

## **FOSSILIFEROUS CONCENTRATIONS – UNIQUE BIO-EVENTS IN A SECOND ORDER LOWSTAND WEDGE OF THE LOWER CRETACEOUS (NEUQUÉN BASIN, ARGENTINA).**

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The Neuquén Basin (west-central Argentina) encompasses a nearly continuous Upper Triassic–lower Paleogene sedimentary record including marine and continental siliciclastics, carbonates and evaporites. Here, an early Valanginian marine succession representing a second order lowstand wedge (Mulichinco Formation) is studied at Cerro La Parva locality, in which several exceptional study cases are registered. The most remarkable of these can be found within the third order TST; it consists of 13-m-thick, laterally extensive oyster mass occurrences (OMOs) of the genus *Ceratostreon*. They are up to 2,5 km wide and represent the maximum expression of OMOs recorded basinwide in equivalent stratigraphic levels, in localities up to 50 km apart from each other. These were interpreted as composite biogenic concentrations of intercalated bioherms and autobiostromes. The extraordinary proliferation of oysters represents a population burst bio-event, which according to geochemical analyses, was triggered by lowered salinity and high primary productivity. Below the OMOs, 20 m above the base of the third order LST, a lenticular monospecific nerineoid assemblage is recorded, representing a mixed-origin concentration (within-habitat wave-reworking of locally abundant shells). Up-section, above the OMOs in the third order HST several individuals of the glypheidean lobster species *Atherfieldastacus rapax* are preserved in incomplete reworked calcareous nodules in shales and shell beds. The abundance of lobsters in these two beds was interpreted as event-concentrations caused by storm reworking. Further up-section, soft-bottom dwelling serpulids are found encrusted by smaller serpulids and *Ceratostreon*. Oysters eventually covered the serpulids, forming masses that coalesced laterally to constitute at least three simple biogenic concentrations up to 30 cm-thick. Each of these fossil concentrations represent unique bio-events, most of which are not recorded elsewhere in the basin, reflecting particular conditions that are currently under research. Their integral study will allow us to understand the development of benthic communities along the second order LST.