USING BIOECONOMIC TOOLS TO PREDICT ECONOMIC IMPACT IN CHILEAN INDUSTRY OF REPORTED GENETIC IMPROVEMENT IN SALMON BREEDING PROGRAMS

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First salmon breeding program was stablished in the 1970s. From this time many studies have reported positive genetic response in growth, resistance disease and carcass quality traits that justify, the requirement of finance the operation of these programs. In Chile, commercial breeding program started being stablished in the late 1990s and today five of them (AquaChile, Camanchaca, AquaGen, Benchmark Genetics and Hendrix Genetics) provide almost 100 % of Atlantic salmon egg yearly demand. Normally breeding program results and all the benefits that any batch of improved eggs could potentially provide to buyers are reported in phenotype units or percentage what make difficult to project the economic impacts in productive companies. Bioeconomic science has been used to model productive system and economy of many aquaculture species using their own productive data that make possible to build a dynamic bioeconomic platform (dbp) and simulate specifically any productive scenario for projecting productive and economic result of genetic improvement. With the objective of projecting the results of genetic improvement in an economic language closer to the customer who buys improved eggs, a dbp was developed using production data from the Chilean industry. Considering a genetic gain (GG) scenario of 9.68% and 3.93% in growth and Salmon Rickettsial Syndrome (SRS) resistance, respectively, it is possible to achieve savings of 4.5% in production cost These results and the methodology are presented and demonstrate the value of this approach as economical evaluation tool that facilitate the producer's decision for the purchase of specific eggs or investment.