Methods of quantitative sampling include: planimeter measurement of the areas of each type of association and counts and weights of samples from each association. Sampling procedures under way are as follows: Algae--scrapings from known plant weight; higher plants--by sq. ft. visual cropping under water with face mask; microscopic organisms--scrapings from known plant weight and pouring through plankton net; invertebrate animals--sampling with sq. foot grabs with box sampler; attached microorganism--counts on submerged glass slides which become coated in 3 weeks.

Dry weight equivalents are being obtained for field wet weights.

Special attention has been paid to the aquatic higher plants, their weights, and total tonages in the spring runs. In addition as a base to the food chains and pyramids, this information constitutes interest in itself in relation to physical properties of the springs. Dr. John H. Davis has studied the quantitative variation of the plants in relation to the changing properties down the coastal runs pictured in figure 4. His report follows.

The Weight of Aquatic Vegetation in Four Springs
and their Runs of Florida
by
John H. Davis, Jr.

This is a preliminary report of part of the investigation of the biological productivity of plant communities in four Florida spring runs. These are: Crystal, Homosassa, Chassahowitzka, and Weeki Wachee, pictured with chlorinites in figure 4. The data in the present report include the weight per unit area of submerged and floating aquatic plants. The waters of the four spring systems flow into the Gulf of Mexico, all of them entering the salt water marsh and littoral zone within three to six miles down stream from their spring heads. Their waters therefore vary from almost no salinity to salinity values that are over half the concentration in the open sea. They all contain hard waters with greater than 144 ppm hardness, and throughout their course the mean water temperatures during the season so far investigated did not vary over 5 degrees centigrade (20.0--25.0).

The chief objective of this part of the investigation was to determine the density of growth of the different plants or groups of plants in terms of weight per unit area and thus arrive at some basis for comparing total plant growth in terms of salinity, turbidity, hardness, and other factors, and some basis for computing productivities when growth rates are established.

The main method employed was directed at first toward estimating the extent of each characteristic type of area of plant growth, and second obtaining representative samples from most of the distinctly different types of areas. The first objective was partly accomplished by inspection of the runs for apparent differences in both density and species composition. Sampling was then made in areas that were most nearly representative. This very selective type of sampling was supplemented by some random sampling in certain parts of these systems so that the sampling was about 70 percent