



SARGASSO SEA
COMMISSION

Report of the Workshop of Range States of the American Eel

18th-19th May 2021 via Zoom

Day 1

Introductory presentations

- Dr. David Freestone – the Sargasso Sea Commission, working to protect the “golden rainforest of the Atlantic”
 - The Sargasso Sea is a unique open ocean ecosystem located within the north Atlantic sub-tropical gyre. It is important in the life histories of many animals – eg. turtles, pelagic fish, and anguillid eels. The ecosystem is globally valuable, contributing to tourism and fisheries related to many species. It is also an important carbon sink.
 - What it contributes to anguillid eel fisheries probably accounts for billions of dollars.
 - The Sargasso Sea is believed to be an essential spawning habitat for two species of anguillid eel – *A. rostrata* and *A. anguilla*, though spawning itself has never been observed. Scientists believed spawning took place in an area to the south of Bermuda, but now believe it is much further to the east in the gyre system.
 - The Hamilton Declaration is the basis for the Sargasso Sea Commission. It was signed in 2014 by four governments, but signatory governments are now up to ten. It envisaged the establishment of the Sargasso Sea Commission, under the Government of Bermuda, to exercise a stewardship role for the Sargasso Sea and to develop a work programme for its conservation.
 - Part of the Commission’s work programme is the conservation of migratory species – which anguillid eels fall under. In 2014, Monaco submitted a proposal for the European eel to be listed on Appendix II of the Convention on Migratory Species (CMS), which was approved. The Sargasso Sea Commission has hosted a number of meetings on European and American eel conservation since then.

- **Dr. Matthew Gollock – Introduction and Context on Anguillid Eels**
 - There are 16 species of anguillid eels – there are bi-coloured and mottled morphs.
 - The American eel is a bi-coloured species, and these are generally more favoured for fisheries and trade.
 - They have a catadromous life cycle, relying on continental waters for feeding and growing, and oceanic waters for breeding.
 - The 16 species have varying conservation status though temperate species appear to be of greater concern.
 - Impacts to anguillid eels include climate change, changes in oceanic currents, disease and parasitism, pollution, barriers to migration and associated habitat loss – especially hydropower – predation, and unsustainable exploitation and trade.
 - These impacts vary based on species and geographic location.
 - Conservation of anguillid eels is mostly limited to continental waters – implementing conservation initiatives in oceanic and high seas areas is challenging.
 - The American eel has a broad range – from tropical to near arctic. However, this has likely shrunk from historic maximums. It is believed the American eel spawns in the Sargasso Sea, though breeding adults have never been caught there.
 - Countries vary in their understanding of the status of the American eel – and there is currently no range-wide mechanism for cooperation.
 - This workshop will build on the 2018 workshop in the Dominican Republic in response to CITES Decisions. Recommendations from that workshop included achieving sustainable use of the American eel across the range, development of regional mechanisms for cooperation.
 - The American eel is not listed in CITES but the European eel is in Appendix II – meaning a ‘non-detriment finding’ needs to evidence that trade is sustainable.

- In 2010, the EU was unable to produce a non-detriment finding, resulting in a ban on trade of the European eel from/to the EU. The EU had provided significant supply of glass eels to the East Asian market for farming, and so attention shifted to other sources of the European eel in North Africa, the American eel in the Americas, and the Shortfin eel in Southeast Asia.
 - Increased demand for these species is linked to decreased availability of Japanese eels for farming, however, the trade of anguillid eels is complex.
 - Some current mechanisms in place for the European eel outside of CITES, which might assist the workshop, included EU Eel Management Plans and the CMS appendix II listing.
 - With regard to the Japanese eel, in 2014 there was an ‘informal consultation’ between four Asian states, facilitating consultation on conservation and management with a focus on seed stock for aquaculture.
 - In relation to tropical anguillid eels – primarily the shortfin eel, there is collaborative project developing management approaches for sustainable use through SEAFDEC across seven range states.
- Dr. David VanderZwaag – Sustaining American Eels: The International Law and Policy Seascape
 - There are a number of fisheries agreements affecting American eels. The six most relevant instruments and documents were summarized in the presentation.
 - UNCLOS – sets out general marine conservation responsibilities, eg. for the protection of the marine environment, and the obligation to take measures to protect fragile ecosystems, or the habitat of threatened or endangered species. It also establishes specific obligations for catadromous species, the most applicable of which to the American eel is the obligation by states to coordinate rational management by agreement when a species migrates between the EEZ’s of two states. UNCLOS has some gaps for migratory species such as the American eel – it only requires management cooperation between the state where the species spends the greater part of its life cycle, and the state whose EEZ the species migrates through.
 - During discussions, it was noted that there is a general obligation under UNCLOS (Article 197) for States to cooperate, as appropriate, on a regional basis in protecting and preserving the marine environment.
 - CBD – the text sets out obligations relevant to the American eel in terms of biodiversity conservation, including the obligation for parties to conserve species in ABNJs and other matters of mutual interest, to respect indigenous practices related to biological diversity, and to develop regulatory provisions for protection of threatened species.
 - Adoption of 20 Aichi Biodiversity Targets in 2010 – these included that all fish and invertebrates should be managed sustainably to avoid overfishing. These constitute strong fish protection obligations. They also included that the extinction of human-threatened species should be prevented.
 - Post 2020 Global Biodiversity Framework – This framework is still being negotiated, but various targets are proposed – including 20 targets for 2030 with potential relevance for American eel conservation – suggesting that 50% of land and sea are under spatial planning, that harvesting and trade of wild species is at sustainable levels, and that decision making related to biodiversity allows for equitable participation – from indigenous peoples, local communities, women, and youth.
 - FAO Code of Conduct – not binding, applies to fisheries and aquaculture. It presents principles for conservation – including the precautionary approach that calls for

scientific information before exploitation, and the ecosystem approach that calls for conservation of species in the same ecosystem as target species and highlights the importance of multilateral research collaboration due to the transboundary nature of aquatic ecosystems. It also calls for fisheries management to be incorporated into coastal management, and for social equity in fisheries management in regards to the interests of indigenous people and local communities.

- UN declaration on the rights of indigenous peoples – including the right of indigenous peoples to be consulted before adoption of measures that might affect their community, and the right to their own use and control of land and territories.
- UN sustainable development goals – the SDG on oceans include targets for regulating harvesting and ending overfishing, and implementing science-based management plans.
- There are many implementation gaps and challenges, such as insufficient financing, incomplete legal frameworks, and inadequate scientific understanding.
- Summary presentations from countries¹ on the status of eel fisheries and management, and how improved collaboration could be beneficial.

Summaries of Country Presentations

Canada

- Eel fisheries occur across the Maritimes, Newfoundland and the St Lawrence River – large areas are unfished.
 - Volume of catch comes from larger eels, but the value is from elvers.
 - Have seen declines in catch since the 1980s due to decline in populations and also effort.
 - Fisheries are split into:
 - Food, Social and Ceremonial
 - Commercial
 - Recreational
 - Eel fisheries are managed using various measures such as: bag limits, licenses with quotas, gear restrictions and area closures.
 - Total allowable catch for the commercial elver fishery is 9,960kg wet weight.
 - This includes river specific harvest limits.
 - The Maritimes Region has a Precautionary Eel Management Framework.
- Canada exports to East Asia but is also a hub for trade from the Caribbean Range States.
 - An IUU certificate is not required for re-export.
- Canada is keen to collaborate on elver traceability, assessment and monitoring.

Dominican Republic

- Glass eel harvesting began in 1980 for export to the East Asian market.
 - The number of exporting companies and fisheries associations (FA) increased dramatically in 2015 due to increased demand and value for glass eels.
 - Fishers need to be members of a FA to fish and need a permit from Consejo Dominicano de Pesca y Acuicultura (CODOPESCA).
 - There is a closed season (1st April to 31st October) and each company has a maximum export quota of 150kg with a cumulative cap of 2,500kg.
 - This cap has not been updated using recent data.
 - No fisheries data is available.
 - Customs data indicates that there has been ~12t exported between 2016-2021.

¹ Haiti presented on Day Two of the workshop.

- Canada, Hong Kong, Spain, UK and China are key destinations – some are re-exporters.
 - There have been issues with illegal selling of catch to Haiti as get better prices.
- Eel is imported for consumption – primarily for the tourist trade.
- There are concerns around the need for better fisheries management and traceability, and the scale of illegal activity, as well as the lack of capacity and expertise to address these issues.

Haiti

- Haiti has a very large market in the Caribbean for glass eel export.
- Ministry of Agriculture Natural Resources and Rural Development (MARNDR) has oversight of fishery and export.
- The fishing season is 2nd September-15th April.
 - There is no catch quota, no fisheries management or enforcement – no data on fishers or catch.
 - It can be lucrative for fishers.
 - Fish are sold to exporters.
 - Exporters have a 6,400kg quota – these are both Haitian and East Asian.
 - Export is primarily to east Asia.
 - Official figures suggest Haiti has an export capacity of 800 t/yr but this is not evidenced.

Jamaica

- An exploratory glass eel fishery in tidal waters started in 2013 for export – season runs from October to March.
 - There was one company licenced to fish in 2013, two in 2015 and three in 2018.
 - Fisher applies for licences for fyke net fishing from National Fisheries Authority.
 - Fisheries data is collected but dependent on fishers to submit accurate information.
 - If glass eels are becoming pigmented they may be returned.
- Recruitment has been small over the past seven years – possibly due to reduced water flow.
 - Concerns about the sustainability of fisheries.
- The Veterinary Services Division produce permits to export.
- To date export has never exceeded 30kg – this goes via Canada to East Asia.
- Eel is imported for consumption.

USA

- No federal legislation specific to domestic eel fisheries management.
 - It is managed at the State level.
 - Federal Agencies engage on trade, conservation and river passage.
- The Atlantic States Fisheries Management Commission (ASMFC) was formed 1942.
 - Oversees co-operative management of fisheries across 15 Atlantic Coast states.
 - A Fishery Management Plan was developed in 1999.
 - Five Addenda since to update this.
 - The recreational fishery has 9” minimum size and 25/person/day.
 - States collect landing data from dealers and harvesters, and ASMFC collate this annually.
 - The elver fishery primarily occurs in Maine with a cumulative quota of 9,688lbs which has been in place since 2015.
 - The yellow eel fishery has coastwide quota of 916,473lbs.
 - There is a limited silver eel fishery.

- Peaks of landings of all life-stages was in the late 1970s. This declined to the mid-1990s and has been relatively stable until the past few years when yellow eel catch has declined.
- ASMFC carry out a benchmark stock assessment every 10 years – the last was in 2012.
 - These have intermittent updates, the last of which was in 2017.
 - Regional, coastal and local trend analyses are carried out during the assessment.
 - Statistical models were also developed but these didn't pass peer review for management.
 - Identified significant declines in a number of watersheds - presently stock is considered to be 'depleted'.
 - The next benchmark assessment is due to be peer-reviewed in 2022.

Day 2

- There was broad agreement that improved collaboration and co-ordination could be useful – but it needs to be clear what the purpose is and that the correct representatives are involved.
Also needs to account for the complexities of representation at the national/sub-national level.
- Useful points to consider:
 - Are there existing templates for collaboration that could act as a guide:
 - ICES WGEEL
 - Japanese eel informal agreement
 - Salmonid agreements
 - Tuna/shark RFMOs
- Not necessary to be overly complex in the first instance – the forum can evolve.
- It was clear glass eels are of greatest range-wide interest – catch is almost exclusively for export.
- Management mechanisms vary across the range and are informed by a mixture of politics, fisher tolerance and science.
- With most export going to East Asia, and Canada being a hub from Southern parts of the range, there is potentially an opportunity to engage with import nations.
- There is variation in data collection across the range – this is an opportunity for knowledge sharing.
 - Two workshops were suggested:
 - Monitoring and management
 - Consistency of data use and analysis

Summary and next steps

While presentations from countries highlighted a range of understanding of the status of eels in continental waters of Range States, and various approaches to their associated management, there were a number of common key points that were identified:

- Glass eel/elver fisheries were far more prevalent due to the higher value of these.
 - Fisheries have grown across the range in the past decade due to increased value and demand.
 - Fisheries are almost exclusively for export to East Asia either directly or through transit countries.
 - Management measures relating to fisheries were variable across the range, these included permits, quotas, gear restrictions, closed seasons and areas closures.
 - These were of varying effectiveness depending on enforcement.
 - Illegal fisheries and/or trade occurred across the range.

- Traceability was a concern.
- Commercial yellow and/or silver eel fisheries were found only in Canada and the USA, but in both instances, they have been shrinking in recent years due a decline in both markets and value.
- Most countries are also importing anguillid eel from East Asia for consumption.

There was agreement that collaboration and co-ordination was important but that at present there may need to be discussion within Range States as to how a Roadmap would be structured and function.

- Two workshops in the short-term were proposed which would be valuable to develop outside of the Roadmap discussions:
 - Monitoring and management.
 - Consistency of data use and analysis.

LIST OF PARTICIPANTS

Moderator

Dr. Matt Gollock
Marine and Freshwater Senior Programme Manager
Aquatic Species and Policy
Conservation Programmes
Zoological Society London
Regent's Park
London, NW1 4RY
Matthew.Gollock@zsl.org

RANGE STATES

Canada

Jose Benchetrit
Senior Policy Advisor, Fisheries & Oceans
Canada
200 Kent Street
Ottawa, Ontario
Canada, K1A 0E6
Jose.Benchetrit@dfo-mpo.gc.ca

Derek Mahoney
Senior Analyst, International Fisheries
Management, Fisheries & Oceans Canada
200 Kent Street
Ottawa, Ontario
Canada, K1A 0E6
Derek.Mahoney@dfo-mpo.gc.ca

Rod Bradford
Diadromous Assessment Species at Risk
Biologist, BIO, Fisheries & Oceans Canada
1 Challenger Drive
Dartmouth, Nova Scotia
Canada, B2Y 4A2
Rod.Bradford@dfo-mpo.gc.ca

Zoe Tupling
Policy Advisor, Fisheries & Oceans Canada
200 Kent Street
Ottawa, Ontario
Canada, K1A 0E6
Zoe.Tupling@dfo-mpo.gc.ca

David Cairns
Research Scientist, Charlottetown, PEI,
Fisheries & Oceans Canada
2nd Floor CG Base
Prince Edward Island
Charlottetown
Canada, C1A 7M8
David.Cairns@dfo-mpo.gc.ca

David VanderZwaag
Professor of Law; Marine & Environmental
Law Institute
Dalhousie University
Weldon Law Building
6061 University Avenue PO Box 15000
Halifax, Nova Scotia, Canada, B3H 4R2
david.vanderzwaag@dal.ca

Ryan Curwin
Regional Senior Fisheries Management Officer
1 Challenger Drive
Dartmouth, Nova Scotia
Canada, B2Y 4A2
Ryan.Curwin@dfo-mpo.gc.ca

Rick Vaughan
Policy, Fisheries and Oceans Canada
200 Kent Street
Ottawa, Ontario
Canada, K1A 0E6
Richard.Vaughan@dfo-mpo.gc.ca

Dominican Republic

Nelson Garcia Marcano
Tecnico - Direccion de Biodiversidad,
Ministerio Medio Ambiente y Recursos
Naturales, Vice Ministerio Areas Protegidas y
Biodiversidad,
Government of the Dominican Republic
Av. Cayetano Germosèn esq. Gregorio
Luperón, Santo Domingo, D.N.
nelson.garcia@ambiente.gob.do

Haiti

Jean Anderson
Project and Research Coordinator,
Jeunes en Action pour la Sauvegarde de
l'Écologie en Haïti (JACSEH)
7, RUE DU PEUPLE,
HT 8110 Les Cayes, Haiti
andersonjeanht@gmail.com

Jamaica

Stacy-Ann Gray
Regional Extension Officer, Ministry of
Agriculture and Fisheries,
Government of Jamaica,
Hope Gardens,
Kingston 6, Jamaica
stacyann.gray@moa.gov.jm

Dr. Andre Kong
Director of Fisheries, Fisheries Division,
Ministry of Agriculture and Fisheries,
Government of Jamaica,
Hope Gardens,
Kingston 6, Jamaica
andre_kong@yahoo.com

Dr. Wintorph Marsden
Senior Veterinary Officer, Head of Veterinary
Services Diagnostic Laboratory, Veterinary
Services Division,
Government of Jamaica,
Hope Gardens,
Kingston 6, Jamaica
wintorph.marsden@moa.gov.jm

Farrah Hansel Murray
Fisheries Officer, National Fisheries Authority,
Ministry of Agriculture and Fisheries,
Government of Jamaica,
Hope Gardens,
Kingston 6, Jamaica
farrah.hansel@moa.gov.jm

Dr. Mishka Stennett
Senior Veterinary Officer, Head of Marine and
Aquaculture Department, Veterinary Services
Division,
Hope Gardens,
Kingston 6, Jamaica
mishka.stennett@moa.gov.jm

United States

Dr. Kristen Anstead
Stock Assessment Scientist, Atlantic States
Marine Fisheries Commission
1050 N. Highland Street,
Suite 200 A-N,
Arlington, VA 22201
kanstead@asmfc.org

Sheila Eyler
Project leader, Mid-Atlantic Fish & Wildlife
Conservation Office, U.S. Fish and Wildlife
Service
U.S. Fish and Wildlife Service
Mid-Atlantic Fish and Wildlife Conservation
Office
177 Admiral Cochrane Dr.
Annapolis, MD 21401
sheila_eyler@fws.gov

Joseph Fader
Knauss Marine Policy Fellow of the National
Oceanic and Atmospheric
Administration Office of International Affairs
Herbert C. Hoover Building , Room 68031
14th and Constitution Avenue, NW
Washington, DC 20235
joseph.fader@noaa.gov

Lynn Fegley
Director of Stock Health, Data Management
and Analysis Division at Maryland Department
of Natural Resources; ASMFC American Eel
Management Board Chair
1050 N. Highland Street,
Suite 200 A-N,
Arlington, VA 22201
lynn.fegley@maryland.gov

Toni Kerns
Fisheries Policy Director, Atlantic States
Marine Fisheries Commission
1050 N. Highland Street,
Suite 200 A-N,
Arlington, VA 22201
Tkerns@asmfc.org

Kirby Rootes-Murdy
Senior Fishery Management Plan Coordinator,
Atlantic States Marine Fisheries Commission
1050 N. Highland Street,
Suite 200 A-N,
Arlington, VA 22201
krootes-murdy@asmfc.org

Sargasso Sea Commission

Dr. David Freestone
Executive Secretary,
Sargasso Sea Commission
1630 Connecticut Ave. NW Suite 300
Washington, DC 20009
dfreestone@sargassoseacommission.org

Teresa Mackey
Programme Manager,
Sargasso Sea Commission
1630 Connecticut Ave. NW Suite 300
Washington, DC 20009
tmackey@sargassoseacommission.org

Fae Sapsford
Marine Research Fellow
Sargasso Sea Commission
1630 Connecticut Ave. NW Suite 300
Washington, DC 20009
fsapsford@sargassoseacommission.org