4.6.3 Current habitat conditions

Aquatic habitat conditions in the Miami River watershed have been described in the Miami River Watershed Assessment (E&S 2001) and more recently in *Fish Habitat Assessment in the Miami Basin* (ODFW 2005). These assessments relied on stream survey data collected through the ODFW Aquatic Inventories Project from 1993 – 2003 specific to the Miami River and selected tributaries (Figure 27). The following is a summary of habitat conditions focusing on the key variables; fine sediments in the gravels, presence and abundance of pool habitat, quantity of instream large woody debris, and quality of summer and rearing habitat for coho salmon. A detailed account of the stream survey data can be found in ODFW (2005).

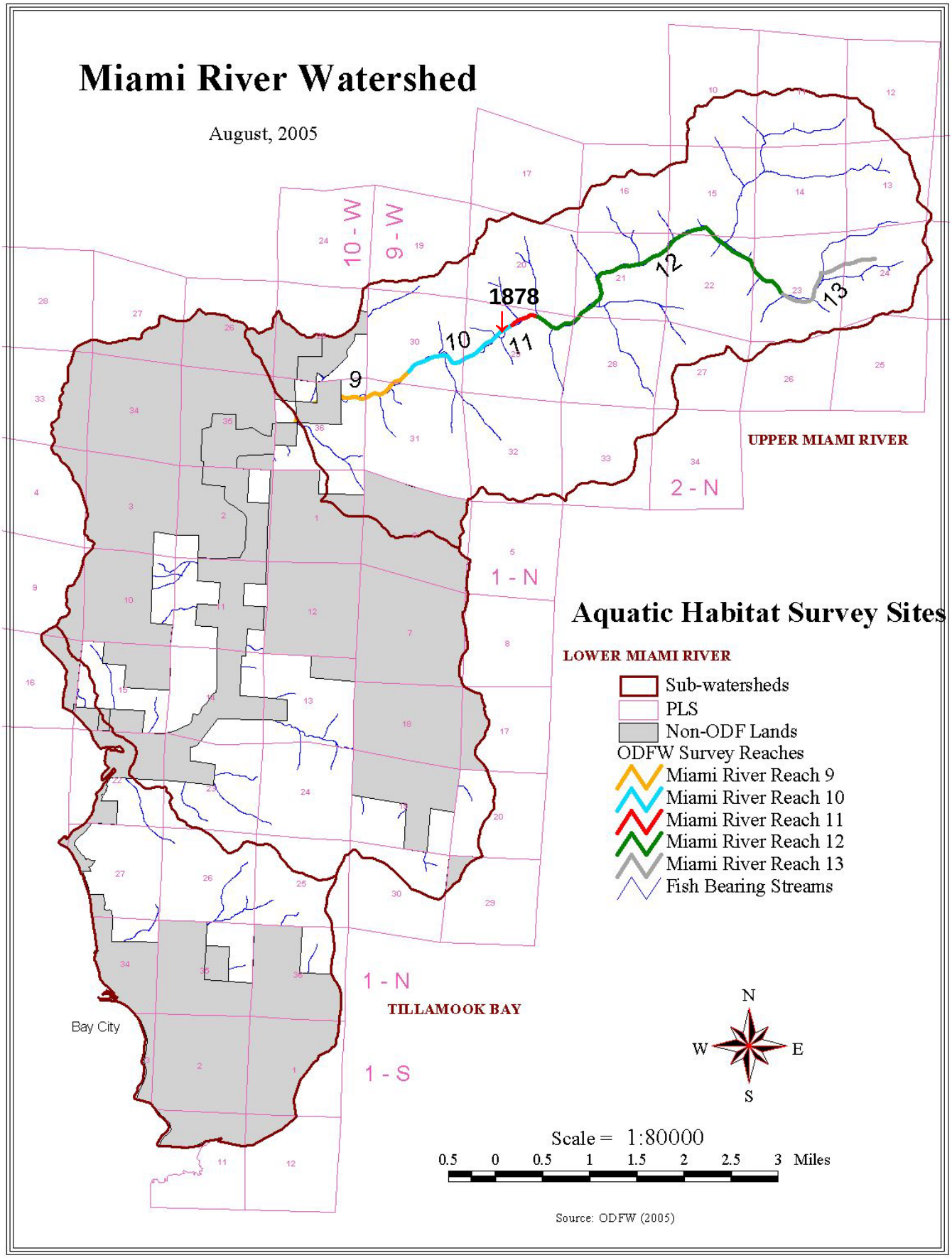

Figure 1. ODFW aquatic habitat survey sites on ODF lands within the Miami River Watershed Project Area (from ODFW 2005).

Qualitative ratings (low, moderate and high) describing habitat variables are used. These were established by ODFW (2005) based on “reference” values collected from reference sites between 1992 and 2003. Low, moderate and high represent the 25th, median, and 75th percentile, respectively, of the reference values. ODFW (2005) does not present correlations between these percentages and what would be expected in a natural range of variability. Therefore, a value (i.e. high >75%) does not necessarily represent a goal or target value.

4.6.3.1 Tillamook Bay Frontal Subwatershed

The only stream surveyed in this subwatershed was Vaughn Creek on private lands. The surveyed reaches had a low amount of pool habitat, due to the lack of deep pools and a low amount of secondary channel habitat. The amount of gravel in the streambed was good and the amount of fine sediments was low to moderate. Structural complexity was low due to the lack of large pieces of wood. Riparian zones lacked large conifer trees and shade levels were low.

Overall, summer and over-winter habitat capacity and quality was rated low for juvenile coho salmon in Vaughn Creek. The amount of pool habitat, number of deep pools, and amount of secondary channels was low providing for poor rearing habitat. This is likely due to extensive channel alterations caused by agriculture, rural residential and urban development. The lower reaches of Vaughn Creek, which are sensitive, low gradient channel types, are the most extensively modified reaches in the project area.

4.6.3.2 Lower Miami Subwatershed

Surveys were conducted on several tributaries to the Miami (Peterson Creek, Margary Creek, Moss Creek, Waldron Creek, Munich Creek), and the lower reaches of the Miami River, all of which are private lands. No surveys were conducted on ODF lands.

The surveyed tributaries had a low to moderate amount of pool habitat, but lacked deep pools. There was a moderate amount of secondary channel habitat. The amount of gravel in the streambed was moderate, and the amount of fine sediments was low to moderate. Structural complexity was good in the surveyed reaches, due to the amount of large pieces of wood. With the exception of Margary Creek, riparian zones lacked large conifer trees in all of the surveyed reaches, but shade levels were relatively high.

Overall, summer and over-wintering habitat capacity and quality was rated poor to fair for juvenile coho salmon in these tributaries. Despite moderate to good levels of large wood, the amount of pool habitat, number of deep pools, and amount of secondary channels was relatively low.

The surveyed reaches of the lower Miami River had an abundance of pool habitat, including deep pools and the amount of secondary channel habitat was high. The amount of gravel in the streambed was low and the amount of fine sediments was moderate. Structural complexity was low in the surveyed reaches, primarily due to the lack of large pieces of wood. Riparian zones lacked large conifer trees in all of the surveyed reaches, and shade levels were low. This can be expected since the lands adjacent to the lower reaches of the Miami River are of a grass/meadow composition.

Overall, summer habitat capacity and quality was rated fair for juvenile coho salmon in the lower Miami River. The amount of pool habitat, number of deep pools, and amount of secondary channels provide good rearing habitat. The number of low gradient stream miles in the tributaries also indicates good rearing potential.

Over-winter habitat capacity for coho salmon was rated as fair because of the abundance of pool habitat and size of stream, but the quality was low to fair. The streams lack slow-water pool habitat and few of the pools contained sufficient large wood to create complex habitats.

4.6.3.3 Upper Miami Subwatershed

Surveys were conducted on Prouty Creek and the mainstem Miami River upstream of confluence with Prouty Creek, all of which represent ODF lands. The surveyed reaches of streams had an abundance of pool habitat, including deep pools and the amount of secondary channel habitat was high. The amount of gravel in the streambed was moderate, but the amount of fine sediments was high, except in the most recent survey of reach 10. Structural complexity was low to moderate in the surveyed reaches, primarily due to the lack of large pieces of wood. Riparian zones lacked large conifer trees in all of the surveyed reaches, and shade levels ranged from low to high.

Overall, summer habitat capacity and quality was rated fair to high for juvenile coho salmon in the mainstem Miami River. The amount of pool habitat, number of deep pools, and amount of secondary channels provide good rearing habitat. The number of low gradient stream miles in the tributaries also indicates good rearing potential.

Over-winter habitat capacity for coho salmon was rated as fair to high because of the abundance of pool habitat and size of stream, but the quality was low to fair. The streams lack slow-water pool habitat and few of the pools contained sufficient large wood to create complex habitats.

4.6.4 Critical Habitats

Critical habitats for fish are designated channel habitat types that potentially contain large areas of preferred habitat conditions. In general, these are the low gradient (less than 4%) stream reaches important to anadromous and resident salmonids for spawning, rearing and migration. In the Miami River assessment area, all of the FP1, FP2, FP3, LM, MM, and MC channel habitat types (see Figure 28) can be considered critical or important to a species or specific life stage.

Critical habitats were identified for State lands by overlaying spawning and juvenile fish survey (ODFW 2005) information with the FP1, FP2, FP3, LM, MM, and MC channel habitat types. Coho salmon spawning surveys from 1998 to 2003 found that spawning occurred in the upper reaches of the Miami River, Prouty Creek, Stuart Creek and Moss Creek. This corresponds to habitat conditions in the upper Miami River subwatershed, which exhibit good conditions for coho salmon. Even though Moss Creek exhibits only poor to fair conditions for instream habitat, surveys indicate that coho salmon have an affinity for utilizing these habitats based on continued presence.

Figure 28 identifies approximately 10 miles of critical habitat on state lands (9.1 miles in the upper Miami River and on 1.1 miles in the lower Miami River subwatersheds).

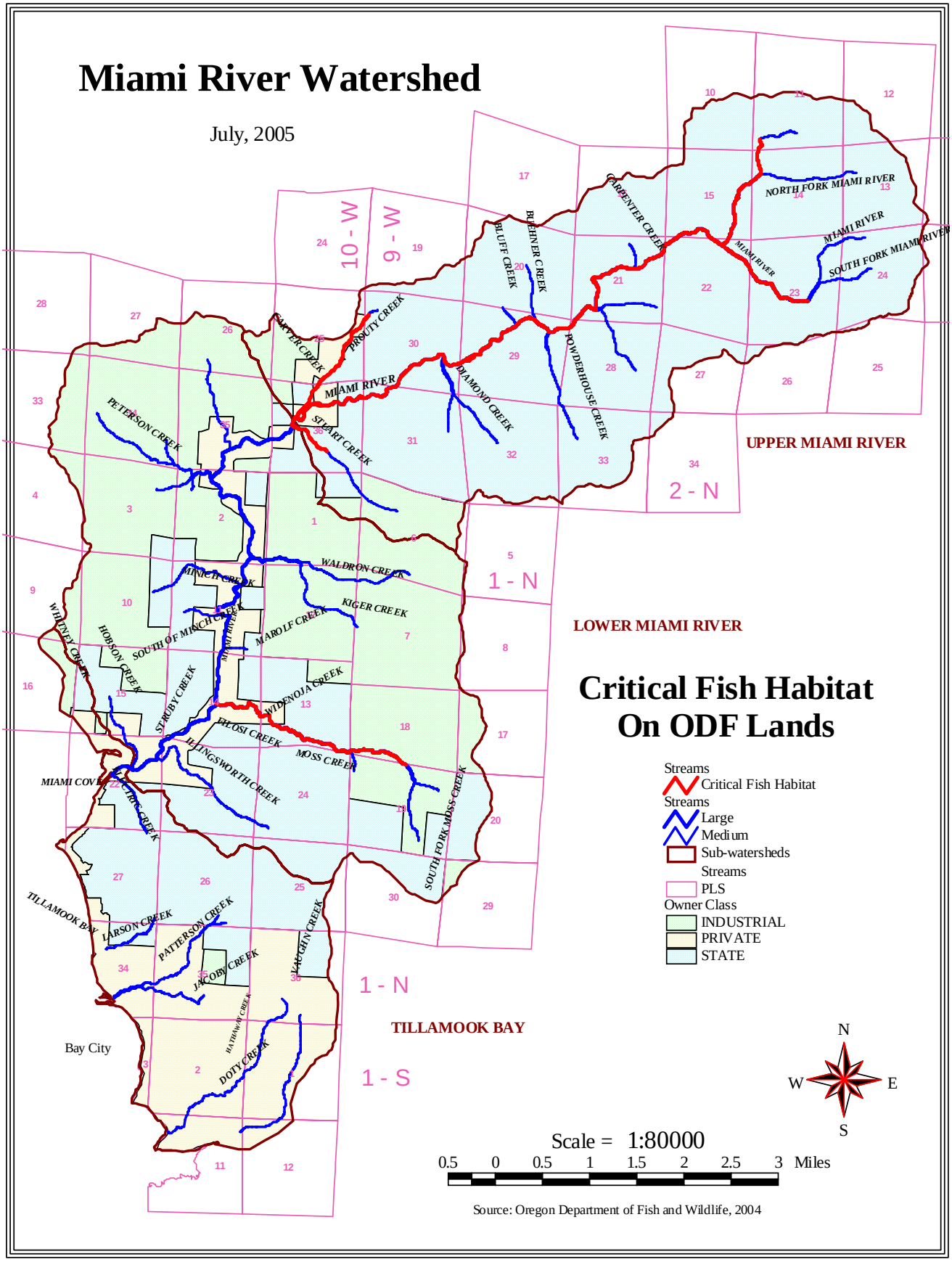

Figure 2. Potential critical fish habitat on ODF lands within the Miami River Watershed Project Area.