

In contrast, a regular trend in vegetation change downstream occurs in some rivers, superimposed upon the more random localized variability. In this investigation, such trends were noted in the springs with coastal runs. In Weekiwachee River, Chara occurred near the head, often in great density, but was not found in the middle or lower parts of the river. Ceratophyllum demersum likewise occurred in greatest abundance near the head, but extended much further downstream than Chara. As Chara decreased in importance, Najas guadalupensis, which was absent from the upper part of the river, appeared and rapidly became the most abundant species. Sagittaria was more prevalent in the upper part while Potamogeton pectinatus and Vallisneria neotropicalis were apparently restricted to the lower part of the river.

Chassahowitzka River was similar to Weekiwachee River in some of its vegetational features. Sagittaria was most abundant near the head while Vallisneria neotropicalis, Najas guadalupensis, and Potamogeton pectinatus reached their maxima in the lower part of the river.

Such trends were not apparent in Homosassa River, except for the occurrence of large amounts of filamentous green algae in the middle section of the river although it was rare in the upper and lower regions. However, a distinct change in the character of the vegetation occurred near the Gulf where tidal waters introduce salinity. There Potamogeton pectinatus and algae of marine type occurred, while the common upstream species were rare.

These three rivers run from their head springs to the Gulf and thus contain a gradation in chlorinity, as was shown by data presented by Dr. H. T. Odum in the January, 1953 report of this project. Tables 2 to 5 show the qualitative changes in vegetation which occur in some instances from the head of a river to its mouth, and also show how equally great or even greater variation often occurs among substations at the same general location. Thus it seems that excluding brackish waters, changes in chlorinity are probably not as much the cause of community differences as are the changes in substrate and turbidity.

Changes in community composition in the Salt Springs run, which does not flow into salt water but into Lake George, showed no consistent trends, except for the fact that Potamogeton pectinatus was the most abundant species in the pool area and the beginning of the run, and was absent or rare elsewhere.

Hart Springs run had essentially the same plant composition throughout its short length.

Sources of error in this work fall into two principal categories. The first results from the mosaic arrangement of the communities which is revealed by Tables 2 to 5. Because of this, the error can be considerable when the standing crop or