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Name of the Institution / Company Universidad de Cadiz/Dpto. Biologia, Facultad de CC del Mar y Ambientales
Applicant Name and surname Prof Dr Gabriel Mourente
Title Evaluation of novel protein and lipid ingredients for the formulation of sustainable feeds to maximize performance and quality of cultured Atlantic bluefin tuna (*Tunnus thynnus*, L.)
ACRONYM SUSTUNA
Summary Along with all aquaculture, Atlantic bluefin tuna (ABT) *Thunnus thynnus* L. farming in the future must be based on sustainable feeds formulated with only low levels of the traditional but finite and limiting marine ingredients, fish meal (FM) and fish oil (FO), and largely based on terrestrial plant ingredients derived from agriculture or other non-marine sources. Thus, the project is specifically designed to solve a major problem, FM and FO replacement, currently experienced by fish farming globally and is thus essential to the viability, sustainability and competitiveness of the European feed and aquaculture industries. The present project will support the EATIP SRIA Product Quality, Consumer, Safety and Health Thematic Area 1, Goals 1 and 3 and Sustainable Feed Production Thematic Area 4, Goals 1, 3 and 5. The overall objective of this proposal is to evaluate the use and efficacy of sustainable protein sources and novel omega-3 oils. Plant protein concentrates and hydrolysates (e.g of soybean meal), and oils from seeds of genetically modified (GM) *Camelina sativa* and *Brassica napus* and algal single cell oils (SCO), containing high levels of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), will be used as replacements for dietary FM and FO, respectively, in feeds for ABT juveniles. Outcomes will focus on impacts on survival, growth, feed efficiency, digestibility, health and welfare, as well as nutritional quality of the fish, and particularly on tissue levels of EPA and DHA. Further impacts on metabolism will be determined through transcriptomic analysis, including the expression profiles of genes involved in lipid metabolism, oxidative stress and digestive functionality, as well checking for transgenic DNA. The practical outcome of the project will be the potential to formulate and produce effective and safe feeds for ABT based on novel sustainable ingredients. The proposal is therefore timely and also highly appropriate as it responds to current needs with cutting edge research to increase the sustainability of aquaculture feeds while maintaining the quality and welfare of farmed fish. In doing so, the project will also support the sustainability of ABT in the wild by diminishing the fishing pressure on both ABT and their prey.