

PRIMARY PRODUCTIVITY OF BENTHIC ALGAE ON THE CORAL REEF
OF CURACAO

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In this investigation the primary productivity of the coralline, microphytic and macrophytic algae is measured on the coral reef of Curaçao at depths between 10 and 40 mt. The field work began in January 1977. The estimates of production are derived from measurements of O_2 respiration in light and dark bottles in situ. O_2 is measured by Winkler titration.

At this moment (12 august 1977) we have a series of data for midday productivity (1100-1400) at 10 m depth. Gross and net productivity per unit of algae covered substrate ($mg\ O_2\ cm^{-2}.h^{-1}$) of the major components of the vegetation were: Hydrolithon boergesenii 0.010-0.011 gross and 0.007-0.009 net, Ostreobium quekettii 0.012-0.021 gross and 0.009-0.017 net, and "dense vegetation" 0.030 gross and 0.025 net. "Dense vegetation" indicates the algal turf found in territories of the Dusky Damsel fish Pomacentrus fuscus. Substrates with Ostreobium usually also have a sparse cover of very small microphytes which introduces variation in the measurements. Light intensities at 10 m depth varied between 200 and 400 microeinsteins. $m^{-2}\ sec^{-1}$, well above the light values at which productivity of shallow-water coralline and filamentous algae becomes maximal (Wanders 1976). Nevertheless midday productivity of these plants was at 10m approximately $\frac{1}{2}$ to $\frac{1}{3}$ of the value found previously at 0.5-3m. This suggests that the shallow and deep-water algae differ considerably in their photosynthetic response to light.

The experiments are continuing, and more data will be available at the A.I.M. L.C. meeting in October 1977.

REFERENCES:

- Wanders, J.B.W. 1976: The role of benthic algae in the shallow reef of Curaçao (Netherlands Antilles). I: Primary productivity in the coral reef.
Aquatic Botany, 2: 235-270.

Abstract, 13th Meeting of the Association of Island Marine Laboratories in the Caribbean. 10 - 14 October 1977.

Santa Marta, Colombia

REGENERATION IN THE SCLERACTINIAN CORALS AGARICIA AGARICITES (F. PURPUREA)
AND PORITES ASTREOIDES

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To study the regeneration capacity of corals in situ artificial lesions were made on colonies of Agaricia agaricites and Porites astreoides. The experiments were carried out at the southwest coast of Curaçao at a depth of 25 m and 18-23m, respectively. The various types of lesions (1 cm² tissue, 1 cm² tissue + underlying skeleton and 5 cm² tissue + underlying skeleton) were all surrounded by living coral tissue.

In 3-4 weeks all lesions were colonized by fleshy and filamentous algae. P. astreoides appeared to be able to overgrow these colonizing organisms, whereas in A. agaricites colonizing algae mostly prevent successful regeneration. The latter is in contrast with results previously obtained with A. agaricites colonies at a depth of 10m. A. agaricites and P. astreoides show different kinds of regeneration mechanisms.

In A. agaricites complete recovery of small tissue lesions (1 cm²) was observed in only 2 colonies (n=25) and only 1 colony (n=26) managed to overgrow a tissue + skeleton lesion (1 cm²). In P. astreoides complete recovery of small tissue lesions (1 cm²) and small tissue + skeleton lesions (1 cm²) was observed in 14 colonies (n= 22) and 12 colonies (n=25), respectively.

Also 75% recovery of tissue lesions (1 cm²) and tissue + skeleton lesions (1 cm²) takes place much faster in P. astreoides than in A. agaricites. Both corals were unable to overgrow large tissue + skeleton lesions (5 cm²).

In A. agaricites recovery is faster when only tissue is removed. In P. astreoides not much difference was found between the regeneration rates of tissue lesions (1 cm²) and tissue + skeleton lesions (1 cm²), presumably because remnants of living coral tissue are present in the porous skeleton under both tissue and tissue + skeleton lesions.

More information about the regeneration mechanism of P. astreoides was obtained by staining coral skeletons with Alizarin Red-S. It appeared that in this coral, injuries activate a relatively more rapid calcification.

Abstract, 13th Meeting of the Association of Island Marine
Laboratories in the Caribbean. 10 - 14 October 1977.
Santa Marta, Colombia.

PRELIMINARY RESULTS OF A STUDY ON THE DISTRIBUTION AND
SURVIVAL OF JUVENILE HERMATYPIC SCLERACTINIA IN CURACAO

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We studied the occurrence and distribution of juvenile hermatypic Scleractinia, from depths of 3 tot 32 m, on the coral reef at the southwest coast of Curaçao. In sixty 1 m² quadrats over natural hard substrata we counted 917 juvenile colonies belonging to ± 24 species.

The most common juveniles present over the year long study period were polyps and small colonies (<4 cm.) of Agaricia agaricites. There was a striking absence of some common reef species such as Acropora palmata and Montastrea annularis. This suggests important differences in the reproductive strategies and life histories of these corals.

Some 400 juveniles were observed every fortnight over a period of 6 months. Only ± 37% of these juvenile corals remained unharmed by biological and physical factors during this period.

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INFORME PRELIMINAR DE LAS ESPECIES DE CANGREJOS DE LA FAMILIA
XANTHIDAE (CRUSTACEA, DECAPODA, BRACHYURA), ENCONTRADOS EN

PISCADERABAAI-CURACAO

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El conocimiento de las Especies de la Familia Xanthidae en Curaçao; y específicamente en Piscaderabaai es muy limitado. Gran parte de los estudios realizados con especímenes de la isla datan de Rathbun (1930), que reporta 31 Especies pertenecientes a 19 Géneros, para Curaçao.

Para la realización de esta investigación se tomó como base una franja de 4.06 kmts. de largo en Piscaderabaai y un rango de profundidades entre 0 y 20 mts; y se realizaron muestreos regulares durante cuatro meses, observando en cada uno: temperatura, tipo de sustrato y condiciones Ecológicas del área. Una gran parte de las Especies identificadas en esta investigación no han sido reportadas para la zona.

Para este informe preliminar, no se han tenido en cuenta las especies encontradas en el interior de corales, tales como: Acropora palmata, Porites porites, etc. las que se reportarán en un informe posterior.

Se relaciona el número de individuos con la profundidad para determinar su abundancia, teniendo en cuenta para esta relación los diferentes Géneros y Especies colectadas.

Este trabajo continuará hasta Julio de 1978 y se procurará abarcar algunas áreas previamente determinadas en Venezuela y Colombia, para realizar un estudio comparativo de la fauna de Xanthidae en estas regiones.

CAMARONES ASOCIADOS CON OCTOCORALIAS Y ANTIPIPATHARIAS

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Durante observaciones diurnas y nocturnas realizadas en Piscaderabaai y otras Bahías aledañas, se encontraron camarones viviendo en asociación con varias especies del octocoral Eunicea spp. y con la antipatharia Stichopathes gracilis Gray.

En las observaciones nocturnas, el mayor número de las especies encontradas pertenecen a las siguientes familias: PALAEMONIDAE, caracterizada por presentar un elevado número de especies comensales o simbióticas con otros invertebrados; PROCESSIDAE, camarones de vida nocturna y de los cuales no existía hasta el momento, reportes de asociación con octocoralias para el Atlántico.

En las observaciones diurnas, se encontró una nueva especie Neopontonides n. sp. (en preparación), la cual se encuentra viviendo sobre la antipatharia anteriormente mencionada, entre los 15 y 20 mt. de profundidad. Sobre octocoralias durante el día no fueron observados camarones en el área de Curaçao.

También se presentan en este trabajo dos nuevas especies encontradas durante buceos diurnos en Bahía Concha (Colombia), viviendo sobre el octocoral Leptogoria virgulata (Lamarck). Estas especies son Pseudocoutierea conchae y Pseudocoutierea adentata (en prensa).

Comparaciones entre las especies de camarones encontradas fueron realizadas, con el fin de establecer hasta qué punto estas especies son simbióticas o ecto-comensales y tratar de conocer hasta qué punto son beneficiosas o perjudiciales para su huésped.

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THE BEHAVIOUR OF CHROMIS CYANEA (POEY), POMACENTRIDAE

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C. cyanea is one of the pomacentrids which possess territories on the reef. The territorial males show agonistic behaviour towards other territory-owners and elaborate courtship-behaviour towards ripe females. The different behaviour patterns are accompanied by five different colour patterns. The behaviour of *C. cyanea* was recorded on an underwater-tape-recorder while diving with SCUBA-gear. The protocols were subjected to different analyses. These showed that there existed a clear temporal organisation of the behaviour. The different behaviour patterns could be grouped in what appeared to be different systems. Each of the different colour patterns was positively correlated with one of these systems. In this way the colour patterns can be used to explain the causation of the different behaviour patterns. It also helps to explain differences in behaviour between males which live at a high population density and males which live at a low population density.

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