

Swedish Agency
for Marine and
Water Management



Swedish efforts within a
Source-to-Sea continuum

Executive summary

WHAT RESEARCH SUGGESTS

- › There are strong linkages between Sustainable Development Goal (SDG) 14 and other SDGs, especially SDG 6, that call for a holistic, ecosystem-based and integrative approach to the implementation of SDG 14 and its targets.
- › A Source-to-Sea (S2S) approach supports an ecosystem approach in policy, planning, and decision making that considers the entire social, ecological, and economic system from source to sea.
- › A common vision and agreement on goals and targets between key stakeholders is essential in all S2S systems, from a watershed to a river basin, in a regional sea or at the global scale.
- › In any S2S system there are geographic segments that are connected by key flows of water, sediment, pollution, biota, material, and ecosystem services.
- › Measures defined in an S2S system should be designed to support positive feedback loops and enhance ecosystem services while tackling flows that degrade connected ecosystems.
- › A key element of an S2S approach is to understand how governance approaches have changed over time to support new courses of action.
- › The Action Platform for Source-to-Sea Management aims to facilitate contact between decision makers and experts to provide on-demand knowledge, support, advice and guidance to coordinated policymaking and implementation from land, freshwater, coast to ocean. The initiative has led advocacy and outreach efforts to promote source-to-sea management and encourage its adoption in technical and policy processes.

WHAT SWEDISH EFFORTS ILLUSTRATE

- › Sweden is supporting the work of the Action Platform for Source-to-Sea Management (S2S Platform) to promote S2S approaches at a larger and more systematic scale in international efforts.
- › National S2S approaches are linked to the implementation of EU policies and directives, and Sweden's national Environmental Objectives.

- › Multilateral collaboration supports comprehensive S2S policy development as illustrated by the Baltic Sea and North East Atlantic regions. Cooperation enables joint environmental monitoring and the setting of common indicators.
- › At the global level, Sweden provides important contributions to S2S programs and project development.
- › The Swedish Government decided in 2018 on the new Swedish strategy for global action on the environment, climate, ocean and natural resources for the period 2018-2022. This is the first time the ocean is explicitly included as a priority area for the Swedish global development cooperation.
- › The Swedish Agency for Marine and Water Management has in their Strategy for international development cooperation 2018-2020 focus on strengthening the Source to Sea perspective in Agenda 2030.

WHAT INTERNATIONAL EFFORTS ILLUSTRATE

- › Water and marine governance policies need to be better coordinated from an upstream to a downstream perspective and linked to broader policy objectives in other sectors.
- › Management and coordination efforts across national boundaries need to increase in several policy areas, such as environment, agriculture, fisheries, trade, business, and tourism, to achieve long-term sustainability.
- › Source-to-sea management is essential to improve climate resilience particularly for the more vulnerable communities in coastal areas and the Small Island Developing States (SIDS).
- › The S2S platform has released a guide for practitioners for implementation of the source-to-sea approach. The guide supports professionals to apply the source-to-sea approach during project design, implementation and evaluation.



Publisher: Swedish Agency for Marine and Water Management (SwAM)
Date: 2020-05-30

This report is based on the report from 2017 and has been updated by the Swedish Institute for the Marine environment together with researchers and experts from universities, organisations and agencies including the Swedish Agency for Marine and Water Management.

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Graphic Design and Illustrations: Where is my pony

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Introduction

The main threats to marine ecosystems are habitat disturbance, pollution (eutrophication, hazardous substances, and marine litter), over-fishing, and climate change. Many pressures originate from land-based activities and end up in the sea. These include direct pressures from production on land, such as agriculture, forestry and energy production, and through indirect pressures, such as consumption, all causing negative impacts on water quality and ecosystem services. In addition, there are several pressures in or at the sea stemming from fisheries, transport, extraction of non-living-resources (mining, sand, oil, and gas) and point sources (industry and sewage treatment plants).

The Source to Sea (S2S) approach illustrates linkages between these pressures and activities. There are clear linkages and connections between SDG 14 “Conserve and sustainably use the oceans, seas and marine resources for sustainable development,” and other SDGs such as SDG 1 “No poverty”, SDG 2 “Zero Hunger” and SDG 6 “Ensure availability and sustainable management of water and sanitation for all”. This calls for a holistic and integrative approach to achieve SDG 14. The sustainable development of our oceans and the realisation of several targets depend on coordinating management efforts to achieve the SDGs across sectors and administrative borders.

This report gives examples of Swedish efforts in the S2S continuum from national, regional and global perspectives.

THE S2S APPROACH TO GOVERNANCE AND MANAGEMENT

The S2S conceptual framework offers a way to recognise, in any given S2S system, relevant system linkages to support sustainable outcomes and is an aid in developing operational methods and tools to put S2S governance and management into practice.

The conceptual framework is designed around a set of key flows to help analyse ways of addressing negative aspects of flow alterations or enhancing positive ones (Fig. 1). These include biophysical flows of water, sediments, pollutants, biota, and material. Positive feedback loops and return flows that are strived for in supporting a blue or green economy are defined as ecosystem service flows such as clean water, food, and navigation.

Socio-economic drivers and pressures that alter the key flows and management action to date should be defined in order to identify a course of action. Stakeholder engagement is necessary in all steps of managing S2S systems considering that political and economic contexts change constantly. The S2S approach supports the coordination of processes and segments along the continuum from source to sea at the scale defined as a watershed, a river basin, or a regional sea to global system linkages such as marine debris and ocean acidification.

Marine litter is a global environmental problem that is growing, causing negative effects on marine life and the provision of ecosystem services as well as on socio-economic costs to our society as a whole. Marine litter originates from a variety of sources and enters the ocean from activities both on land and at sea, such as from commercial and recreational shipping. For example, research shows that more than 80 percent of the annual input of plastic litter, such as drink bottles and plastic packaging, comes from land-based sources. This suggests the importance of the source to sea approach.

National efforts

National efforts in Sweden within the S2S continuum are linked to the implementation of EU policies and directives, such as the European Water Framework Directive (WFD), the Marine Strategy Framework Directive (MSFD), the Habitats Directive, the Maritime Spatial Planning Directive (MSP), and the Common Fisheries Policy (CFP). These efforts include restoration of habitats in fresh water and marine environments, adapting hydropower to modern environmental standards, linking spatial planning on land with ongoing marine spatial planning processes, and management of marine protected areas and fishing reforms supporting an ecosystem-based fisheries management agenda.

The Swedish Agency for Marine and Water Management (SwAM) was created in 2011 to increase the integration of relevant policies to achieve a unified and coherent management of the aquatic resources in rivers, lakes, and the sea.

Sweden is divided into five water management districts for WFD. Each district has a river basin management plan including a programme of measures (PoM) and environmental quality standards for all groundwater and surface water bodies. Encouraging local stakeholder participation is one of the key processes of Swedish river basin management.

In 2015, Sweden established a PoM for the country's marine waters according to the MSFD. The programme consists of 32 measures spanning from awareness and legislation to physical activities. The measures address sources of different pressures such as input of nutrients, hazardous substances, and litter; biological pressures such as fisheries and invasive species; and include restoration of habitats and coordination efforts with other national agencies.

In Sweden, terrestrial and marine spatial planning are closely connected along the coastal zone. The comprehensive spatial planning responsibility by Swedish municipalities spans internal waters and includes parts of the territorial waters. The national marine spatial planning includes most parts of the territorial waters and the Exclusive Economic Zone, and coordination between the planning frameworks is being developed.

In 1999, the Swedish Parliament adopted the Environmental Objectives, a system of goals to guide Swedish efforts aimed at safeguarding the environment. There are strong S2S linkages in this national framework.

In 2018, the Swedish Government decided on the new Swedish strategy for global action on the environment, climate, ocean and natural resources for the period 2018-2022. This is the first time the ocean is explicitly included as a priority area for the Swedish global development cooperation. The strategy shall contribute towards implementing the 2030 Agenda. Marine pollutions, including marine litter and micro plastics, are challenges that shows the importance of a source to sea approach.

The Swedish Agency for Marine and Water Management has in their Strategy for international development cooperation 2018-2020 focus on strengthening the Source to Sea perspective in Agenda 2030 as well as strengthening the Swedish resource base and promoting collaboration with important marine and freshwater stakeholders based on a source to sea perspective.



Many pressures on marine ecosystems and biodiversity originates from land-based activities, including migration obstacles such as dams. The building of fishways on or around artificial and natural barriers can facilitate fishes' natural migration.

Regional efforts

The multiple uses and pressures of water resources are clearly recognised in EU water policy. The WFD river basin planning system commits all EU member countries and enables water management in a holistic and transparent way. Sweden and other EU member countries follow the EU Blueprint to Safeguard Europe's Water Resources, a strategy to ensure good water quality that meets the needs of people, the economy, and the environment.

The EU Strategy for the Baltic Sea Region (EUSBSR) is an important tool for deepening cooperation between the countries around the Baltic Sea. The EUSBSR takes a broader policy and development perspective, addressing three interlinked objectives: save the sea, increase prosperity, and connect the region.

Sweden is engaged in multilateral policy collaboration in the Baltic Sea through the Helsinki Commission (HELCOM) and the Oslo-Paris Convention (OSPAR) for the North Sea. Sweden is also engaged in the Nordic Council. Both HELCOM and OSPAR apply an S2S approach by inclusion of pressures from terrestrial freshwater catchments in both marine conventions. Important key flows identified for management on a regional level are nutrients, hazardous substances, and litter. Sweden is committed to the HELCOM Baltic Sea Action Plan (BSAP), which includes actions for reducing hazardous substances and national nutrient reduction targets to restore the good ecological status of the Baltic marine environment by 2021. Sweden is co-lead for two regional actions within HELCOM's Regional Action Plans on Marine Litter (RAP ML), with the objectives of preventing and reducing marine litter in the fisheries sector and wastewater treatment plants. Sweden further works to strengthen collaboration between intergovernmental organisations in order to increase cooperation between water, marine, and fisheries management, such as between OSPAR and NEAFC (Northeast Atlantic Fisheries Commission) or the coordination of MPA and MSP processes.

Global efforts

On the global level, Sweden contributes to international collaboration, policy influence, and capacity building in accordance with the development goals in Agenda 2030. Sweden actively promotes improved cooperation and the establishment of collective arrangements between existing regional and global conventions and organisations to ensure a coherent and ecosystem-based management of marine resources. Sweden strives to increase regional and international collaboration through several international forums, including the GEF, FAO, OECD, UNEP, UNDP, CITES, Arctic Council, CCAMLR, IMO, and Regional Fisheries Bodies.

Sweden is actively working toward an implementation agreement to UNCLOS for the protection of marine bio-diversity in areas beyond national jurisdiction. Under the Convention on Biological Diversity (CBD), Sweden and other parties have adopted the ecosystem approach as the primary framework of the convention, defined as "a strategy for the integrated management of land, water, and living resources." Integrated basin-scale, coastal, and marine management, and control of land-based pollution sources are highlighted as priorities under the convention.

Sweden is strengthening its environmental commitment to the Arctic region by focusing on area-based conservation, monitoring and assessing acidification in the Arctic, co-leading the project Marine Litter in the Arctic, and participating in several Arctic Council expert groups (MPA Expert Group, Ecosystem Expert Group, CAFF Marine Biodiversity Expert Group) that apply S2S approaches.

Sweden is engaged in bilateral cooperation with strategic countries within the fields of S2S. Exchanges of knowledge and experiences on the coordinated management of fresh and marine waters are developed with South Africa, China, Russia and Brazil.

As part of SwAM's program for development cooperation – SwAM OCEAN launched in 2019, Sweden engages in



The red river flows from Yunnan in Southwest China through northern Vietnam to the Gulf of Tonkin. The region around the river is densely populated and agriculturally rich. Climate changes and the building of dams for energy consumption constitute major challenges and the use of water in one sector will affect the other sectors. A Source to Sea approach is necessary to tackle the challenges within the region.

relevant activities and policy processes to promote the coordinated management of fresh and marine waters. The goal of these actions is to contribute to reduction of negative impacts from land-based sources on coastal and marine ecosystems and ensure well-functioning ecosystem services that poor people depend upon for their livelihood and food security.

The Swedish International Development Cooperation Agency (Sida) is one of the major financiers of the Mekong River Commission (MRC). The main objective of the MRC is to strengthen regional cooperation between the four member countries regarding hydropower development. S2S issues are increasingly gaining attention in the MRC, especially in the context of biota flows such as fisheries management and sediment flows. In the Red River, the IUCN implemented the Mangroves for the Future program (MFF) which supports S2S approaches in the cooperation between Vietnam and China. The river delta area between Hanoi and the river mouth in the South China Sea is one of the most important areas in the region contributing to poverty alleviation by supporting agriculture and fisheries production. Opportunities exist for scaling up S2S approaches in 11 coastal countries, which have rivers originating in the high mountain areas of the Himalayas, and supplying valuable nutrition to coastal and marine ecosystems in the East Asian seas.

A source to sea (S2S) approach can contribute to meeting sustainability by considering the strong system linkages in the socio-ecological systems that surrounds a water system. It can identify pressures on water, and their drivers, and ensure stakeholder participation in the management. Thus it can support a robust framework of governance.



Sweden is supporting the work of the Action Platform for Source-to-Sea Management (S2S Platform) to promote S2S approaches at a larger and more systematic scale in international efforts. Since its formation in 2014, the S2S Platform has established itself as a key player in the international policy arena by connecting actors between freshwater and marine management, developing a common problem formulation and knowledge-base in the form of a source-to-sea conceptual framework and by building commitment at global and regional levels for using a source-to-sea approach to resource management. The S2S Platform now includes more than 25 of the key UN organizations, research institutes, international environmental NGOs, conventions, intergovernmental sea and river basin commissions active in this field. In 2019, the S2S platform released a guide for practitioners for implementation of the source-to-sea approach. The guide supports professionals to apply the source-to-sea approach during project design, implementation and evaluation.

OUTCOMES OF THE S2S PLATFORM

- › The Secretariat, supported by Platform partners, has led advocacy and outreach efforts to promote source-to-sea management and encourage its adoption in technical and policy processes. Activities that ensure S2S Platform presence at strategic international events and conferences provides an important basis for this work. The Swedish government continued its support to source-to-sea management through earmarked funding to UNEP and the S2S Platform secretariat.
- › The new UN Environment Marine and Coastal Strategy adopted at UNEA March 2019 makes reference to the “source-to-sea approach” as one of the guiding principles for the strategy, and includes source-to-sea related outputs under “Strategic Objective 2: Build circularity in our economies and promote sustainable consumption and production approaches to address marine pollution and resource use”.
- › The source-to-sea dimension was included in the Global Centre for Adaptation – Water Action Track, which aims to, by 2030 “support efforts in at least 100 river and groundwater basins to plan and finance climate adaptation and resilience measures, in view of the pivotal role of basins and the source-to-sea water cycle in fulfilling the 2030 agenda”.
- › Source to sea linkages were higher on the agenda than ever at the “Blue COP” in Madrid. The S2S Platform was on the ground to better advocate for these linkages during official side events.
- › Stronger commitments to source-to-sea action have also been tabled by organizations such as Asia Development Bank who have committed \$5 million USD to combatting marine litter through source-to-sea management.



National Gaps and Global Opportunities

- › To enhance SDG implementation in Sweden and beyond, an S2S approach can contribute to meeting sustainability by considering the strong system linkages in the socio-ecological systems. Gaps to be addressed in order to achieve an S2S approach include:
- › Applying a system thinking along the S2S continuum to identify pressures and their drivers to tackle detrimental flows;
- › Incorporating the role of ecosystem services and the significance of their connections across several SDGs;
- › Supporting a robust framework of governance that takes into account sustainability objectives and indicators, and the fact that governance regimes evolve over time;
- › Ensuring stakeholder participation to achieve ownership in all aspects of management in the S2S continuum;
- › Articulating and connecting marine- and land-based spatial planning frameworks;
- › Including green infrastructure approaches in all aspects of management in the S2S continuum;
- › Applying ecosystem-based fisheries management approaches to secure the connectivity between fresh and marine water management systems and their species;
- › Supporting regional water and marine environmental policies and S2S objectives by integrating these into other policy areas at the national and regional level.

Compilations made by SwAM for SDG 14, Life below water

This document represents one out of nine compilations made by the Swedish Agency for Marine and Water Management (SwAM) to highlight Sweden's key efforts and initiatives for Sustainable Development Goal 14 of the 2030 Agenda for Sustainable Development. This report has been developed as a part of Sweden's work in support of The Ocean Conference in Lisbon 2020. It is based on the report developed for The Oceans Conference in New York 2017 and has been updated by the Swedish Institute for the Marine environment together with researchers and experts from universities, organisations and agencies including the Swedish Agency for Marine and Water Management.

The documentation focuses on a situation assessment and does not constitute a complete picture of Sweden's initiatives being carried out in order to achieve the goal and targets. A starting point for the content is operational areas within national authorities, but the content has also been expanded to include other significant aspects based upon existing contacts and knowledge.