



Rodrigo Laniado

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SHIRMP PRODUCTION EVOLUTION IN ECUADOR



GOAL 2018 GUAYAQUIL ECUADOR



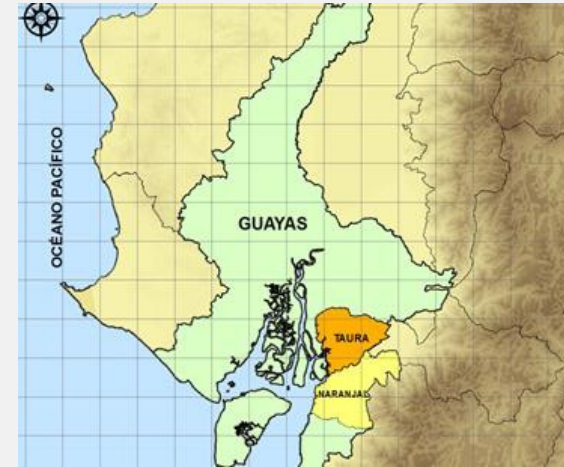
SHIRMP PRODUCTION EVOLUTION IN ECUADOR

- SINCE 1968 ECUADOR SHIRMP FARMERS HAVE BEEN PRODUCING SHIRMP BASED ON A GOAL TO RESEMBLE THE OCEAN AND GIVE SHIRMP THE BEST POSSIBLE HABITAT TO GROW OR REPRODUCE IN AQUACULTURE FACILITIES.
- MOST ECUADORIAN SHIRMP FARMERS HAVE LEARNED TO UNDERSTAND ENVIRONMENTAL REQUIREMENTS FOR A HEALTHY HABITAT AND HAVE ADAPATED INFRAESTRUCTURE AND PROCEDURES TO MEET THIS GOAL.
- MOST PEOPLE INVOLVED IN SHIRMP AQUACULTURE IN ECUADOR HAVE A THINKING PATTERN THAT IS BASED ON SUSTAINABLE PRINCIPLES



SUSTAINABLE EXAMPLES

- OLDEST FARM HAS 50 YEARS IN PRODUCTION AND STILL PRODUCES.
- TAURA REGION FARMS WERE CLOSED DUE TO TAURA SYNDROME IN 1992. THEY STARTED PRODUCING TILAPIA AND SHRIMP IN 2008 AND IN THE LAST FEW YEARS SHRIMP PRODUCTION OUTPUT HAS BEEN THE HIGHEST IN THE COUNTRY.
- IMPROVEMENT IN PRODUCTIVITY HAS BEEN ACHIEVED DURING THE LAST 7 YEARS WITH SIMILAR INFRASTRUCTURE AND BETTER MANAGEMENT.



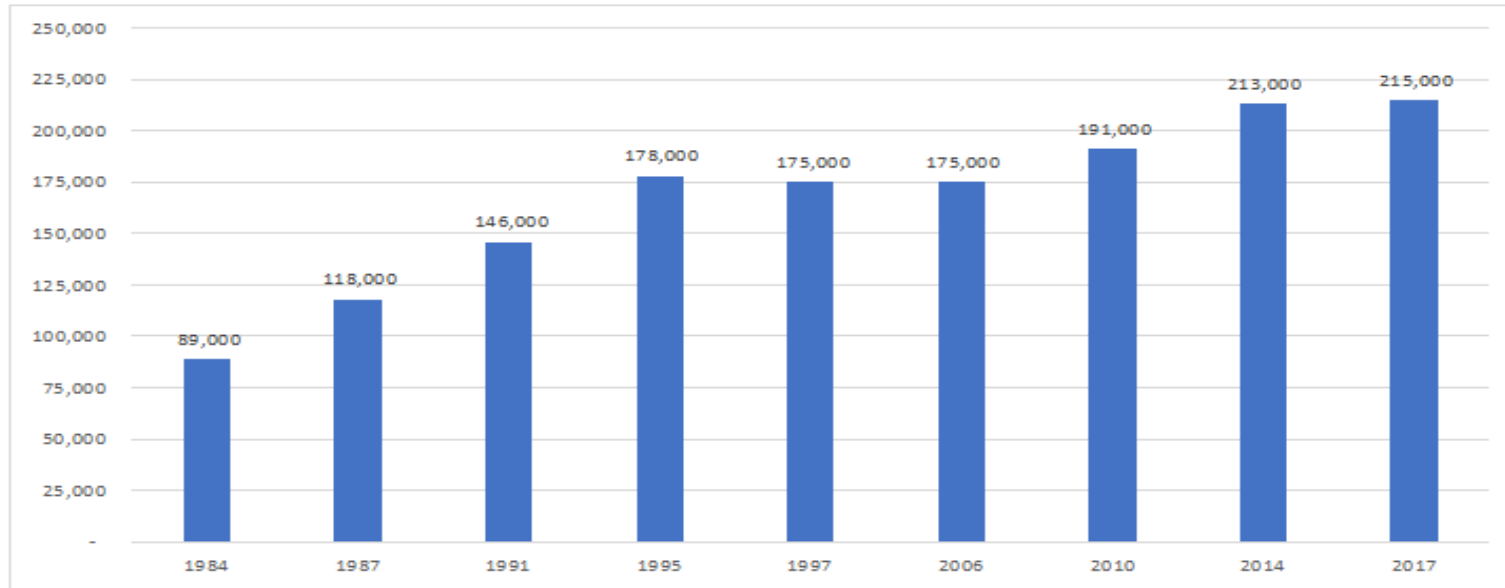
OLD TRADITIONAL ACUACULTURE MODEL

- WILD POST LARVAE MAINLY USED.
- STOCKING DENSITY 4 TO 8 MT₂ PI.
- HARVEST 3 KG/HA/D TO 6 KG/HA/D
- FERTILIZER USED TO GENERATE ALGAE BLOOMS TO FEED THE SHRIMP. LITTLE ARTIFICIAL FEED.
- 3% WATER EXCHANGE AND NO NEED TO RECIRCULATE WATER.
- SUN DRIED PONDS AFTER HARVEST

NEW SUSTAINABLE AQUACULTURE MODEL

- INCREASE IN PRODUCTIVITY
- WATER USE: RECIRCULATION OR WATER EXCHANGE.
- POST LARVAE FROM HATCHERIES.
- GENETIC IMPROVEMENT BETTER GROWTH AND SURVIVAL.
- MACHINE FEEDING AND AERATION.
- BETTER QUALITY FEED.
- PROBIOTICS.
- IN PROGRESS A NEW WAY TO SALE THIS SUSTAINABLE SHIRIMP.

Year	1984	1987	1991	1995	1997	2006	2010	2014	2017
Area	89,000	118,000	146,000	178,000	175,000	175,000	191,000	213,000	215,000



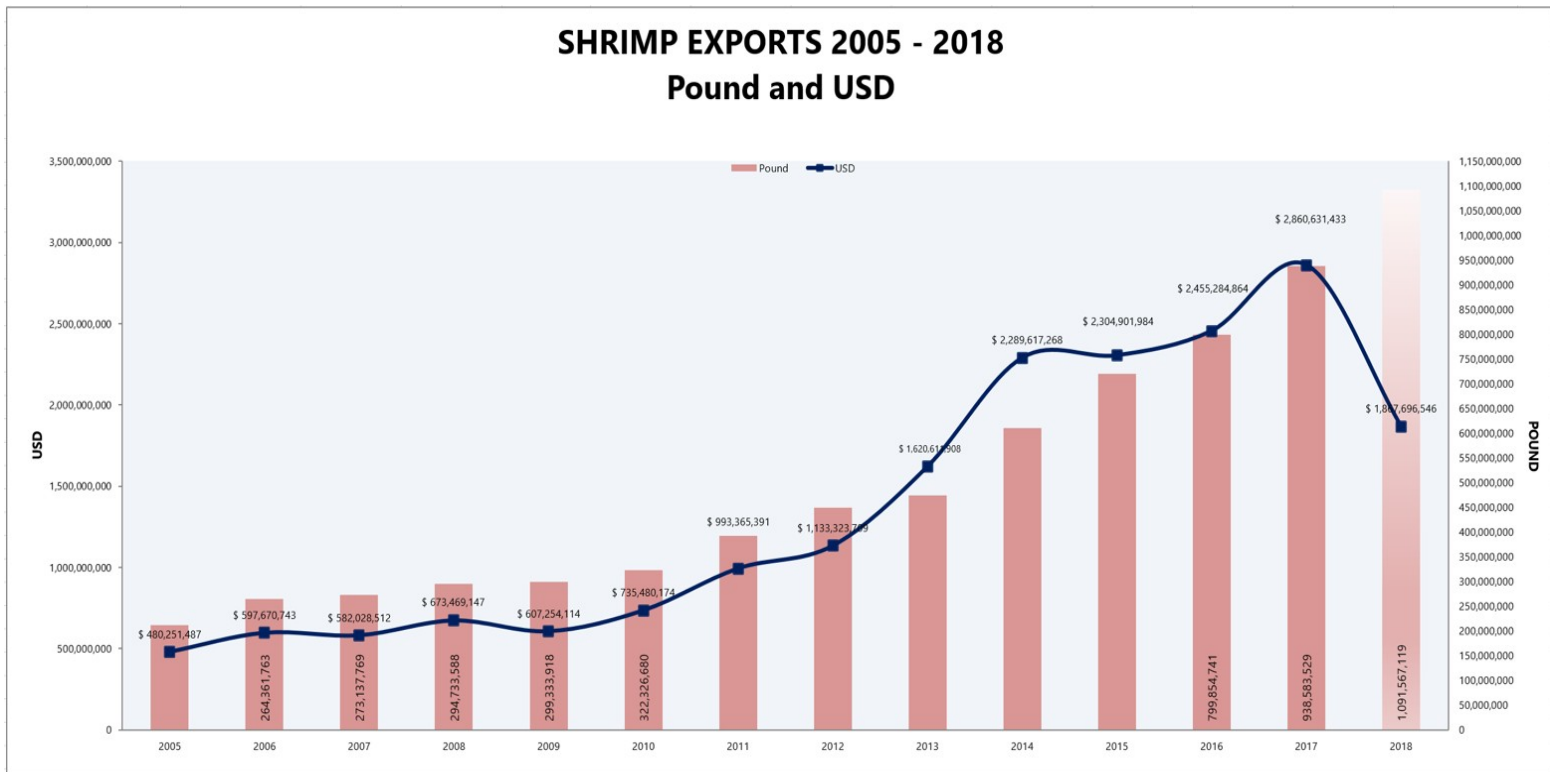
Source: Centro de Levantamientos Integrados de Recursos Naturales por Sensores Remotos - CLIRSEN
 Ministerio de Acuicultura y Pesca



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Production has triple in 7 years



INCREASE IN PRODUCTIVITY

DATA FROM 17.500 HA.

YEAR	KG/HA/Day
2013	7.43
2014	8.77
2015	9.44
2016	11.50
2017	13.08
2018	15.59 AS OF JULY



WATER RECIRCULATION



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PUMPING STATION ON RECIRCULATION SYSTEM



PUMPING STATION FOR WATER RENOVATION SYSTEM



GENETIC IMPROVEMENT*

ACOMPLISHMENTS IN A 6-YEAR PROGRAM :

1. Growth improvement from 35% to 53%.
2. Production cycle reduced by 50 days.
3. Improve pond turnover by 25%.
4. Lower FCA by 0.4 from 1.90 to 1.50.

* Joao Rocha. Geneticist working in Ecuador. This data was shown in Honduras Symposium 2018



SHRIMP FEEDING METHODS



FEEDING WITH AUTOMATIC MACHINES



FEEDING BY DEMAND



AQ1 SOUND FEEDING SYSTEM



Real Time Information

- SF200 Software**
- Acoustic Feeding Control
 - Aeration Control
 - Environmental Monitoring



INTERNET

Wifi Access Point



SF200 Controller

Feeder

Aeration Control

Control Office

D.O./Temp Probe

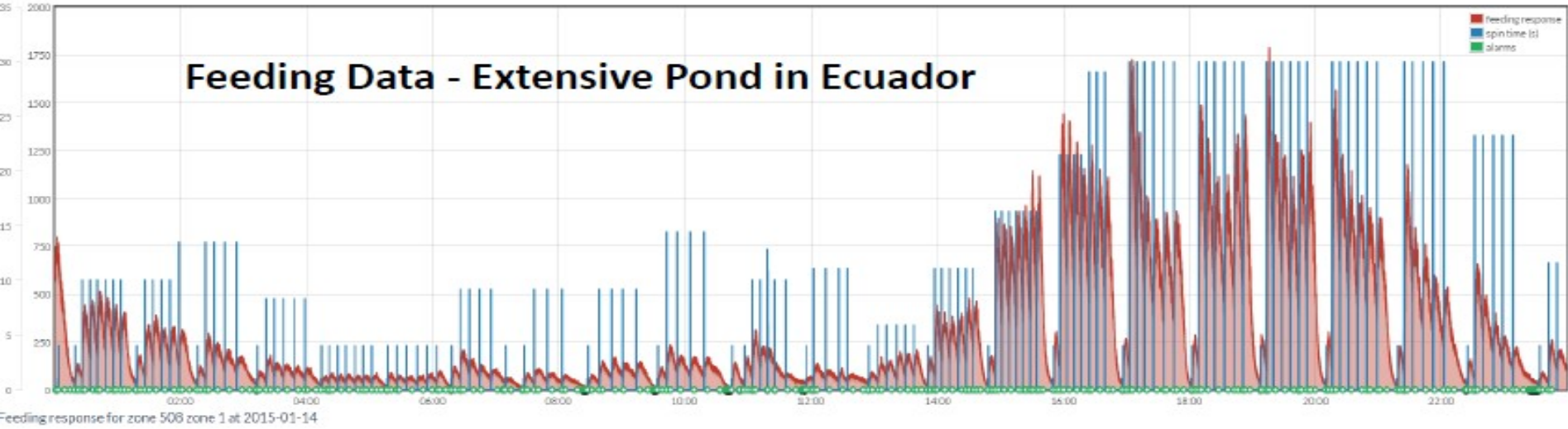
Hydrophone



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Feeding Data - Extensive Pond in Ecuador



Precise feeding – 24 hours

Feeding rate closely linked to Oxygen & Temperature

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Start date:

Start time (hh:mm):

Duration (hours):

Apply

AIREATION FOR THE FEEDING ZONE



BETTER QUALITY IN FEED

- FEED COMPANIES, BIOMAR, CARGUIL, NICOVITA AND NUTRECO HAVE MADE IN THE LAST FEW YEARS NEW INVESTMENTS IN ECUADOR TO BUILD OR IMPROVE FACTORIES.
- THE LEVEL OF COMPETITION FOR THE SHRIMP FEED HAS IMPROVED THE QUALITY IN FEED. NOW EXTRUDED FEED IS WIDELY AVAILABLE.
- EXTRUDED FEED IMPROVES DIGESTIBILITY.
- WHEN USING GOOD QUALITY FEED, MECHANICAL FEED ON DEMAND, AND AERATION, PRODUCTION IN THOSE PONDS IMPROVES FROM 20% TO 40% OVER PONDS WHO DID NOT USE THESE ELEMENTS.



PROBIOTICS

• THE USE OF PROBIOTICS STARTED IN THE EARLY 2000'S AS

- WE LEARNED TO COPE WITH WHITE SPOT.
- TODAY THEY ARE PART OF A REGULAR PROTOCOL TO HELP THE SHRIMP WELL BEING AND GROWTH DURING THE PRODUCTION CYCLE.
- IN MANY FARMS PROBIOTICS HAVE REPLACED THE USE OF MEDICINE.



Probiotic application



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Pond after
harvest



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Certifications

- THE ESSENCE OF EACH CERTIFICATION IS TO GUARANTEE THAT EACH SEGMENT OF THE PROCESS CHAIN INCLUDE PROTOCOLS AND PROCEDURES THAT COMPLY WITH CHARACTERISTICS OR STANDARDS SUCH AS:
 - GOOD MANUFACTURING PRACTICES
 - ADEQUATE BUILDING STRUCTURE
 - ENVIRONMENT PROTECTION
 - SOCIAL AND ETHICAL MANUFACTURING PROGRAMS



Some of the most important certifications



The purpose of ISO is to facilitate international trade and cooperation in science and technology. ISO develops international standards, which are used by organizations worldwide to ensure consistency and quality in their products and services. ISO also provides a framework for setting standards, policies, and procedures, and is widely used in many industries, including manufacturing, services, and information technology.





- **ABOUT SSP**

THE SUSTAINABLE SHRIMP PARTNERSHIP (SSP) IS A GROUP OF LEADING COMPANIES COMMITTED TO TRANSFORM THE FUTURE OF SHRIMP AQUACULTURE. PIONEERED IN ECUADOR, MEMBERS OF THE SSP ARE COMMITTED TO ACHIEVE AND PROMOTE THE HIGHEST QUALITY PRODUCTS, PRODUCED WITH THE HIGHEST SOCIAL AND ENVIRONMENTAL STANDARDS, THROUGH GREATER COLLABORATION AND TRANSPARENCY.



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Sustainable Shrimp Partnership

Founding Members

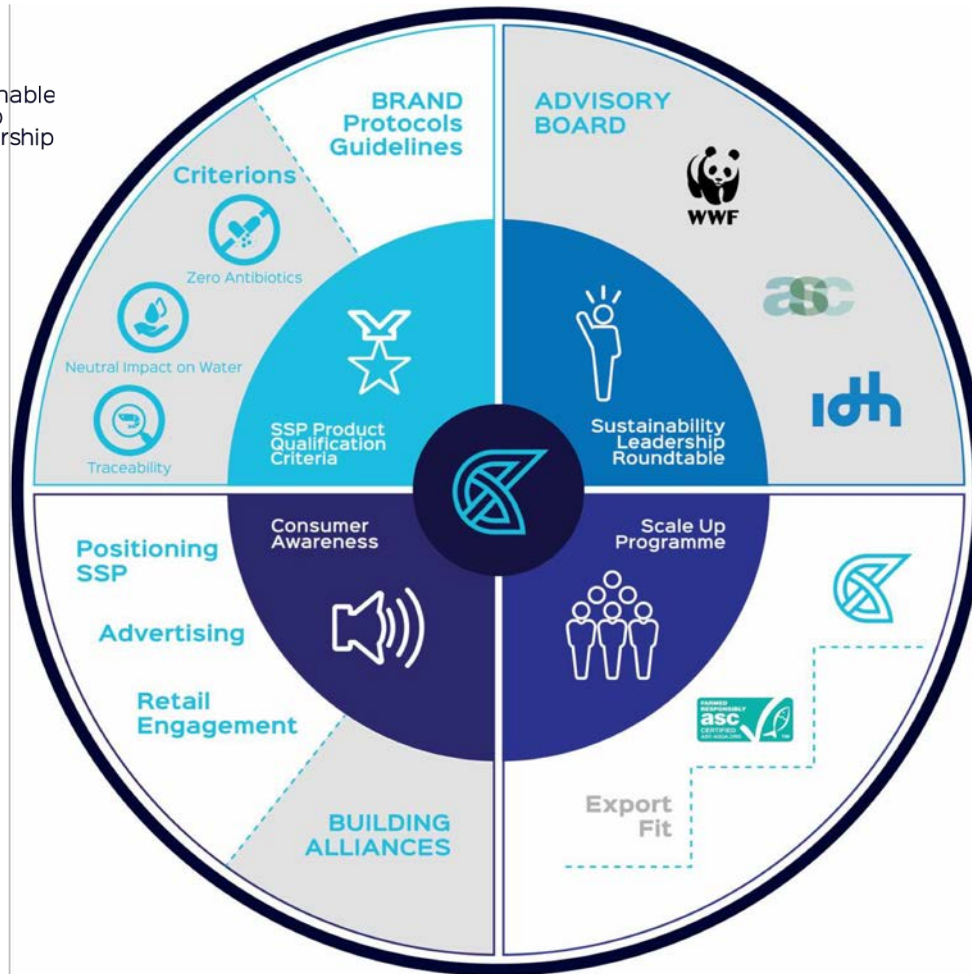
Agromarina Corp. Lanec Gambirasi Intedecam Lebama Naturisa Omarsa Produmar Promarisco Salmos Santa Priscila

Key Dates

November 8th Launch of SSP on Asian Market

China Fisheries & Seafood Expo

December 15th First Farms SSP Qualified



Ready
In Progress



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- STATUS SSP

SSP IS WORKING WITH ITS PARTNERS: ASC, WWF AND IDH.

THUS FAR, IT HAS BEEN VERY ACTIVE PRESENTING SSP AT SEVERAL VENUES AND EXPLAINING THE COMMITMENT OF THE ECUADORIAN SHRIMP INDUSTRY WITH A HIGHER LEVEL OF SUSTAINABILITY. THE SSP TEAM IS WORKING ON THE QUALIFICATION SCHEME TO BE READY BY THE END OF 2018.

ON DECEMBER 15TH 2018, SSP WILL ANNOUNCE THE FIRST SSP FARMS QUALIFIED AND READY TO OFFER THE MOST SUSTAINABLE SHRIMP IN THE WORLD.



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THANKYOU!



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