

The water budget method is also applied to estimating *ET* for specific agricultural crops grown in experimental fields and in lysimeters with adequate fetch to prevent an "oasis" effect. The effects of physiological stage of growth on seasonal *ET* for the crops will be demonstrated.

### 3.1 BASIN-WIDE WATER BUDGET

Two types of water budget data were used to measure actual *ET*. The first was an annual basis which included upper Kissimmee Basin, Jane Green Creek, Wolf Creek, Taylor Creek (Okeechobee County), Monreve Ranch (Martin County), the Green Swamp Area, and the Everglades Agricultural Area. The second was a monthly basis for the Everglades Agricultural Area. All of these watersheds except the Green Swamp Area are considered to have negligible deep aquifer recharge or leakage (Stewart, 1980).

#### 3.1.1 Annual Water Budget

The long-term average annual water balances for several basins in southern Florida, ranging from the Green Swamp Area to the Everglades Agricultural Area, are presented in Table 5.

The differences in *ET* among these basins are attributable mainly to surface cover or land use differences. The *ET* of the Upper Kissimmee Basin (S-65) is high because of the relatively large cover of lakes and wetlands. (The USGS estimated a lake evaporation of 1300 mm per year.) Topographical maps of the Jane Green Creek and Wolf Creek areas show more gradient in the landscape. LANDSAT satellite images show a mixture of wetlands and well-drained lands, with no lakes, in the Jane Green Creek area. Wolf Creek has essentially no wetlands, and most of the watershed is cleared (probably for pasture).

Taylor Creek watershed land use is predominantly pasture, with some rangeland, woodland, and wetlands. Monreve Ranch includes a greater proportion of ponded wetlands than Taylor Creek watershed, and has more annual rainfall because it is closer to the southeast coast of Florida.

The Everglades Agricultural Area (EAA) showed a higher annual *ET* than the pasture areas of the Taylor Creek Basin. This higher *ET* probably is caused by more winter crop production in the EAA, by the earlier and longer vigorous growing season for sugarcane (the most prevalent crop), and by high water tables (irrigation) within the EAA. During the spring in the Taylor Creek area, most pastures of subtropical grasses do not begin active growth until the rainy season starts. Water tables are typically low from November to April. Vegetative cover density is low because of continuous grazing throughout the winter and spring.

In general, the higher annual *ET* values are associated with more available water (lakes and wetlands) or with longer periods of full canopy active vegetation, and the lower *ET* values with drier surface conditions