideration available water quality data, aerial photographs, and GIS information.

50 Wild rice evaluation criteria include a comparison in the amount of known or potential wild rice
51 beds between federal and non-federal lands. This was used to determine the potential change in
52 acres of wild rice on the federal estate. Information that was used in the analysis of wild rice
53 beds included available field data, aerial photographs, and GIS layers.

54 **5.3.2.2 Land Exchange Proposed Action**

55 The Land Exchange Proposed Action would involve the transfer of 6,495.4 acres of federal lands
56 from public to private ownership, and up to 7,075.0 acres of private land to public ownership
57 (Figure 3.3-1).

58 **5.3.2.2.1 Groundwater**

59 The Land Exchange Proposed Action would not directly result in a change in groundwater
60 quantity or quality presently at the non-federal tracts. Evaluation of existing hydrogeologic data
61 did not suggest the potential for groundwater contamination from human activity from any of the
62 tracts. Therefore, there does not appear to be any substantive difference in the quality of
63 groundwater resources between the federal and non-federal tracts.

64 **5.3.2.2.2 Surface Water and Wild Rice**

65 The Land Exchange Proposed Action would not directly result in a change in surface water
66 quantity or quality at the non-federal tracts. There would be a net increase to the federal estate of
67 4.6 miles of public water streams, 95.2 acres of public water lakes (including 2.1 miles of
68 additional shoreline), and at least 125.7 acres of wild rice beds under the Land Exchange
69 Proposed Action.

70 Table 5.3.2-2 summarizes the federal and non-federal surface water resources and shows the net
71 changes in these resources to the federal estate that would result from the Land Exchange
72 Proposed Action. The Hay Lake Lands (Tract 1) account for the majority of the net gain in
73 surface water and wild rice beds to the federal estate from all the non-federal lands.

74 **Table 5.3.2-2 Net Change in Surface Water and Wild Rice Beds to the Federal Estate (Land**
75 **Exchange Proposed Action)**

	Surface Water Resource			
	Public Water Lakes, acres	Public Water Lakes, miles shore	Public Water Streams, miles	Wild Rice Beds, acres
Lands Conveyed				
Federal Lands	<u>30.5</u>	0.9	<u>4.5</u>	0.0
Lands Acquired				
Tract 1 – Hay Lake	<u>125.7</u>	2.8	<u>8.1</u>	> <u>125.7</u> ¹
Tract 2 – Lake County	0.0	0.0	<u>0.0</u>	0.0
Tract 3 – Wolf Lands	0.0	0.0	<u>1.0</u>	0.0
Tract 4 – Hunting Club	0.0	0.0	0.0	0.0
Tract 5 – McFarland	0.0	0.2	0.0	0.0
Subtotal: Non-federal Lands	<u>125.7</u>	3.0	10.5	> <u>125.7</u> ¹
Net Increase/(Decrease)	<u>95.2</u>	2.1	<u>4.6</u>	><u>125.7</u>¹

76 ¹ Excludes area of wild rice beds in Pike River.

77 5.3.2.3 Land Exchange Alternative B

78 Under the Land Exchange Alternative B, 4,752.6 acres of federal lands would be transferred
79 from public to private ownership, and 4,926.3 acres of land from private to public ownership, for
80 a net increase in 173.7 acres in the federal estate (Figure 3.3-2).

81 5.3.2.3.1 Groundwater

82 The Land Exchange Alternative B would not directly result in a change in groundwater quantity
83 or quality at the non-federal tracts. Evaluation of existing hydrogeologic data did not suggest the
84 potential for groundwater contamination from human activity from any of the tracts. Therefore,
85 there does not appear to be any substantive difference in the quality of groundwater resources
86 between the federal and non-federal tracts.

87 5.3.2.3.2 Surface Water and Wild Rice

88 The Land Exchange Alternative B would not directly result in a change in surface water quantity
89 or quality at the non-federal tracts. There would be a net increase to the federal estate of about
90 3.6 miles of public water streams, under Land Exchange Alternative B. There would also be a
91 net increase of about 116.8 acres of public water lake area (including 2.6 miles of shoreline) and
92 at least 125.7 acres of wild rice beds under the Land Exchange Alternative B.

93 Table 5.3.2-3 summarizes the federal and non-federal surface water resources and shows the net
94 changes in these resources to the federal estate that would result from the Land Exchange
95 Alternative B.

96 **Table 5.3.2-3 Net Change in Surface Water and Wild Rice Beds to the Federal Estate (Land**
 97 **Exchange Alternative B)**

	Surface Water Resource			
	Public Water Lakes, acres	Public Water Lakes, miles shore	Public Water Streams, miles	Wild Rice Beds, acres
Lands Conveyed				
Federal Lands	<u>8.9</u>	<u>0.2</u>	<u>4.5</u>	0.0
Lands Acquired				
Tract 1	<u>125.7</u>	2.8	<u>8.1</u>	> <u>125.7</u> ¹
Net Increase/(Decrease)	<u>116.8</u>	<u>2.6</u>	<u>3.6</u>	><u>125.7</u>¹

98 ¹ Excludes area of wild rice beds in Pike River.

99 **5.3.2.4 Land Exchange No Action Alternative**

100 Under the Land Exchange No Action Alternative, the Land Exchange Proposed Action would
 101 not take place and would result in no changes in existing water resources under federal
 102 ownership. The Superior National Forest would have an ongoing responsibility for managing
 103 water resources on the federal lands in accordance with the Forest Plan. The Land Exchange No
 104 Action Alternative would not change the USFS responsibility for managing water resources.

