



July 2026

Supervision topics Bachelor and Master Theses

2026

Max Nielsen



Groups of topic areas

- A. Fisheries Economics and Management
- B. Aquaculture Economics and Management
- C. Markets and Value Chains for Aquatic Food Products
- D. The Economics of Climate Change
- E. Other.



A1. Comparison of fisheries regulation systems

- Description of topic:
 - Theory states that fisheries regulation is necessary to avoid that: “there are too many fishers to chase too few fish”.
 - FAO finds that 82 % of the global fish stocks are fully used or overfished and the current regulation do not work.
 - You can compare the ability of different management systems to achieve sustainability and efficiency.
- Literature to start with:
 - Nielsen, M., O. Flaaten and S. Waldo (2012), Management of and Economic Returns from Selected Fisheries in the Nordic Countries, *Marine Resource Economics*, 27 (1), 64-88.
 - Neher P.A. (1990), Natural Resource Economics, chapter 1 page 11-58 and chapter 10-12 page 175-238.

For Bachelor & Master Theses.



A2. Regulation of Danish fisheries

- Description of topic:

- Danish fisheries have been regulated by Individual Transferable Quotas (ITQs) since 2004.
- Now we have 20 years of experience with ITQs and can see the effects of this regulation in various statistics.
- You can statistically analyze whether larger efficiency have appeared because of the ITQs.

- Literature to start with:

- Merayo, E., R. Nielsen, A. Hoff and Max Nielsen (2018), Are individual transferable quotas an adequate solution to overfishing and overcapacity? Evidence from Danish Fisheries, *Marine Policy* 87:167-176.
- Neher P.A. (1990), Natural Resource Economics, chapter 1 page 11-58 and chapter 10-12 page 175-238.

For Bachelor & Master Theses.



A3. Sustainable and efficient shrimp fishing in Greenland

- Description of topic:

- Shrimp is a main contributor to the Greenlandic economy.
- This creates a need for fisheries managers to prioritize between GDP contribution, jobs and permanent biological sustainability
- You can run an optimization model and analyze the difference in the effect on GDP of a biological, economic and social optimum.

- Literature to start with:

- Waldo, S., H. Ellefsen, O. Flaaten, J. Hallgrimsson, C. Hammarlund, Ø. Hermansen, J. R. Isaksen, F. Jensen, N. N. Duy, M. Nielsen, A. Paulrud, F. Salenius and D. Schütt (2014), *The Impact of Abolishing Fuel Tax Concessions in Fisheries – An Empirical Study of CO₂ emissions, fleet structure and employment in the Nordic countries*, Theme North report 2014:533. Appendix C5.
- Neher P.A. (1990), *Natural Resource Economics*, chapter 1 page 11-58 and chapter 10-12 page 175-238.

For Bachelor & Master Theses.



A4. How does subsidies affect fisheries?

- Description of topic:

- Since fisheries contribute to food supply, many countries have in many years supported their fishing fleet by allocating subsidies.
- But according to theory, subsidies increase the number of vessels and their capacity, implying that overexploitation may result, if not properly regulated.
- You can analyze the efficiency and potential negative effects of subsidies to increase aquatic food supply from fisheries founded on bio-economic modelling.

- Literature to start with:

- Merayo, E., M. Nielsen and S. Waldo (2018), Impact of reducing fishing subsidies and improving efficiency of management: The case of the Northwest Spanish fleet, *Aquatic Living Resources*, 31:70025.
- Neher P.A. (1990), *Natural Resource Economics*, chapter 1 page 11-58 and chapter 10-12 page 175-238.

For Master Theses.



A5. How does international trade in renewable resource goods affect efficiency?

- Description of topic:
 - According to theory, free trade leads to an efficient resource allocation.
 - However, for renewable resources, market failures such as open access exist.
 - You can analyze the efficiency of trade liberalization of open-access goods and discuss efficient regulation.

- Literature to start with:
 - Brander J, Taylor M. (1997), International Trade and Open access Renewable Resources: The Small Open Economy Case, *Canadian Journal of Economics* 30:526 – 552.

For Master Theses.



B1. Input or output regulation in Danish aquaculture?

- Description of topic:
 - Danish fish farming have stagnated the last 2-3 decades, while aquaculture is the fastest growing sector for animal food production globally.
 - One reason for the Danish stagnation has been a regulation with feed quotas that prevent adopting new technology.
 - You can analyze the efficiency of different types of regulation including feed quotas, tradable and non-tradable pollution permit systems.
- Literature to start with:
 - Nielsen, R. (2012), Introducing individual transferable quotas on nitrogen in Danish fresh water aquaculture: Production and profitability gains, Ecological Economics 75:82-90.

For Bachelor & Master Theses.



B2. Community-based fish culture in developing countries

▪ Description of topic:

- While most developed countries have institutions necessary to regulate aquaculture, these institutions does often not exist in developing countries.
- Hence, regulation might not be possible despite efficient for many regulatory instruments.
- You can analyze a self-managed fish culture system in a developing country and its ability to improve efficiency.

▪ Literature to start with:

- Dey, M. M., M. Prein, M. M. Haque, S. Sultana, N. C. Dan and N. V. Hao (2005), Economic feasibility of community-based fish culture in flooded rice fields in Bangladesh and Vietnam, *Aquaculture Economics and Management* 9(1&2):65-88.
- Ostrom, E. (2000), Collective Action and the Evolution of Social Norms, *Journal of Economic Perspectives*, 14(3):137-158.

For Bachelor & Master Theses.



C1. Do organic farming lead to price increases?

- Description of topic:
 - Many farmers may consider to switch to organic farming to fulfil an increasing demand for organic food.
 - But if this investment is profitable, a price premium on organic products is necessary to cover the additional costs.
 - You can make a literature review of studies of organic price premiums using various valuation methods.
- Literature to start with:
 - Ankamah-Yeboah, I., M. Nielsen and R. Nielsen (2016), Price Premium of Organic Salmon in Danish Retail Sale, *Ecological Economics*, 122:54–60.

For Bachelor & Master Theses.



C2. Can value added tax reductions lead to increased fish consumption in Denmark?

- Description of topic:
 - Fish is healthy, but Danes eat substantial below recommendations from the health authorities
 - A reduction in the value added tax may reduce prices and by that induce growth in consumption
 - You can make a literature review of studies estimating consumer demand and price elasticities for aquatic food product. If you have finalized an econometric course, you can also do your own estimations
- Literature to start with:
 - Nielsen, M., J. Smit and J. Guillen (2012), Price effects of changing quantities supplied at the integrated European fish market, *Marine Resource Economics*, 27 (2), 165-80.

For Bachelor & Master Theses.



C3. Competition challenges in aquatic food value chains in developing countries

- Description of topic:
 - Food production in developing countries often focus on primary production.
 - But if food production should grow, it is necessary also to have competitive markets with well-functioning and efficient value chains.
 - You can make a literature review of studies examining governance and competition challenges in aquatic food value chains in developing countries, using global value chain analysis.
- Literature to start with:
 - Islam, I., M. Nielsen, M. Bossemann and Badiuzzaman (2023), Drivers of captive relationships in the pangasius and tilapia value chains in Bangladesh, *Aquaculture*, 574:739721.

For Bachelor & Master Theses.



D1. How fast shall we react to climate change?

- Description of topic:
 - The Stern report finds that climate change requires immediate action.
 - However, the speed of adjustment depends critically on the discount rate.
 - You can discuss the need for immediate action under different assumptions about the discount rate.

- Literature to start with:
 - Weitzman, M.L. (2007): A Review of the 'Stern Review on the Economics of Climate Change'. *Journal of Economic Literature*, 45:703-724.

For Master Theses.



D2. Efficiency of the European CO₂ Emission Trading System

- Description of topic:

- Climate change is induced by global CO₂-emission, which makes global solutions necessary.
- In Europe, regulation is undertaken through a tradable permit system known as the ETS.
- You can describe how the EU-ETS system works, analyze the efficiency of the system by using economic theory and compare the EU-ETS with other carbon pricing systems.

- Literature to start with:

- OECD (2025), *Effective Carbon Rates 2025: Recent Trends in Taxes on Energy Use and Carbon Pricing*, OECD Series on Carbon Pricing and Energy Taxation, OECD Publishing, Paris.
- Aatola, P., M. Ollikainen and A. Toppinen (2014), Price determination in the EU ETS market: Theory and econometric analysis with market fundamentals, *Energy Economics* 36:380-395.

For Bachelor & Master Theses.



D3. Socio-economics of offshore and onshore wind energy



- Description of topic:

- Denmark is a first-mover in wind energy with a large share of electricity coming from climate neutral and market-based wind energy.
- Wind energy have the potential to grow further but meet opposition from neighbours, due to noise and bad view, thereby reducing house prices.
- You can analyze the economic efficiency of moving wind energy offshore.

- Literature to start with:

- Ladenburg, J., P. Hevia-Koch, S. Petrovic and L. Knapp (2020), The offshore-onshore conundrum: Preferences for wind energy considering spatial data in Denmark, *Renewable and Sustainable Energy Reviews* 121:109711.



For Bachelor & Master Theses.

D4. Cost-benefit analysis of concentrated solar power in China

▪ Description of topic:

- Solar panels have developed to large-scale production in China over the last more than a decade.
- The wider use of solar panels claims that it pay off for societies to introduce it. You can:
 - i. Describe the importance of solar panels in power generation worldwide today.
 - ii. Use cost-benefit analysis to identify the socio-economic viability of implementing solar power in China.
 - iii. Discuss the potential of solar energy in relation to availability of land and latitude.



▪ Literature to start with:

- Yang, S., X. Zhu, and W. Guo (2018), Cost-Benefit Analysis for the Concentrated Solar Power in China, *Journal of Electrical and Computer Engineering*, <https://doi.org/10.1155/2018/4063691>.

For Bachelor & Master Theses.



D5. Is biogas a cost-effective tool to reduce GHG emissions?

▪ Description of topic:

- Biogas is a climate-neutral power source releasing on only CO₂ and methane from crops, manure and sludge, which absorbs corresponding levels during growing.
- Biogas is technically feasible and used in many countries. You can:
 - i. Describe the biogas sector and its ability to reduce CO₂- and methane gas emissions.
 - ii. Analyze whether biogas power production is possible in a cost-effective way.
 - iii. Discuss the growth potential of biogas in being founded on plant-based sources.

□ Literature to start with:

- Ruiz, D., G.S. Miguel, B. Corona, A. Gaitero, A. Domínguez (2018), Environmental and economic analysis of power generation in a thermophilic biogas plant, *Science of the Total Environment* 633:1418-1428.

For Bachelor & Master Theses.



D6. Cost-effectiveness of increasing CO₂-sequestration from avoiding deforestation



▪ Description of topic:

- CO₂ is sequestered in trees, implying that deforestation reduce CO₂ concentration in the atmosphere.
- A large area of Brazil is covered by rainforests, with forest cover being reduced over the last decades. You can:
 - i. Describe forest cover globally and in Brazil, and the ability of forests to sequester CO₂.
 - ii. Analyze drivers of deforestation in Brazil such as profitability of soy production at deforested land.
 - iii. Discuss what type of regulation that may reduce deforestation cost-effectively.

▪ Literature to start with:

- Busch, J. and J. Engelmann (2018), Cost-effectiveness of reducing emissions from tropical deforestation, 2016–2050, Environmental Research Letters 13, 015001.



For Bachelor & Master Theses.

D7. Socio-economics of carbon capture and storage

▪ Description of topic:

- Globally, it has proven difficult to reduce GHG emissions to a level where the 1.5/2° C target can be reached.
- The carbon capture and storage technology has been developed to capture carbon and store it in the underground – Like in earlier oil/gas extraction places. Using crops in energy production, carbon is sequestered – And negative GHG emissions can be achieved. You can:
 - i. Describe the bioenergy carbon capture and storage technology.
 - ii. Analyze profitability of pulp and paper mills of investing in bioenergy carbon capture and storage.
 - iii. Discuss the role and potential of bioenergy carbon capture and storage in achieving carbon neutrality.

▪ Literature to start with:

- Kuparinen, K., S. Lipiäinen, E. Vakkilainen and T. Laukkanen (2023), Effect of biomass-based carbon capture on the sustainability and economics of pulp and paper production in the Nordic mills, *Environment, Development and Sustainability* 25:648–668.



For Master Theses.

D8. Economics of converting renewable power to hydrogen

▪ Description of topic:

- Renewable energy like wind and solar have become cheaper to produce over time. But it remain impossible to store – It must be used when produced.
- The power-to-X technology developed to produce hydrogen, allows for storage of renewable energy – But production happens with large energy losses. You can:
 - i. Describe the Power-to-X technology.
 - ii. Analyze profitability of companies of investing in power-to-hydrogen plants.
 - iii. Discuss the role and potential of Power-to-X in achieving carbon neutrality.

▪ Literature to start with:

- Glenn, G. and S. Reichelstein (2019), Economics of converting renewable power to hydrogen, Nature Energy 4(3): 216-222.

For Master Theses.



D9. Profitability of reducing CO₂ emissions from shipping

- Description of topic:

- Shipping is a sector with large CO₂-emissions from fuel use.
- In the EU, shipping is included in ETS of tradable permit from 2024 and must reduce emissions by 2030.
- You can analyze whether it is possible to reduce CO₂-emissions profitably for shipping companies.



- Literature to start with:

- Schwartz, H., Gustafsson, M., Spohr, J., (2020), Emission abatement in shipping - is it possible to reduce carbon dioxide emissions profitably? Journal of Cleaner Production 254(1):1-12.

For Bachelor & Master Theses.



E1. Are transaction cost important for environmental regulation?

- Description of topic:
 - Under zero transaction costs, tradable pollution permits and taxes can often ensure that an optimal pollution level is obtained.
 - But in real life, transaction costs are not zero.
 - You can discuss how the presence of transaction costs affects the efficiency of different regulation systems.

- Literature to start with:
 - Ostrom, E. (2000), Collective Action and the Evolution of Social Norms, *Journal of Economic Perspectives*, 14(3):137-158.

For Master Theses.



E2. Is urban road pricing efficient?

- Description of topic:
 - In many large cities, congestion on roads in the rush hour results in many people wasting their time.
 - This is not efficient.
 - You can analyze different ways to improve efficiency such as building new roads, improving public transport and road pricing

- Literature to start with:
 - Anas, A. and R. Lindsey (2011), Reducing urban and road transportation externalities: Road pricing in theory and practice, *Review of Environmental Economics* 5(1):66–88.

For Bachelor & Master Theses.

