

## 6.5 Ecological Monitoring

Consideration of ecological monitoring programs is recommended when a causal relationship between new unit construction/operational activities and adverse change is established or strongly suspected. The following is a discussion of ecological monitoring for terrestrial (Subsection 6.5.1) and aquatic resources (Subsection 6.5.2) associated with STP 3 & 4.

### 6.5.1 Existing Ecological Monitoring

#### 6.5.1.1 Terrestrial Resources

As discussed in Subsection 2.4.1, the STP site is an approximate 12,220-acre site that was largely historically agricultural land, with a bottomland forest area along the site boundary with the Colorado River. Figure 2.4-1 shows the natural communities of the STP site and surrounding area, while Figure 2.4.-3 shows site wetlands. The site landscape is dominated by the 7,000-acre Main Cooling Reservoir (MCR) and other impoundments. The proposed location of STP 3 & 4 consists primarily of previously developed lands (warehouses, construction parking lots, laydown yards, etc.), a mowed field, and a relatively open sea myrtle/bluestem shrubland area (see Subsection 2.4.1). Wildlife species common to the coastal prairie region of Texas, including white-tailed deer, feral pigs, and various birds, can be found at the STP 3 & 4 site. However, the proposed construction area is abandoned agricultural land and does not contain special or unique habitats or plant communities. A recent survey of the proposed construction area for threatened and endangered species found none (Reference 6.5-1). Areas designated as "critical habitat" by the U.S. Fish and Wildlife Service is not found on the STP site or the associated transmission rights-of-way.

Transmission rights-of-way that originate at the STP site pass through forested, agricultural, and grass-lands typical of Texas coastal prairie, as shown in Figures 2.2-2 and 2.2-4. As discussed in Subsection 5.6.1, existing transmission lines and their rights-of-way are managed by four transmission service providers. Current transmission right-of-way management limits vegetation encroachment on transmission lines to minimize subsequent disruption in service and to reduce other safety hazards. Vegetation management involves mechanical, manual, and chemical methods and all transmission corridor management companies require personnel involved in these maintenance activities be trained and hold Texas Department of Agriculture Commercial Pesticide Applicators Licenses (see Section 5.6).

The proposed location of STP 3 & 4 does not provide habitat for any sensitive terrestrial species, including those federally or state-listed as threatened or endangered, those proposed for listing as threatened or endangered, or candidates for listing as threatened or endangered. Species defined as "important" in NUREG-1555 by virtue of the fact that they are commercially or recreationally valuable do exist within the proposed construction area. These include game species such as white-tailed deer, gray and fox squirrels, mourning doves, and northern bobwhites. However, the area within the construction footprint does not provide high quality or unique habitat for these game species. Also, the proposed construction area's value as wildlife habitat

is diminished by its proximity to STP 1 & 2 and associated infrastructure, with their human activity and noise.

Several drainage ditches are located within the construction footprint of STP 3 & 4 (Reference 6.5-1, see also Subsection 4.3.1). Twenty-nine wetlands and the relocated Little Robbins Slough are near the construction footprint. No other important habitats as defined by NUREG-1555 exist within the proposed construction area.

Regulatory agencies have not required ecological monitoring of the STP site or its associated transmission rights-of-way since the period of reservoir filling (mid-1980s) and there is no ongoing monitoring.

### **6.5.1.2 Aquatic Resources**

STPNOC is currently conducting studies of aquatic communities in the vicinity of the STP site to support the STP 3 & 4 license application to the NRC. These studies are to assess the potential environmental impact of licensing STP 3 & 4 as required by the National Environmental Policy Act. The following aquatic studies will be conducted over the 2007-2008 timeframe.

STPNOC has commissioned ENSR Corporation (Houston, Texas) to survey the fish of the MCR, shown in Figures 2.4-1 and 2.4-2. The 7,000-acre MCR will be sampled based on five fixed sampling stations (circulating water intake area, circulating water discharge area, makeup water area, central levee area, and blowdown area) and three distinct sections (or regions) of the MCR. Sampling began in spring 2007 and will be repeated quarterly (summer, fall, winter, spring) for one year.

Four diverse gear types are used to collect aquatic samples, ensuring that a range of habitats is sampled. Paired otter trawls are being used to sample five fixed and five random stations each quarter. Experimental monofilament gill nets (multiple panels, different mesh sizes) are used to sample each of the three MCR regions quarterly. A large (100-foot-long by 20-foot-long) purse seine is used to sample each region of the MCR each quarter. Standard wire minnow traps are used to sample small fish in the littoral zone of the MCR. These traps are placed adjacent to gill net sets in each region of the MCR on a quarterly basis. The study is intended to yield a list of fish species present, a measure of species richness, and an assessment of relative abundance, as indicated by catch-per-unit effort.

An impingement and entrainment study began in spring 2007 at the Circulating Water Intake Structure to assess potential seasonal impact on aquatic species from operations of the intake structure. These studies will continue to be conducted biweekly or monthly—depending on the season—for one year. Operations personnel will be assisting in the study by operating the traveling screens at frequencies selected to assess impingement on the screens.

Sampling of fish in the Colorado River was conducted beginning in late summer 2007 and will continue through the end of the year to assess fish populations in the lower Colorado River that may be impacted by operation of the Reservoir Makeup Pumping Facility (RMPF). This sampling is intended to supplement lower Colorado River fish

surveys planned by Texas Parks and Wildlife Department's (TPWD) Coastal Division. The TPWD initially planned to begin fish sampling in late spring or early summer of 2007, but now expects to begin sampling in 2008. Figure 2.4-2 shows the reach of the lower Colorado River that will be sampled by the TPWD.

## **6.5.2 Construction, Preoperational, and Operational Monitoring**

### **6.5.2.1 Terrestrial Resources**

The STP 3 & 4 area consists primarily of previously developed lands, a mowed field, and abandoned agricultural lands that have converted to sea myrtle/bluestem shrubland. The resulting diversity of plant species in this area is relatively low. Similarly, the STP 3 & 4 area does not provide exclusive habitat for rare or important species; however, game species common to Texas coastal prairie may be minimally impacted. Therefore, construction will not reduce the local or regional diversity of plants or plant communities. The potentially impacted sea myrtle/bluestem shrubland in the construction footprint is also commonly available at other locations on the STP site as well as offsite. Thus, the potential displacement and construction-related mortality of wildlife will be small relative to regional wildlife populations. Within the construction footprint, one large drainage ditch will be relocated. Potential impacts to wetlands in and near the STP 3 & 4 site will be minimized by best construction management practices employed by STPNOC during construction activities.

Operation of STP 3 & 4 will result in a 2-foot increase in water level in the MCR (see Subsection 4.3.1). However, this increase is not expected to negatively impact the waterbirds nesting on the internal dikes or the waterbirds that forage, drink, or rest in the reservoir.

No important species (other than previously discussed common game species) or habitats will be negatively impacted by construction or operation of STP 3 & 4. Since the plant community on the site does not comprise high quality habitat, monitoring of terrestrial plant and animal species during plant construction, preoperational, or post-operational periods is not warranted and is not proposed.

No new transmission rights-of-way outside the STP site will be constructed for STP 3 & 4, but some upgrading of conductors would be necessary. There would be small ecological impacts associated with noise/movement of construction equipment and workers involved in changing out conductors and replacement of towers by the transmission service providers. This kind of work normally involves a crew with several flatbed "conductor trucks" (carrying large cable spools) and large bucket trucks. A variety of birds, small mammals, and larger mammals (white-tailed deer) could be disturbed by this activity, but the impact of this disturbance in most circumstances would be trivial, for example animals moving away or avoiding the area for several days while crews are working. Nesting of some ground-nesting birds (e.g., Northern bobwhite, wild turkeys, meadowlark, horned lark, killdeer) could be disrupted if these species are present and if the work is carried out during spring/early summer nesting period. If work were carried out in non-nesting periods, impacts to ground-nesting birds could be avoided. Considering the relatively small amount of ground activity necessary for construction activities and the availability of alternative ground-nesting

land, the impact is expected to be SMALL. Given the low level of anticipated impacts, monitoring is not warranted or proposed.

### **6.5.2.2 Aquatic Resources**

As discussed in Subsection 4.3.2, construction of STP 3 & 4 could impact several small drainages in the construction area. It is possible that some disturbed soil from construction sites could be deposited as sediment in onsite wetlands, ditches, sloughs, and impoundments with storm water runoff. However, best construction management practices would reduce the amount of erosion and sedimentation associated with construction, and would limit impacts to aquatic communities in down-gradient water bodies. A Storm Water Pollution Prevention Plan that specifies methods for control of erosion and sedimentation will be in place before construction in accordance with Texas Commission of Environmental Quality guidelines (Reference 6.5-2). Given that no rare or unique aquatic species have been identified in the construction zone and any adverse impacts from construction will be small, localized, and temporary, STPNOC concludes that no monitoring of aquatic communities in the construction area is warranted.

Impacts of the STP 1 & 2 RMPF on aquatic communities were evaluated in the 1970s and 1980s (see Subsection 5.3.1), addressing NRC concerns about potential impingement and entrainment impacts during both wet (high-river flow) and dry (low-river flow) periods. These studies encompass the range of Colorado River flow and salinity conditions. Because the historical studies cover the range of flow and salinity conditions experienced at the STP site and address impacts to both wet-year fish assemblages (more freshwater species) and dry-year fish assemblages (more marine/estuarine species), STPNOC believes no additional studies of impingement and entrainment are necessary. Impacts from STP 3 & 4 may be conservatively extrapolated from existing studies, adjusting for the additional volume of water pumped from the Colorado River to the MCR. Because the impacts of the STP RMPF have been assessed under a range of operating conditions and long-term monitoring of Matagorda Bay fish and shellfish populations suggests that STP 1 & 2 have had little or no impact on these populations (see Subsections 2.4.2 and 5.3.1), STPNOC has concluded that no additional aquatic monitoring is warranted.

As discussed in Subsections 5.3.1 and 5.3.2, no protected aquatic species should be affected by operation of STP 3 & 4. Some commercially and recreationally important finfish and shellfish (e.g., brown shrimp, blue crab, striped mullet, red drum) may be impinged or entrained at the RMPF during periods of low Colorado River stream flow. However, impacts are expected to be minimized because STPNOC diverts river water for MCR makeup during high-flow periods when these species are not present. Impingement and entrainment losses would be SMALL in any case, and would not destabilize important fish or shellfish communities, as demonstrated (see Subsections 2.4.2 and 5.3.1) by stable or expanding populations downstream in Matagorda Bay.

### **6.5.3 Conclusions**

Based on the above discussion, STPNOC has concluded that the impacts of construction and operation of STP 3 & 4 on both terrestrial and aquatic resources are

SMALL, and mitigation is not necessary or proposed. Therefore no additional monitoring is proposed.

**6.5.4 References**

- 6.5-1 "Ecological Survey Report, Unit 3 and 4 Licensing Project, South Texas Project Electrical Generating Station," ENSR, Wadsworth, Texas. Document No. 0720-008, 2007.
  
- 6.5-2 "Storm Water Discharges from Large Construction Activities," TCEQ (Texas Commission on Environmental Quality) 2007. Available at [http://www.tceq.state.tx.us/permitting/water\\_quality/stormwater/TXR15\\_5\\_plus\\_steps.html](http://www.tceq.state.tx.us/permitting/water_quality/stormwater/TXR15_5_plus_steps.html).

