

#### 4.6.1 Fish Presence and Distribution

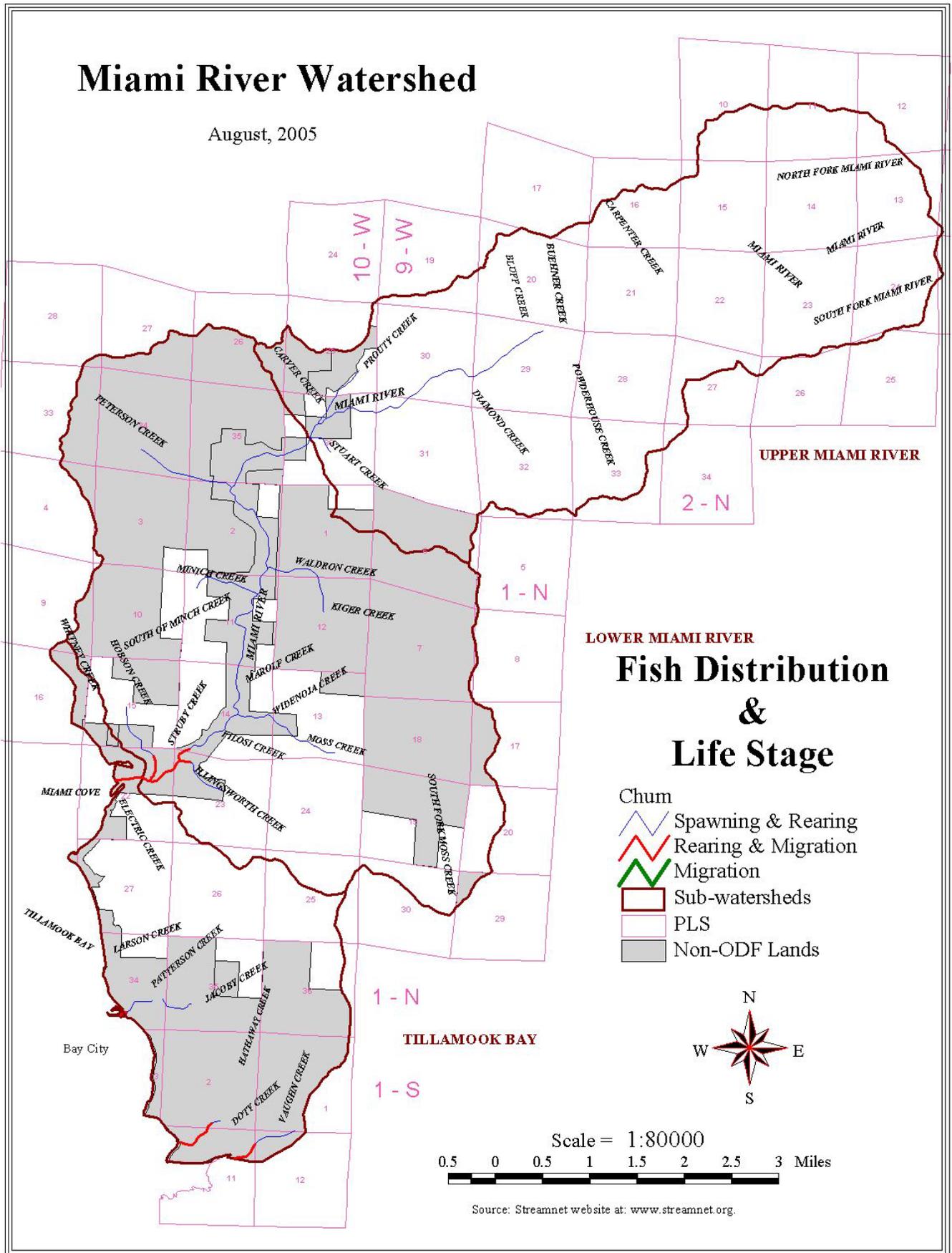
Anadromous fish species known to occur in the mainstem and most tributaries of the Miami basin, are coho salmon (*Oncorhynchus kisutch*), fall Chinook salmon (*O. tshawytscha*), chum salmon (*O. keta*), and winter steelhead (*O. mykiss*). These species are distributed throughout the watershed to varying degrees. Chum and Chinook salmon spawn and rear in the low gradient portions of the Miami River and into the lower reaches of some tributaries (Figure 21 and 22). Coho salmon and winter steelhead are found throughout the mainstem and larger tributaries (Figure 23 and 24).

On figures 21 – 24, species distribution is designated by life stage. Here life stages are defined as type of use during a specific stage in the species time in fresh water. Spawning and rearing refers to areas used by the species for spawning and once emerged, areas conducive to juvenile rearing and growth. Rearing and migration refers to areas where juvenile rearing occurs as well as migration of adults and juveniles. No spawning is likely to occur in these areas. Similarly, migration refers to areas where the species (adult or juvenile) travels though but does not spend sufficient time in order to spawn or rear.

In 1998, coho salmon were listed as threatened under the federal Endangered Species Act (<http://www.nwr.noaa.gov/>). However, the listing status of Oregon coastal coho salmon is currently under review.

Resident and anadromous cutthroat trout (*O. clarki clarki*) and Pacific lamprey (*Lampetra tridentata*) are present. Native non-salmonid species are present in the watershed, but their distributions are not known at this time. Additionally, the presence of exotic or non-native species is not known or documented at this time.

The distribution of anadromous fish varies depending on the species habitat needs at various life stages. Fish distribution by general life stage category is illustrated in Figures 21-24 ([www.streamnet.org](http://www.streamnet.org)). Streamnet estimates fish distribution based on a 1:100,000-scale streams layer (Figure 25 and Table 22). It is likely that fish distribution is more extensive than portrayed by , particularly for winter steelhead and coho salmon.



**Figure 1. Estimated chum salmon distribution in the Miami River Watershed Project Area.**

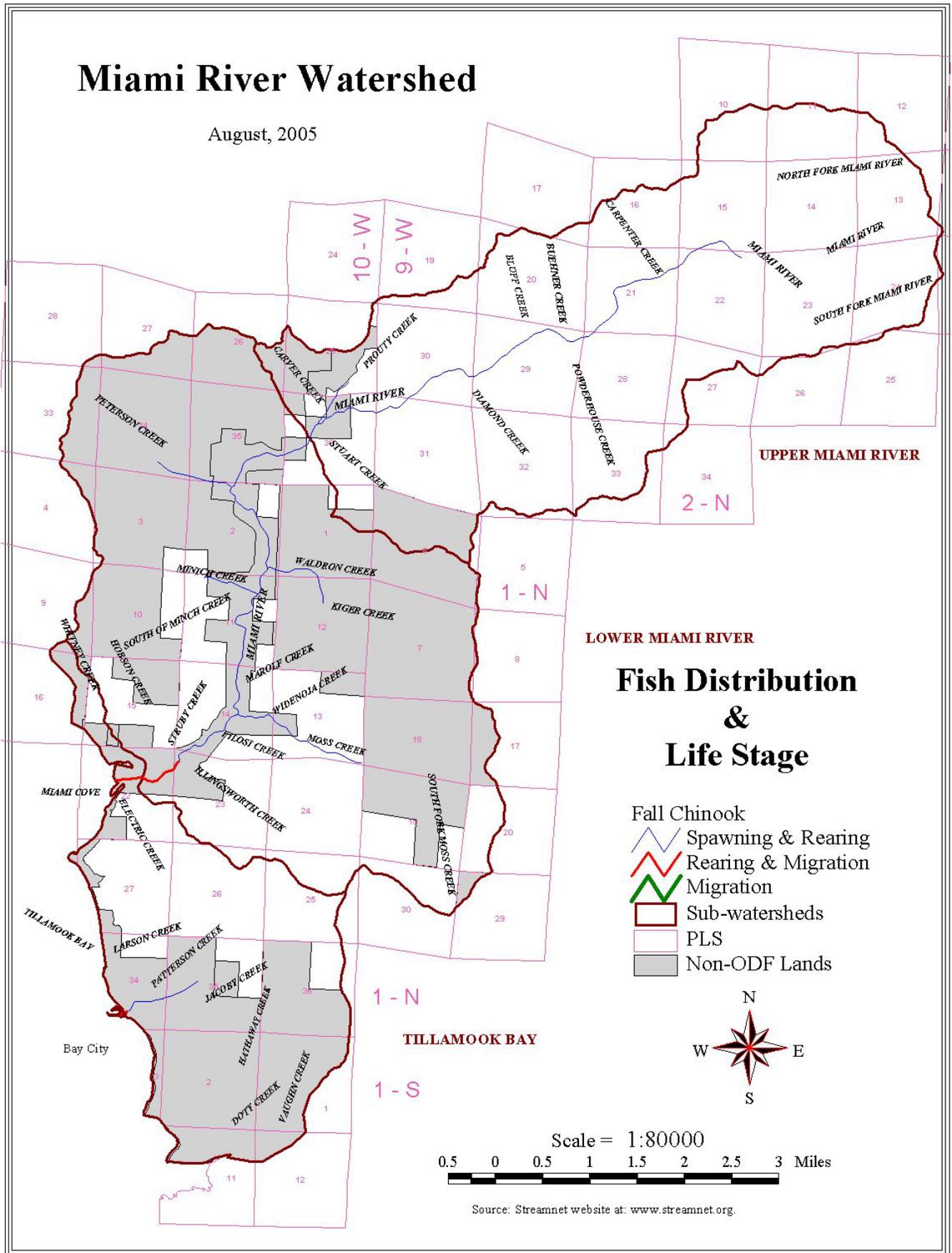
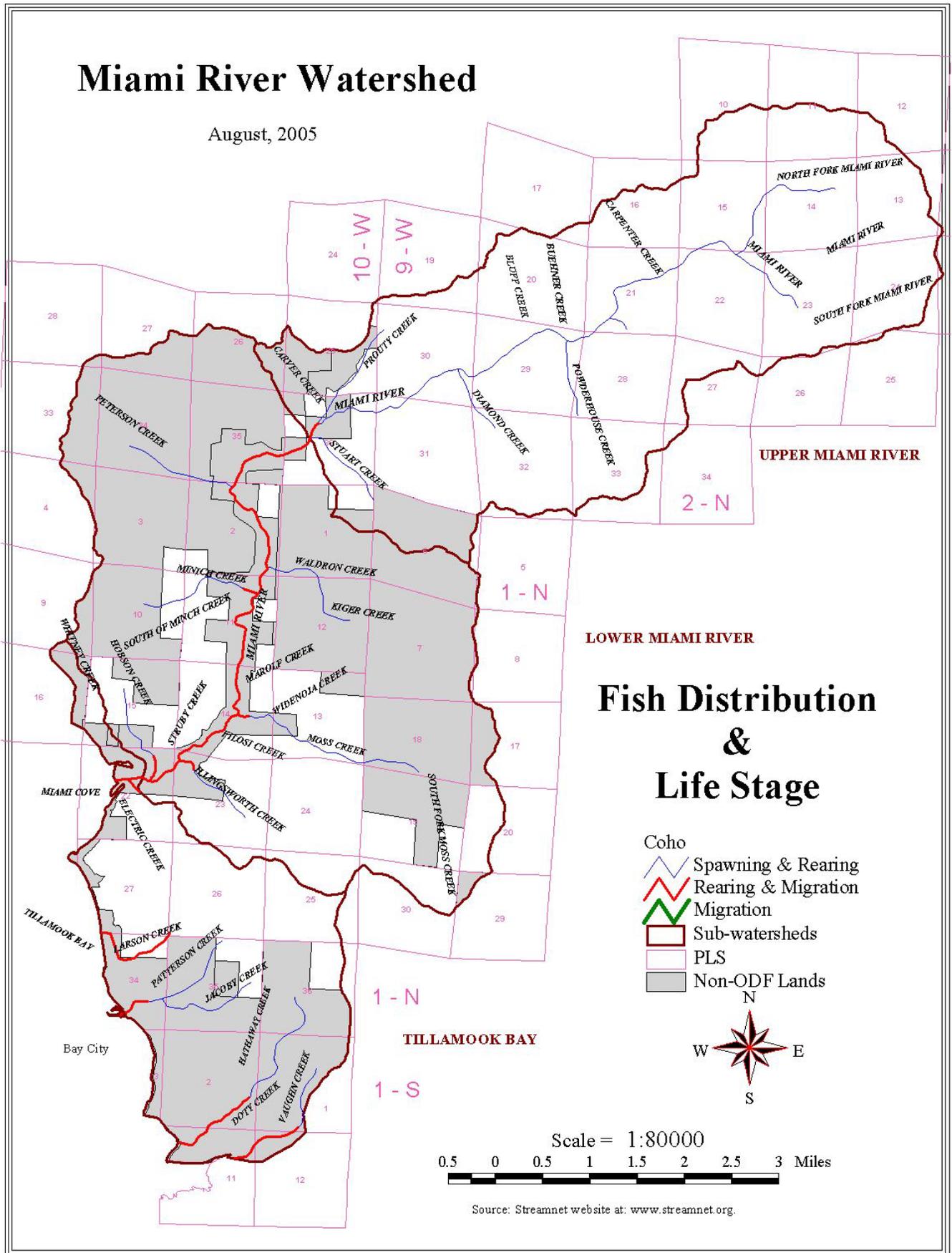


Figure 2. Estimated fall Chinook salmon distribution in the Miami River Watershed Project Area.



**Figure 3. Estimated coho salmon distribution in the Miami River Watershed Project Area.**

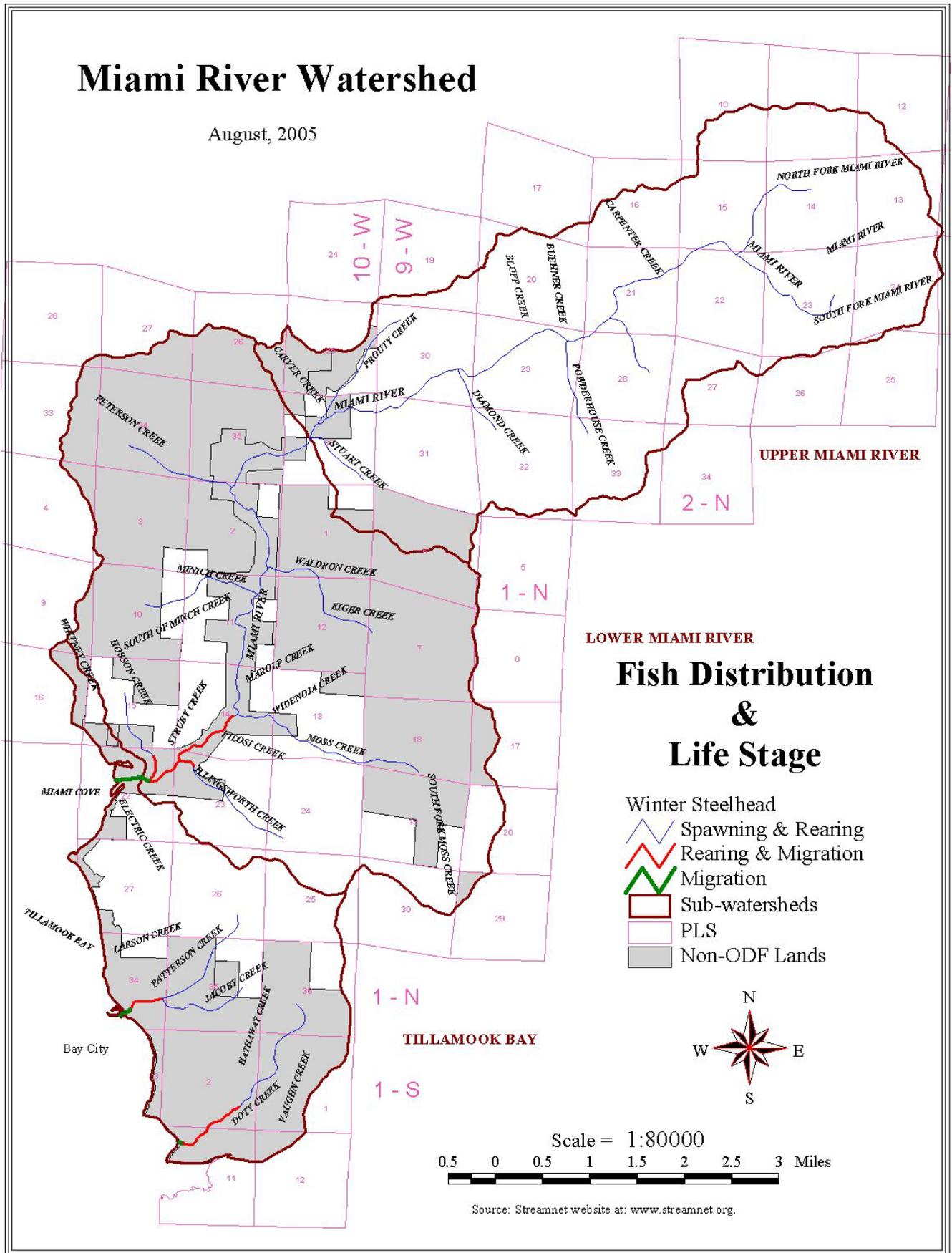
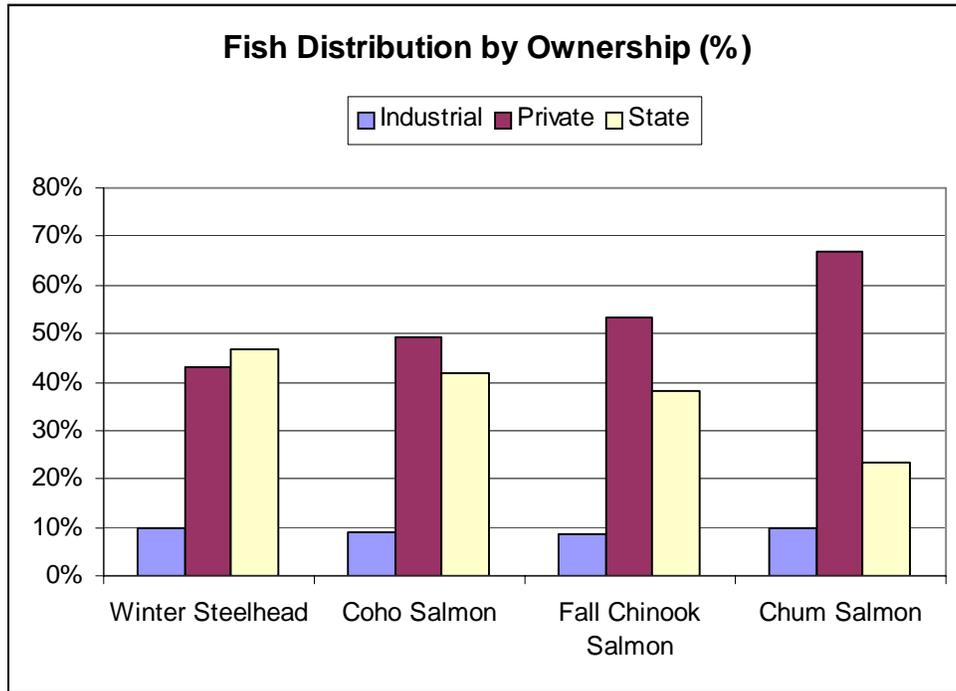


Figure 4. Estimated winter steelhead distribution in the Miami River Watershed Project Area.



**Figure 5. Fish distribution as a function of ownership (in percent) for the Miami River Watershed Project Area.**

**Table 1. Miles of fish distribution by ownership and general life stage category for the Miami River Watershed Assessment project area (www.streamnet.org).**

|                       | Fish Species               | Ownership  |         |       |                       |                   | Fish Species               | Ownership  |         |       |       |
|-----------------------|----------------------------|------------|---------|-------|-----------------------|-------------------|----------------------------|------------|---------|-------|-------|
|                       |                            | Industrial | Private | State | Total                 |                   |                            | Industrial | Private | State | Total |
| UPPER MIAMI RIVER     | <b>Winter Steelhead</b>    |            |         |       |                       | LOWER MIAMI RIVER | <b>Winter Steelhead</b>    |            |         |       |       |
|                       | Spawning and Rearing       | 0.00       | 1.16    | 12.09 | 13.25                 |                   | Spawning and Rearing       | 3.27       | 6.46    | 2.72  | 12.45 |
|                       | Rearing and Migration      | 0.00       | 0.00    | 0.00  | 0.00                  |                   | Rearing and Migration      | 0.00       | 1.70    | 0.00  | 1.70  |
|                       | Migration                  | 0.00       | 0.00    | 0.00  | 0.00                  |                   | Migration                  | 0.00       | 0.09    | 0.00  | 0.09  |
|                       | Total                      | 0.00       | 1.16    | 12.09 | 13.25                 |                   | Total                      | 3.27       | 8.25    | 2.72  | 14.23 |
|                       | <b>Coho Salmon</b>         |            |         |       |                       |                   | <b>Coho Salmon</b>         |            |         |       |       |
|                       | Spawning and Rearing       | 0.01       | 0.97    | 11.03 | 12.00                 |                   | Spawning and Rearing       | 2.98       | 2.17    | 2.18  | 7.33  |
|                       | Rearing and Migration      | 0.00       | 0.19    | 0.01  | 0.19                  |                   | Rearing and Migration      | 0.00       | 6.07    | 0.12  | 6.20  |
|                       | Migration                  | 0.00       | 0.00    | 0.00  | 0.00                  |                   | Migration                  | 0.00       | 0.00    | 0.00  | 0.00  |
|                       | Total                      | 0.01       | 1.16    | 11.03 | 12.20                 |                   | Total                      | 2.98       | 8.25    | 2.30  | 13.52 |
|                       | <b>Fall Chinook Salmon</b> |            |         |       |                       |                   | <b>Fall Chinook Salmon</b> |            |         |       |       |
|                       | Spawning and Rearing       | 0.00       | 0.88    | 0.00  | 0.88                  |                   | Spawning and Rearing       | 1.42       | 6.39    | 0.97  | 8.77  |
|                       | Rearing and Migration      | 0.00       | 5.43    | 0.00  | 5.43                  |                   | Rearing and Migration      | 0.00       | 0.48    | 0.00  | 0.48  |
|                       | Migration                  | 0.00       | 0.00    | 0.00  | 0.00                  |                   | Migration                  | 0.00       | 0.00    | 0.00  | 0.00  |
|                       | Total                      | 0.00       | 6.31    | 0.00  | 6.31                  |                   | Total                      | 1.42       | 6.86    | 0.97  | 9.25  |
|                       | <b>Chum Salmon</b>         |            |         |       |                       |                   | <b>Chum Salmon</b>         |            |         |       |       |
| Spawning and Rearing  | 0.00                       | 0.99       | 3.04    | 4.03  | Spawning and Rearing  | 1.74              | 7.16                       | 1.00       | 9.89    |       |       |
| Rearing and Migration | 0.00                       | 0.00       | 0.00    | 0.00  | Rearing and Migration | 0.00              | 1.09                       | 0.00       | 1.09    |       |       |
| Migration             | 0.00                       | 0.00       | 0.00    | 0.00  | Migration             | 0.00              | 0.00                       | 0.00       | 0.00    |       |       |
| Total                 | 0.00                       | 0.99       | 3.04    | 4.03  | Total                 | 1.74              | 8.25                       | 1.00       | 10.98   |       |       |
| TILLAMOOK BAY         | <b>Winter Steelhead</b>    |            |         |       |                       |                   |                            |            |         |       |       |
|                       | Spawning and Rearing       | 0.04       | 3.27    | 0.54  | 3.85                  |                   |                            |            |         |       |       |
|                       | Rearing and Migration      | 0.00       | 1.15    | 0.00  | 1.15                  |                   |                            |            |         |       |       |
|                       | Migration                  | 0.00       | 0.40    | 0.00  | 0.40                  |                   |                            |            |         |       |       |
|                       | Total                      | 0.04       | 4.81    | 0.54  | 5.39                  |                   |                            |            |         |       |       |
|                       | <b>Coho Salmon</b>         |            |         |       |                       |                   |                            |            |         |       |       |
|                       | Spawning and Rearing       | 0.04       | 4.03    | 0.31  | 4.38                  |                   |                            |            |         |       |       |
|                       | Rearing and Migration      | 0.00       | 3.09    | 0.46  | 3.56                  |                   |                            |            |         |       |       |
|                       | Migration                  | 0.00       | 0.00    | 0.00  | 0.00                  |                   |                            |            |         |       |       |
|                       | Total                      | 0.04       | 7.13    | 0.78  | 7.94                  |                   |                            |            |         |       |       |
|                       | <b>Fall Chinook Salmon</b> |            |         |       |                       |                   |                            |            |         |       |       |
|                       | Spawning and Rearing       | 0.00       | 0.87    | 0.00  | 0.87                  |                   |                            |            |         |       |       |
|                       | Rearing and Migration      | 0.00       | 0.34    | 0.00  | 0.34                  |                   |                            |            |         |       |       |
|                       | Migration                  | 0.00       | 0.00    | 0.00  | 0.00                  |                   |                            |            |         |       |       |
|                       | Total                      | 0.00       | 1.20    | 0.00  | 1.20                  |                   |                            |            |         |       |       |
|                       | <b>Chum Salmon</b>         |            |         |       |                       |                   |                            |            |         |       |       |
| Spawning and Rearing  | 0.00                       | 1.27       | 0.00    | 1.27  |                       |                   |                            |            |         |       |       |
| Rearing and Migration | 0.00                       | 1.07       | 0.00    | 1.07  |                       |                   |                            |            |         |       |       |
| Migration             | 0.00                       | 0.00       | 0.00    | 0.00  |                       |                   |                            |            |         |       |       |
| Total                 | 0.00                       | 2.34       | 0.00    | 2.34  |                       |                   |                            |            |         |       |       |

## 4.6.2 Fish Passage Barriers

Fish distribution can be altered by the presence of fish passage barriers. Potential barriers impeding the movement of anadromous and resident fish species (at various life stages) exist in the watershed. The Oregon Department of Fish and Wildlife (ODFW 2005) documented 25 barriers across all ownerships in the Miami River watershed as determined by Streamnet ([www.streamnet.org](http://www.streamnet.org)) and ODF.

Culverts identified in the Streamnet barrier database are those that do not meet certain fish passage criteria, not necessarily those that prevent all fish at all times. Of the 21 barriers listed by Streamnet, 19 are culverts (the other two are a waterfall and a dam). Streamnet barrier number 3 identified in ODFW (2005) has apparently been removed and no longer poses as a barrier. Three identified barriers are thought to have partial passage. The remaining 18 are documented as either “non-blocking” or “unknown”, leaving considerable speculation as to the validity of the data. Streamnet barriers on non-ODF lands are displayed on Figure 26. Potential barriers on ODF lands will rely more specifically on road survey data and field verification where available.

In 2004, the ODF conducted a road survey known as RIMS. The survey was conducted on all Oregon State Forest roads open for winter travel in the Miami River watershed. Among general road condition characteristics, RIMS contains information related to fish presence and passage. Fish presence was categorized into four groups:

- known fish presence (known Type F stream),
- no fish presence (confirmed Type N),
- likely fish presence,
- and, unknown fish presence.

In addition, the passage capability of the stream crossing structure was documented as:

- adult barrier (> 2-foot drop, or bare culvert with >5% slope),
- juvenile barrier (>6-inch drop, or bare culvert without complete backwatering through entire culvert),
- or, full passage (<6-inch drop, or gravel in bottom of culvert, or complete backwatering).

Of the 154 stream crossings inventoried, the database identified 42 as potential barriers: 11 juvenile barriers and 31 adult barriers. The RIMS survey identified one certain barrier to all fish migration, and 3 additional barriers to juvenile migration in the 154 stream crossings surveyed. The one adult barrier included less than 150 feet of usable habitat above the crossing before waterfalls naturally block all fish passage.

This survey also identified likely and possible barriers based on stream characteristics. Likely barriers mean that the stream below the crossing had physical characteristics of a fish bearing stream. Many of these likely barriers may be on streams that do not contain fish because of barriers downstream. The RIMS survey identified 6 possible adult barriers and an additional 2 juvenile barriers in this category. If there are no accurate fish presence surveys in these areas, such surveys should be a priority in these 8 locations.

Unknown barriers include all streams where physical characteristics below the crossing could not rule out fish passage. There were 24 adult barriers and an additional 6

juvenile barriers in this category. These would be marginal fish habitat if fish use were found below the crossing, and should be a moderate priority for survey if such surveys are not already available.

RIMS barrier data was further refined based on limited field reconnaissance. Potential barriers were grouped into four categories: known natural barriers, Streamnet non-ODF barriers, ODF barriers unconfirmed, and ODF barriers confirmed (Figure 26). Barriers depicted in Figure 26 that are outside of the mapped fish distribution may be barriers to cutthroat trout.

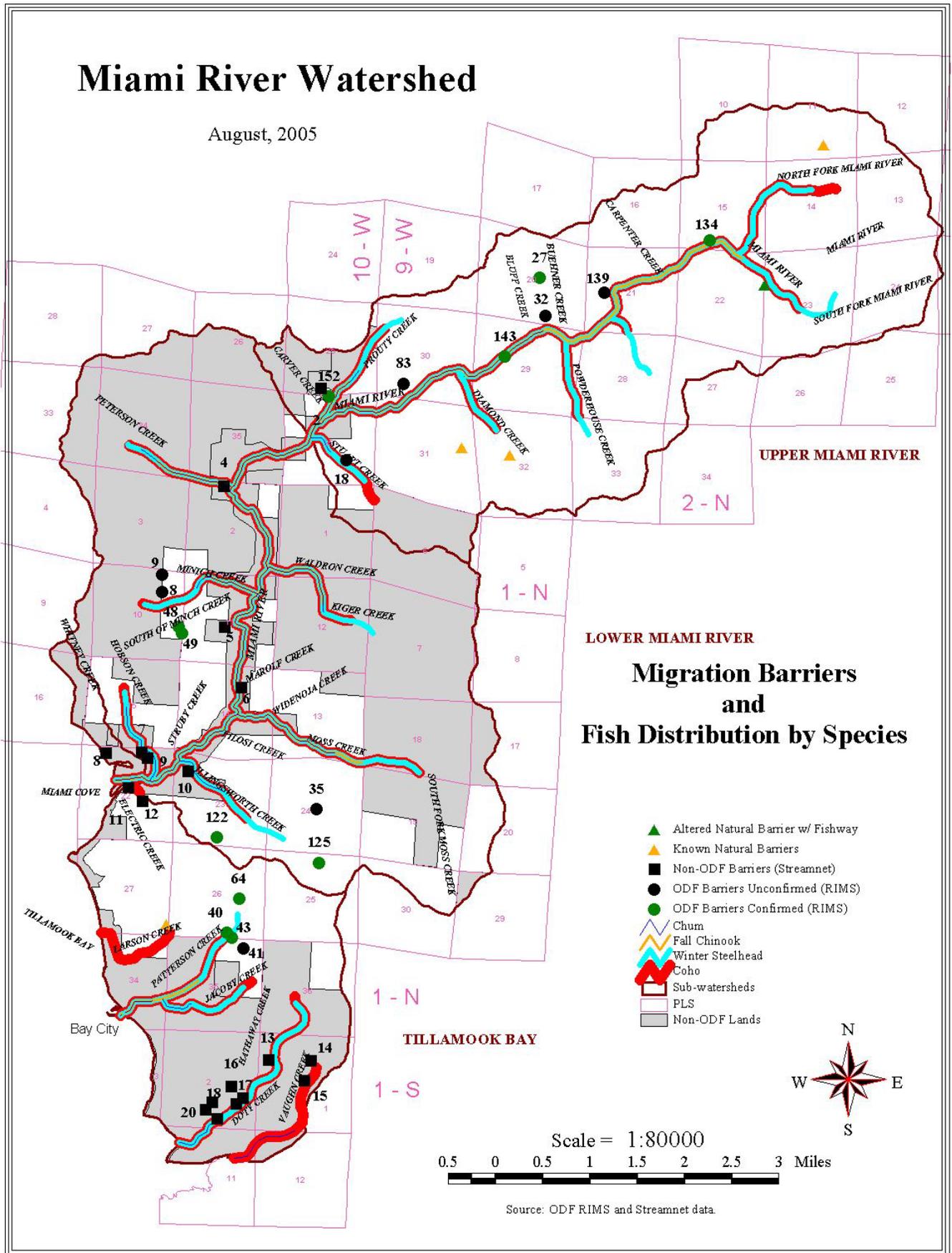


Figure 6. Map of fish passage barriers from RIMS and Streamnet and fish distribution by species for the Miami River Watershed Project Area.

There are five (5) barriers known to occur naturally. One of these is on the upper reach of the mainstem Miami River. This waterfall has a fishway and both coho and winter steelhead have been found above the falls, illustrating it is not a complete barrier. There are 19 barriers identified by Streamnet depicted on Figure 26. ODFW (2005) identified five (5) barriers (Streamnet barriers 10, 11, 12, 5, 6) located on private land that are potentially limiting fish access to streams on ODF lands. Possibly as much as 3.6 miles (5.8 kilometers) may be potentially blocked.

Eight stream crossings identified as potential barriers in the RIMS database need field verification to confirm their barrier status. These are identified on Figure 26 as “ODF Barriers Unconfirmed (RIMS)” and are locations 8, 9, 18, 32, 35, 43, 83, and 139.

Twelve stream crossings were identified as likely barriers and identified on Figure 26 as “ODF Barriers Confirmed (RIMS)”. They are further described in Table 23.

**Table 2. Fish migration barriers identified in RIMS and confirmed in the field.**

| RIMS ID# | Subwatershed  | Fish Presence (RIMS) | Field Observation | Notes   |
|----------|---------------|----------------------|-------------------|---|
| 27       | Upper Miami   | Fish                 | Fish              | Barrier confirmed, culvert located at end of known fish presence in Buehner Creek.                                  |
| 40       | Tillamook Bay | Unknown              | Unknown           | Barrier confirmed, however possible barrier downstream on private land (Patterson Creek)                            |
| 41       | Tillamook Bay | Unknown              | Unknown           | Barrier confirmed, however possible barrier downstream on private land (Patterson Creek)                            |
| 48       | Lower Miami   | Likely Fish          | Fish              | Barrier confirmed. Fish observed during field review.   |
| 49       | Lower Miami   | Unknown              | Fish              | Barrier confirmed. Fish observed during field review.   |
| 64       | Tillamook Bay | No Fish              | Unknown           | RIMS data indicates no barrier. Field review indicates likely fish and culvert with over 3-foot drop.               |
| 122      | Lower Miami   | Unknown              | Unknown           | Barrier confirmed. Stream was perennial 05 March 2005. Streamnet barrier #10 identified downstream on private land. |
| 125      | Lower Miami   | Likely               | Likely            | Barrier confirmed.  |
| 127*     | Upper Miami   | Unknown              | Unknown           | Barrier confirmed. No fish presence because of downstream barrier.  |
| 134      | Upper Miami   | Likely               | Likely            | Barrier confirmed, limited habitat available above culvert.   |
| 143      | Upper Miami   | Likely               | Likely            | Barrier confirmed, limited habitat available above culvert.   |
| 152      | Upper Miami   | Fish                 | Fish              | Partial barrier depending on flow conditions. Prouty Creek at edge of ownership.                                    |

\*This barrier is not identified on the map since there is no fish presence and it is clearly above a natural barrier on the North Fork tributary to the North Fork Miami River.