



Aquaponics – Introduction

Dr. Ragnheidur Inga Thorarinsdottir



UNIVERSITY OF ICELAND

Manager of Svinna-verkfraedi ehf
Adjunct associate professor at UoI

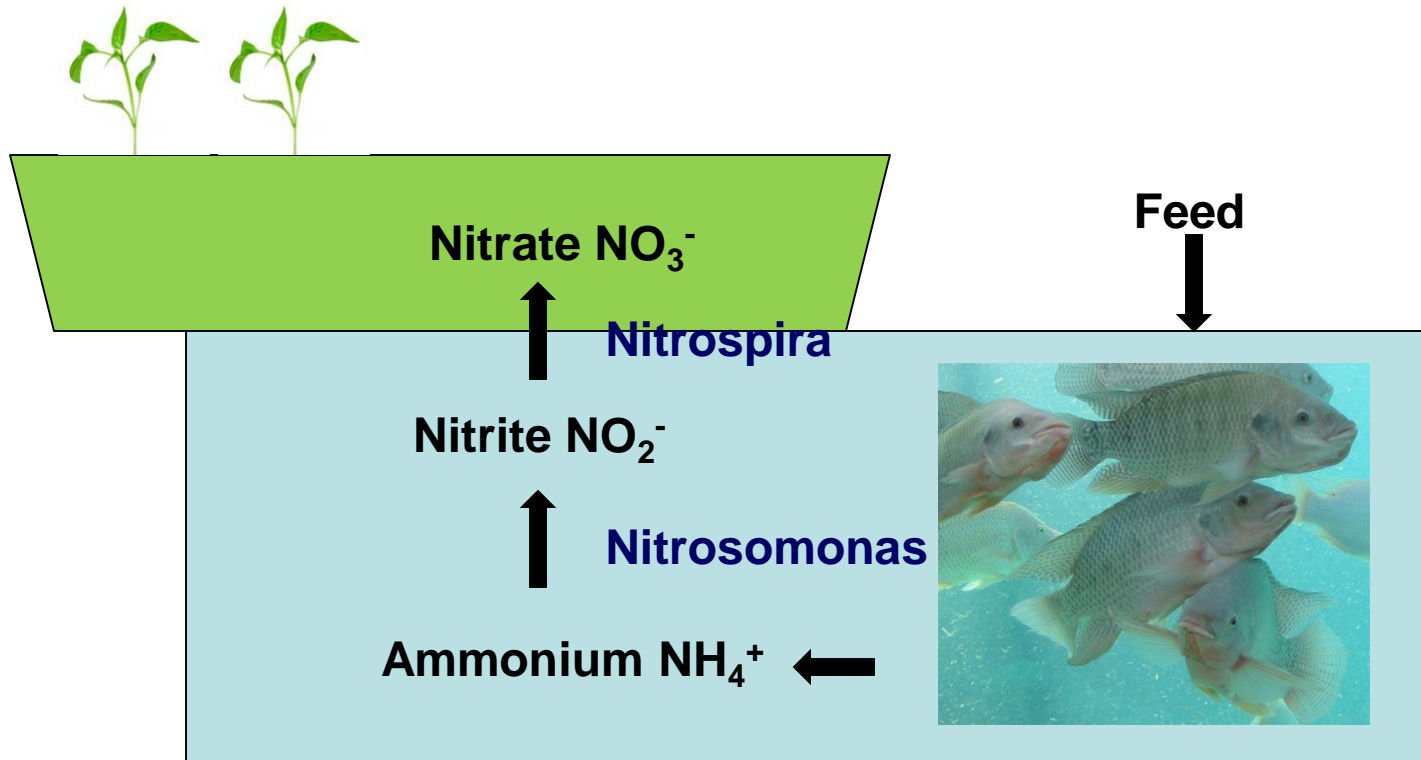
**Seminar on
Aquaponics
Solheimar, March 25th 2014**

Aquaponics

- A combination of the words aquaculture and hydroponics
- Waste water from fish is used as a resource in the horticulture production
- Plants take up the nutrients and the water is returned to the fish

Healthy balanced system

- Bacteria play a large role converting ammonia to nitrates



Grow bed



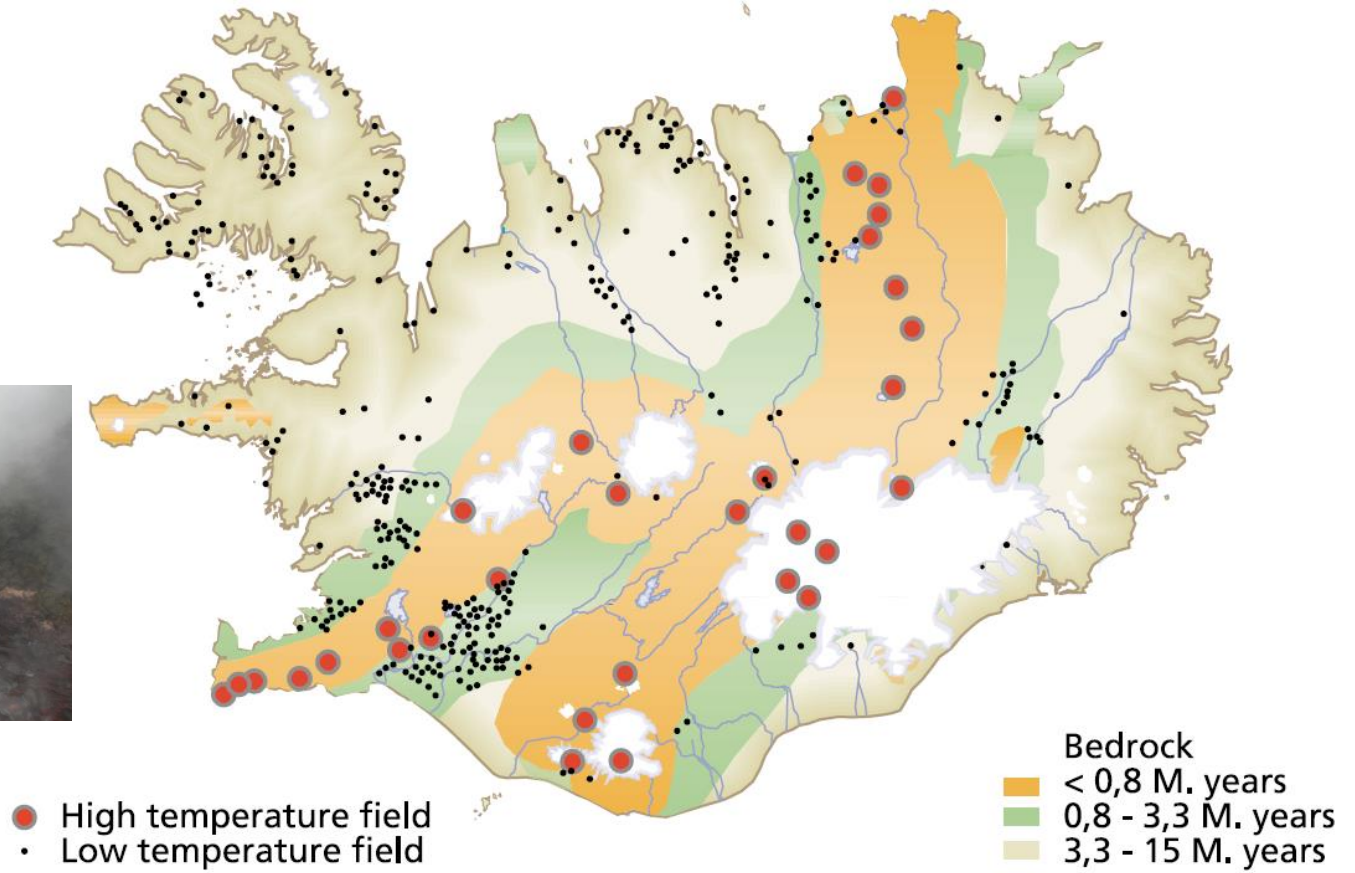
Raft



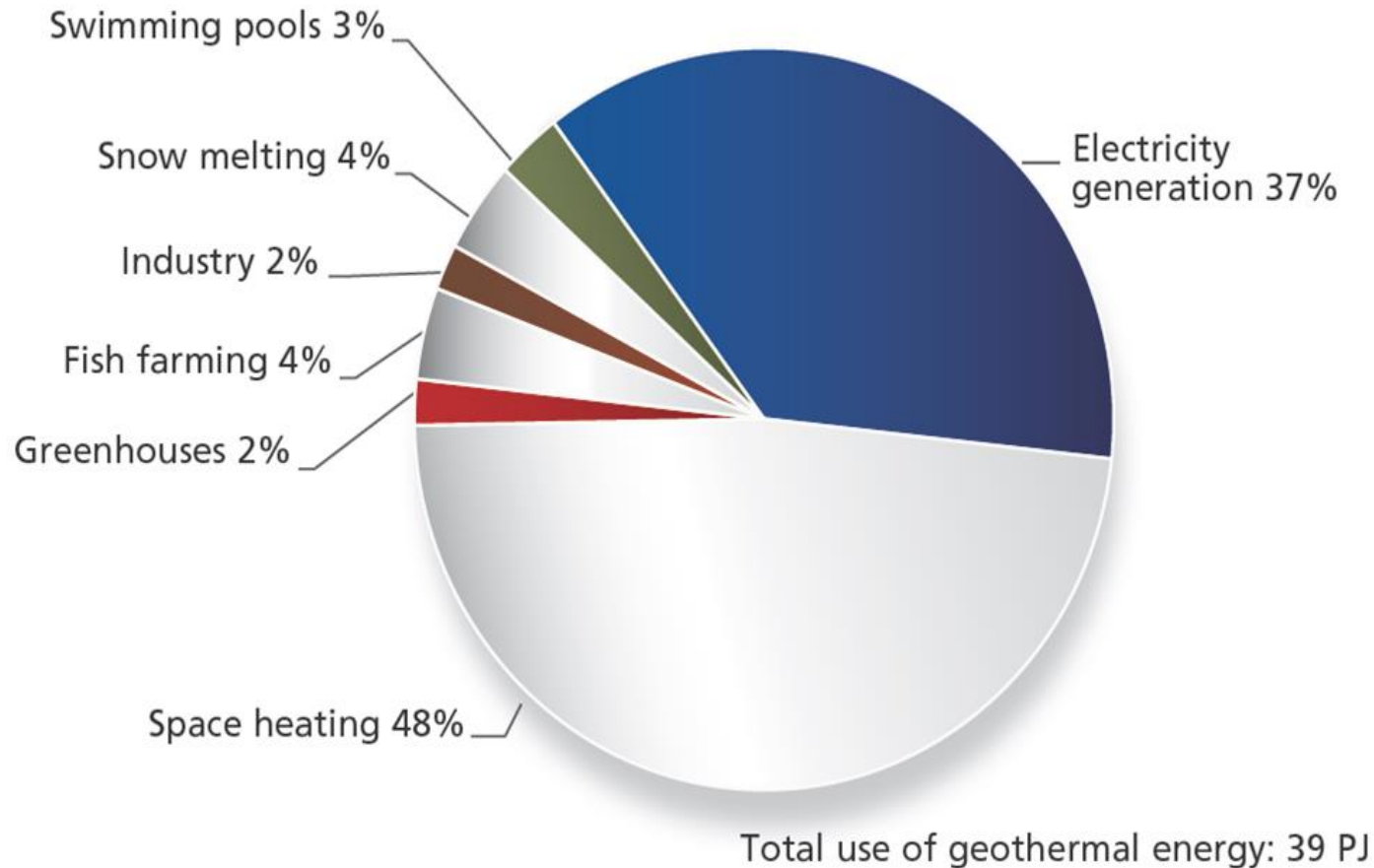
Nutrient film technique



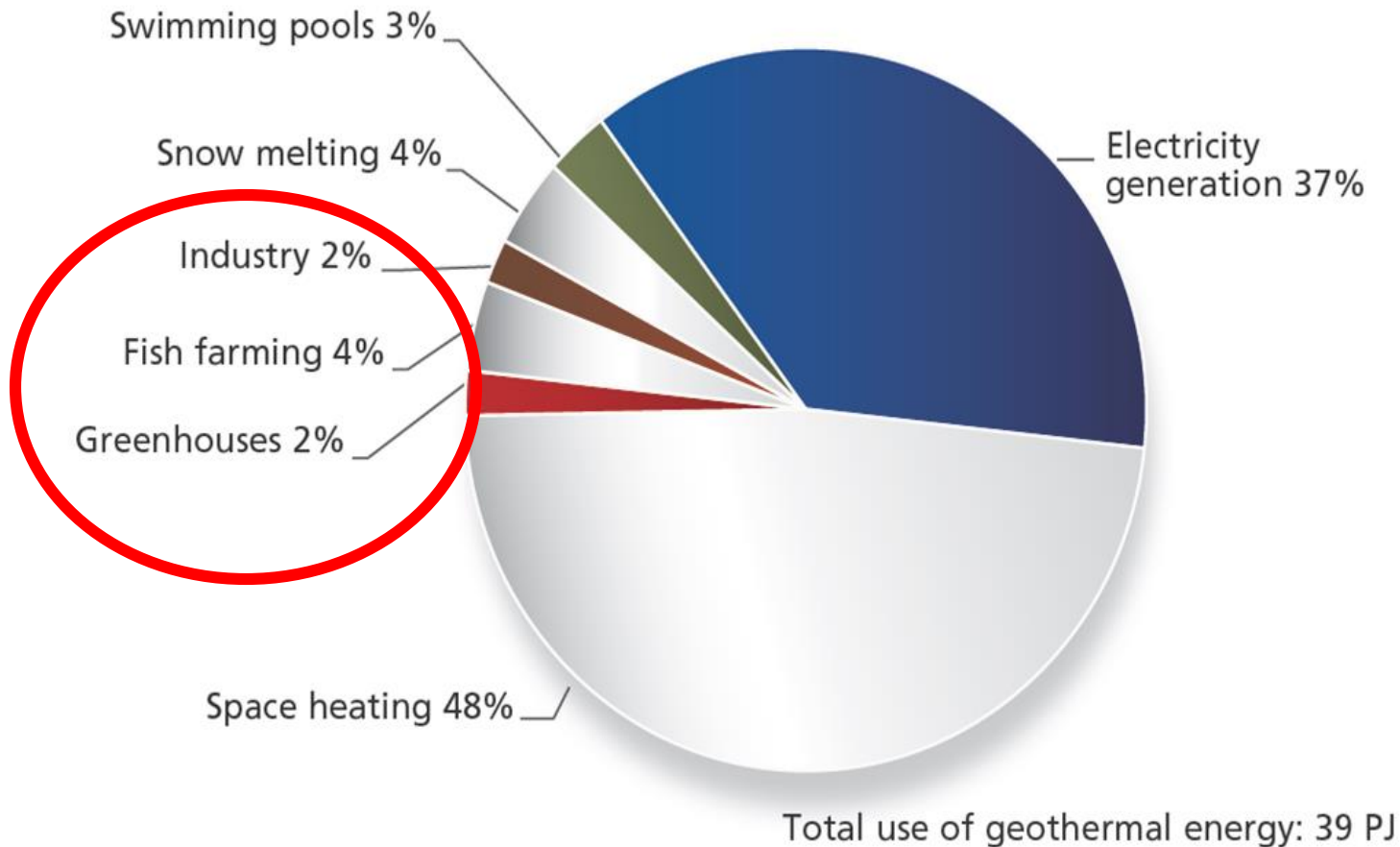
Geothermal resources



Direct utilization of geothermal

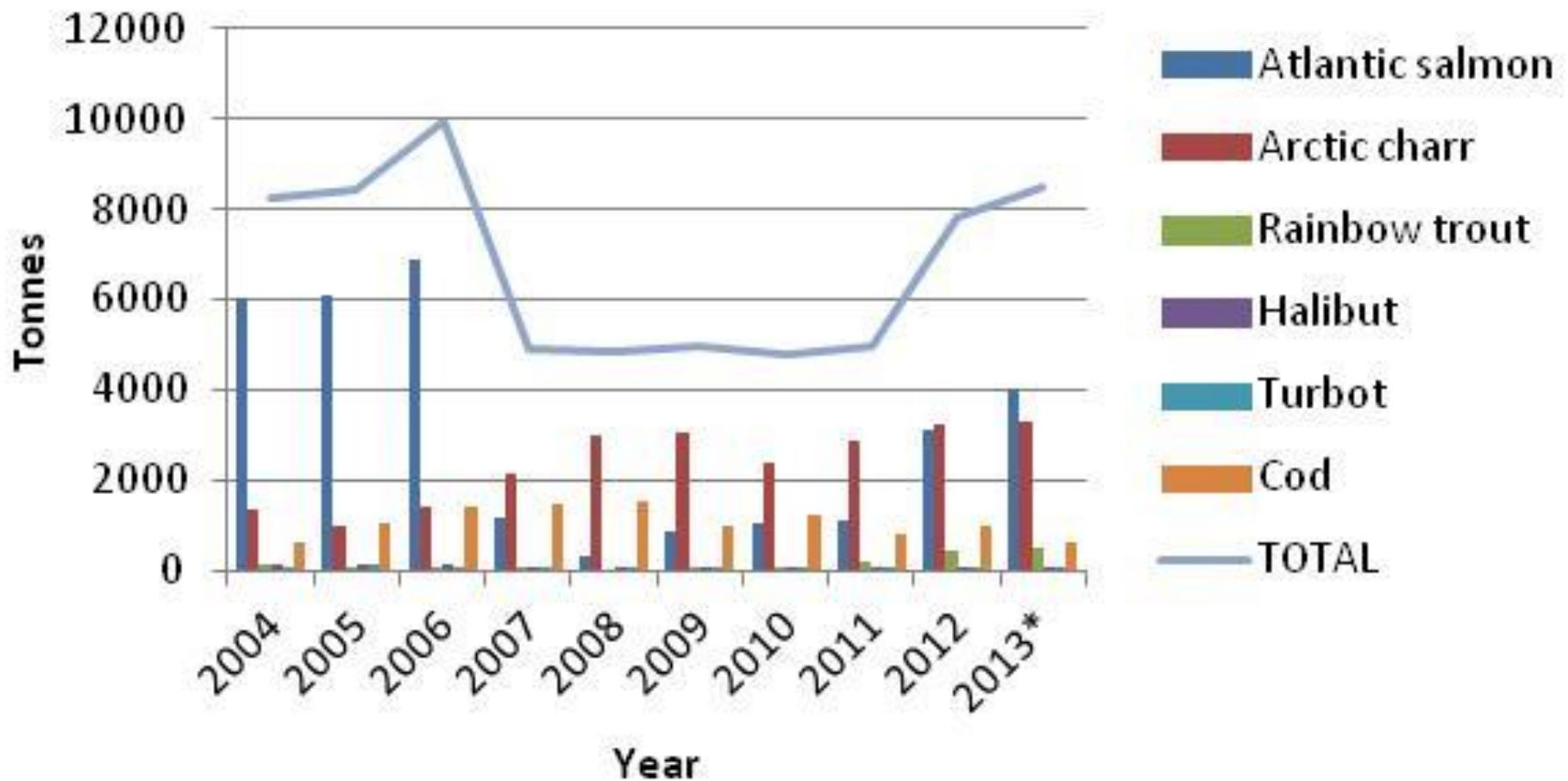


Direct utilization of geothermal



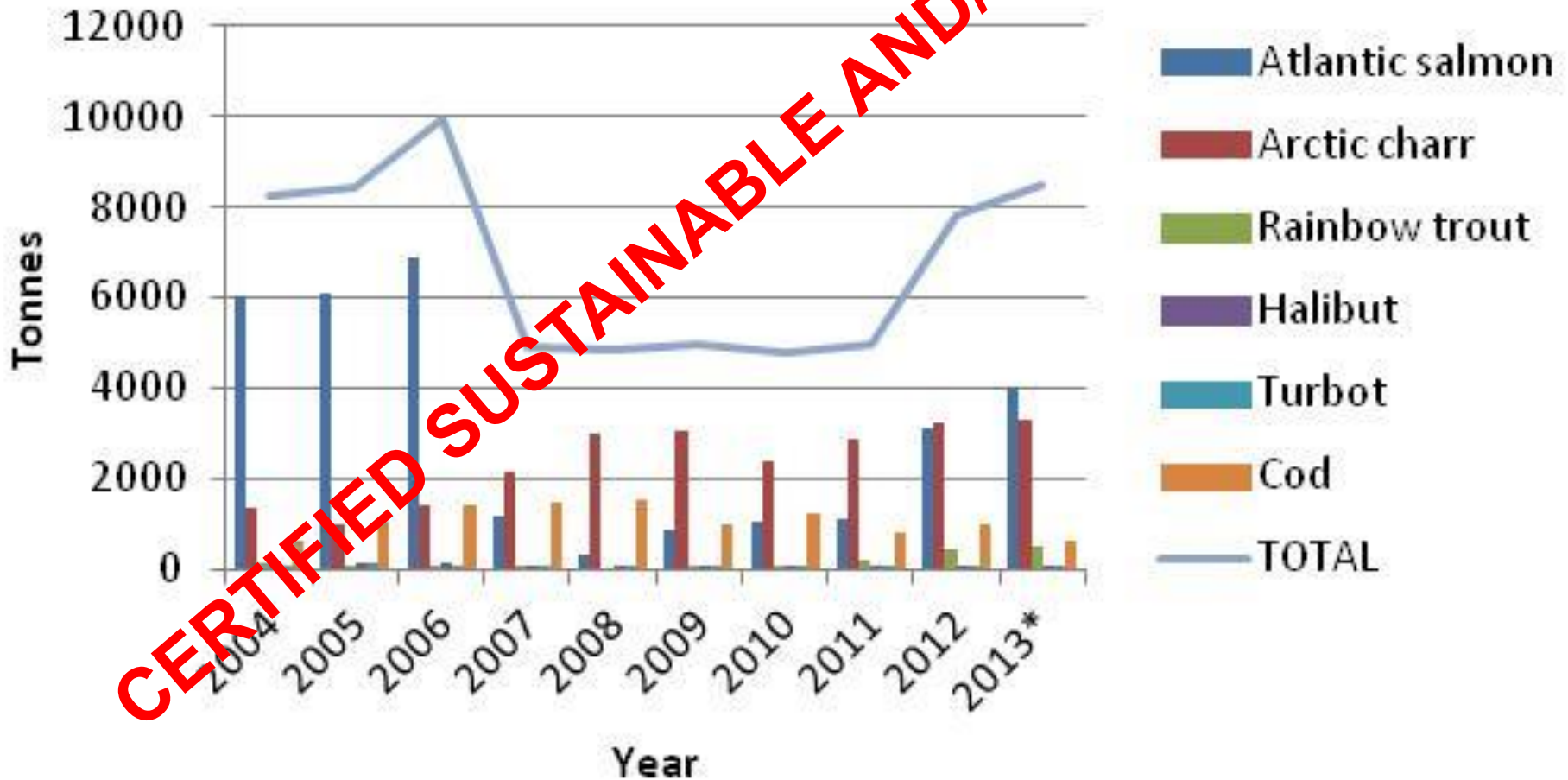
Aquaculture

Annual production in aquaculture in Iceland



Aquaculture

Annual production in aquaculture in Iceland



New warm water species

- Senegalese sole
 - Warm sea water used for cooling in Reykjanes Geothermal Power Plant
 - 500 tonnes annual production
- Sea cucumber
- Abalone
- Tilapia
- European lobster
- Shrimp
- ...



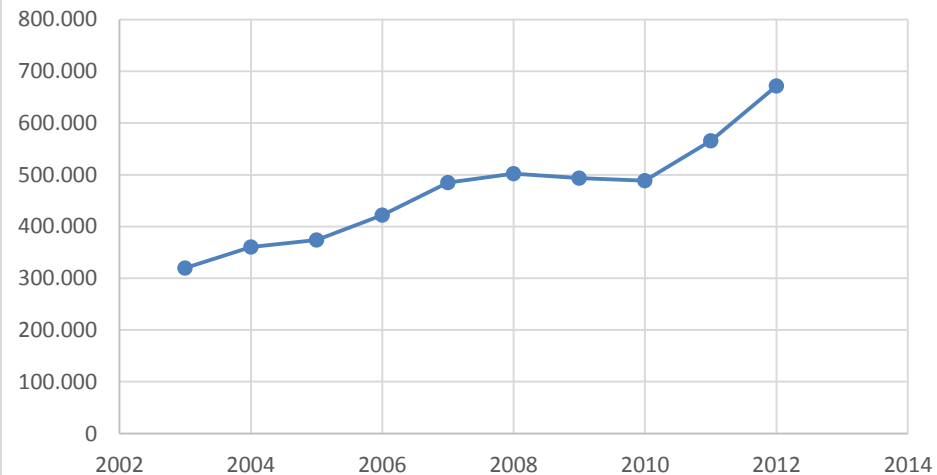
Greenhouse production

- Pesticide free environment
- Clean energy
- Land space



Tourism

- Increasing steadily
- >800,000 tourists in 2013
 - 320,000 inhabitants
 - Annual increase estimated 7%
 - 1,500,000 in 2023
- Experience Tourism
 - Health, food, nature, education



A multidisciplinary approach

- Joining aquaculture, horticulture and tourism developing new products and services
- Integrated new methods
- Value added products and services
- Job creation
- Spin-off opportunities

European collaboration

- EcoPonics partly funded by CIP EcoInnovation



- Leonardo Education and Training – Mobility funding



Education and Culture DG

Lifelong Learning Programme

- COST-Aquaponics network



Leonardo - Mobility

- Collaboration between Denmark, Norway, Spain and Iceland
- Vocational Training Program
- Aquaculture Europe 14 in San Sebastian in Spain October 14-17 2014 the home town of Breen



COST - network

- Starting in 2014
- Several countries participating
- Scientific approach
- Training of young aquaponic scientists



EcoPonics

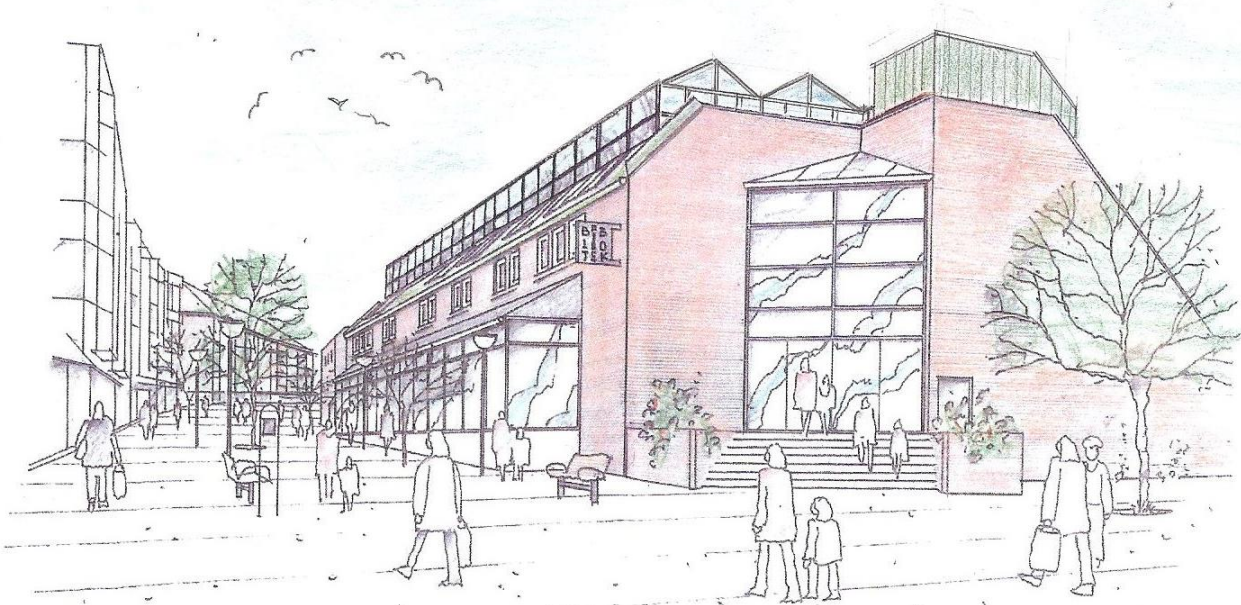
- Companies from Iceland, Denmark and Spain
- 30 months from July 2013 to January 2016
- Implementing commercial aquaponics



Spain



Denmark



IG  **FF**

Institute of Global Food & Farming

Iceland



svinna
VERKFRÆÐI EHF

Estimated production

- Fish plant:ratio 1:3
- 1 ton of fish serves 108 m² grow area with 28 kg/m²/year
- Red and silver tilapia from Fishgen UK
- Focus on salad and herbs in the raft system
- Strawberries, cucumbers, tomatoes and peppers in the grow beds



Acknowledgements



Education and Culture DG

Lifelong Learning Programme

