If the plankton now be compared to sessile organisms of the Aufwuchs and benthos, it will be seen that the two groups have similar natures, in that sessile organisms and plankters are moderately passive in ability to capture food and to move in their medium (most sessile organisms, of course, move during some phase of their life cycle, and plankters have some ability to move, but directed movement is limited for both). For this reason, at least the plankton and sessile organisms probably should be considered together in the hypothesis.

It is postulated from these observations that if productivity is low and other factors are constant, species of ecologically passive organisms at least, may occur together as ecological equivalents with little of no predominance of one species in each niche; and conversely if productivity is high and other factors are constant, species of these organisms should not occur together as ecological equivalents, but rather one species should dominate in each niche. This leads to a further postulate: if productivity is low and other factors are constant, competition and other coactions should be reduced for these organisms; whereas if productivity is high and other factors are constant, competition and other coactions should be increased for them.

The following evidences tend to support this hypothesis. In the tropic epipelagic holoplankton, productivity is low and quantity is small, except in certain regions mentioned above, and species numbers are great; in the epipelagic holoplankton of high latitudes, productivity is high and quantity is great, but species numbers are small. Occasionally in tropic waters, swarms of plankters appear, consisting of few species of organisms and a relatively great quantity--productivity is therefore high and species numbers few, even in the midst of impoverished waters, under enriched conditions. In plankton tows from impoverished waters, many species of organisms occur together that apparently are ecological equivalents, and this is evidently not true of plankton tows from enriched waters (evidences for this statement are based chiefly on studies of salps, but it is postulated as being true of other plankters as well). In Florida Springs, it has been noted (H. T. Odum, L. A. Whitford, W. C. Sloan) that productivity is high and the number of species of the various groups of organisms is low.

This hypothesis is being tested at present with Aufwuchs growth under the controlled conditions of the Florida Springs and, if results warrant, is expected to be tested under other fresh water and marine conditions. Counts of Aufwuchs species numbers on slides, relative to current controlled total productivity, have been started. Counts made on the preliminary first series are consistent with the hypothesis.