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What larvae and juveniles tell us about fish biodiversity in New Caledonia?

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The larval and juvenile stages of coral-reef fishes are characterized by a strong variability in life traits and behaviour within and/or between species during the ontogeny. Consequently sampling these stages can only provide a limited view of the actual species diversity, whatever method is used. The taxonomic, ontogenetic and size selectivity of seven sampling techniques used in the UR128's working program will be compared here.

Nightly surface horizontal tows of a 333 µm meshed plankton net have made it possible to catch at least 194 taxa of young pelagic larval stages between 1 and 65 mm SL of 46 families. Two types of light-trap have enabled to select 66 to 88 taxa between 1 and 210 mm SL of 21 to 27 families at more advanced pelagic larval stages. Artificial reefs have been found to attract at least 79 taxa of 18 families of newly settled juveniles, or juveniles at settlement stage from 79.5 to 111 mm SL. On the same sites, underwater visual surveys have censused juveniles from 10 to 220 mm estimated TL gathering to 98 taxa of 19 families. Underwater seine hauls, performed in seagrass and seaweeds beds, allowed the catch of at least 63 taxa of 21 families of similar sizes juveniles. Finally, rotenone micro-poisoning conducted on very small coral patches permitted to collect 7 to 160 mm SL fishes gathering to 81 taxa of 13 families. Even these results are not readily comparable due to variable sampling efforts performed in variable conditions; they allow to assess the potential use of the different sampling techniques available for larval fish ecologists.