



**AQUAVITAE PROJECT (H2020) CS10 – FRESHWATER FINFISH: TACKLING  
ISSUES ON THE CAPTIVE REPRODUCTION OF THE AMAZON TAMBAQUI  
(*COLOSSOMA MACROPOMUM*) AND PIRARUCU (*ARAPAIMA GIGAS*)**

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**Abstract**

Project AquaVitae (H2020) Case Study 10 (CS10) is tackling issues with the reproduction of pirarucu *Arapaima gigas* and tambaqui *Colossoma macropomum*. Regarding the air-breather *A. gigas*, considered a potential species for aquaculture, CS10 is tackling the lack of regular spawning under captive conditions, by testing hormonal therapies to both stimulate natural reproduction of pairs in earthen ponds, and also to attempt collection of semen and eggs. Regarding the tambaqui, already the second most farmed fish from Brazil, work is been done to identify a protocol for the large-scale production of triploid fish. This protocol would increase sustainability of the value chain, potentially enhancing production rates. A last task aims to characterize the development of intermuscular bones (IBs) along the early development of tambaqui. This characterization intends to provide predictive models to identify the type, number, and length variation of IBs and support future breeding programs of the species. To these goals, trials are taking place at Embrapa Fisheries and Aquaculture (Palmas-TO, Brazil) and Occidental Amazon (Manaus-AM), in collaboration with CAUNESP (Jaboticabal-SP, Brazil) and NOFIMA (Tromsø, Norway). A first trial with *A. gigas* tested application of slow-release Evac GnRH $\alpha$  (40 $\mu$ g.kg<sup>-1</sup>) implants twice in five couples (other three used as control): on the 4<sup>th</sup>-May, and then after a 21-day-window, on the 25<sup>th</sup> May 2021. Effects have been evaluated on gonad development through collection of ovarian biopsies, and on behavioural indicators of reproduction and spawning. Also, blood plasma has been collected for future analysis of sex steroids concentrations. For the identification of an optimal pressure shock protocol to produce triploid *C. macropomum*, trials have been designed to investigate the optimal time (post-fertilization) for pressure shock (8000 psi) application (Trial 1). Then, the optimal duration for this shock application (Trial 2) and finally the optimal shock intensity (Trial 3). Success of triploidization is being evaluated for each treatment/trial after validation of flow cytometry method for the species. A final task on *C. macropomum* is characterizing the development of the intermuscular bones (IBs) along ontogeny through morphological analyses (diaphanization, X-Ray and ultrasound) muscle and tendons in three families from 75 to 121 days-post-fertilization (DPF), showing little morphological variability within families at this early stage.