AquaOptima AS
RAS supplier
since 1993

NITR, Global Business Day 4.4.2017

Idar Schei
CEO 1993-2016
Senior adviser-CFO 2016 -
1980’s
-SHELTERED LOCATION OF SEA CAGES
-HITRA DISEASE
GOVERNMENTAL R&D PROGRAMS ’85–’92
Salg av slaktet matfisk i mengde

- **Totalt**
- **Røye/sjørøye**
- **Torsk**
- **Kveite**
- **Andre fiskeslag**

![Graph showing the sale of fish species in quantity](image-url)
FIGURE 4.6: Global Fish Supply under Improved Productivity, 2000–30

Sources: FishStat and IMPACT model projections.
Healthy food production with minimal use of water

Minimal water discharge

Zero discharge possible
• Waste can be used as fertilizer in agriculture
• Cultivation of algae for production of biofuel or other products of industrial value

Sustainable industry!
AquaOptima business idea
Preferred for know-how and technology
landbased fish-farming

- Feasibility studies
- Detailed design, engineering
- Equipment supply RAS
- On-site support of installation, commissioning/start-up
- Operational management
Sales and Marketing Strategy

Few RAS suppliers world wide
Few potential clients spread world wide

- International magazines, journals
- International Exhibitions / Conferences
- www
- Documentation of technology
Growth comparison of Tilapia in different types of recirculation systems, NCSU
Ref. Losordo (1995)

NCSU conclusion:
AquaOptima system gives 40-50% better growth-
Due to improved water quality by use of ECO-TRAP
AquaOptima AS
Employee owned ltd company
Location: Trondheim, Norway
Agents in
Indonesia, China, Thailand, Iran, Russia, NN
(Japan, Malaysia, Taiwan, Turkey, South Korea)
Degassing CO₂ N₂
Biofilter MBBR™
ECO-TRAP
Ozone mix
Microscreen
SS
Water in = Water out
= 0.5 – 5 %
NH₃
CO₂ N₂
Degassing
O₂
ECO-TRAP
Ozone mix
AquaOptima RAS
AQUACULTURE ENGINEERING
- PRODUCTION PLAN
- DESIGN
- FEASIBILITY STUDY
- EQUIPMENT Spec.
- INSTALLATION DRAWINGS

EQUIPMENT SUPPLY

TANKS
Inlet, outlet as double drain

WATER TREATMENT
Microscreen, biofilter
Ozone, oxygen

MONITORING CONTROL
AUTOMATION

Pumps, blowers, fish handling equipm. etc

SUPERVISING DURING CONSTRUCTION,
ASSISTANCE DURING OPERATION

CIVIL ENGINEERING
- GENERAL CONSTRUCTION
- INSTALLATION

LOCAL COMPANY

AQUACULTURE ENGINEERING
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SUPERVISING DURING CONSTRUCTION,
ASSISTANCE DURING OPERATION

FOUNDATION BUILDINGS

POWER SUPPLY

WATER SUPPLY AND DISPOSAL

ROADS

YARDS
Kanmonkai Aquafarm
Japan

RAS vs Sea base

Tiger Puffer Fish

Weight

Month

AquaOptima RAS

Sea Cages
AquaOptima RAS projects around the world
AquaOptima working with RAS world wide

Countries

- Norway
- Iceland
- Faroe Islands
- Russia
- Portugal
- Spain
- Estonia
- Scotland
- England
- Ireland
- France
- Bulgaria
- Croatia
- Greece
- Turkey
- Switzerland
- Argentina
- Brazil
- Chile
- Peru
- Cuba
- USA
- Canada
- Le Reunion
- Mauritius
- Iran
- Oman
- Japan
- China
- Taiwan
- Malaysia
- Philippines
- South Korea
- Indonesia
- Thailand
- India

Species

- Atlantic Salmon
- Halibut
- Atlantic Cod
- Seabass
- Seabream
- Barramundi
- Tiger puffer fish
- Arctic Char
- Rainbow trout
- Tilapia
- Eel
- Sturgeon
- Pollock
- Pike Perch
- Whitefish
- Cobia
- Japanese flounder
- Turbot
- Grouper
- Koi
Optima Foods, Japan

Nursery and Grow-out department, 100 tons/y

In operation since 2005

Tiger puffer fish
Shauguan Liran, China Eel, 2007

Opening ceremony!
Yantai Salmon Farm, China

FIRST LANDBASED SALMON FARM in RAS
Since Jan 2012 salmon of 3-5 kg on the market
NOFIMA chose AquaOptima technology
In operation since 2010

The world’s largest R&D facility for RAS
Fish welfare, water quality requirements
SibInvestStroy, Russia
Whitefish, Sturgeon, Caviar

footprint
7,500 m²
In operation since 2016, One of two similar Larvae departments
FindFresh S.A., Portugal, Eel,
In operation since May 2016, 500 tons/y

Footprint
7000 m²
FindFresh, Portugal, Eel
PT Yapen MS, Indonesia
In operation from summer 2017

Barramundi hatchery
2.4 mill á 20 g

Hatchery footprint
1,950 m²
AquaTropical, Ecuador
2016
Thank you for your attention!

-and enjoy!