The wetlands of the lower Songkhram River basin need collaborative conservation

SEI brief
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Ridhi Saluja

Thanapon Piman

Key Findings

- **The wetlands of the lower Songkhram River basin are protected as a Ramsar site and a regional environmental asset, but they are under threat from numerous factors related to developmental activities.**
- **The lower Songkhram River is the last free-flowing tributary of the Mekong River and is a lifeline for over 14 000 households and a haven to many endemic biodiversity species. Local communities in the region have unique associations with the natural resources in the river basin, including the wetlands, and they perceive immense value in conserving these ecosystems.**
- **Natural resource policies lack specific guidelines and collaborative approaches for the protection, conservation and management of the wetland resources of the lower Songkhram River. The way forward should be led by a synchronized planning process, collaborative governance of the wetland resources, and empowerment of already existing local community groups.**

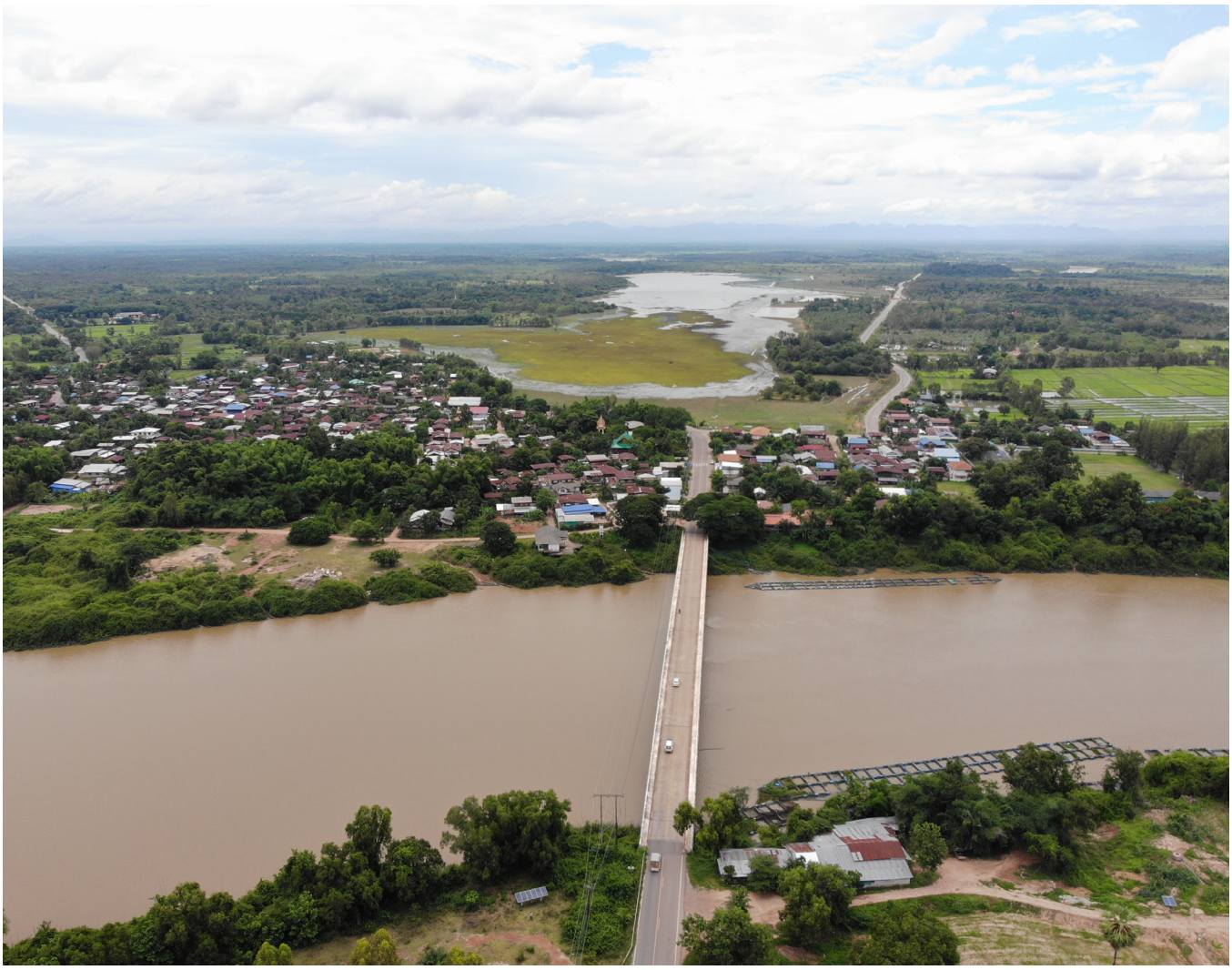
The Songkhram River forms a complex mosaic of wetland habitats at the lower end of its basin. Protected under national and international frameworks for their significance, these wetlands contribute to biodiversity and to local people's livelihoods. They also are threatened by numerous drivers of change at different scales, which are leading to deterioration of wetland health and loss of the ecosystem services these wetlands provide.

This brief emphasizes the relevance of the wetland ecosystems within the lower Songkhram River basin while identifying critical drivers of change and policy gaps. We share the key pathways to influencing wetland conservation and management decision-making, based in part on field surveys of wetland-dependent communities in the area that are highly concerned about the changes in these ecosystems (Field Survey, June 2022; forthcoming publication). We make recommendations that could assist policy practitioners and non-governmental organizations in effectively influencing national and local policy level changes, with possible regional impacts.

Livelihood dependence

The lower Songkhram River basin is renowned for its abundant and biodiverse capture fishery and associated living aquatic resources (Blake & Promphakping, 2010). The most recent assessment was conducted in 2008 and estimated an annual fishery catch of 34 000 metric tons (Hortle & Suntornratana, 2008), with 188 fish species identified in the

IMAGE (ABOVE): Lower Songkhram River, Mekong's last free-flowing tributary



Connections between river, wetland and communities of the lower Songkhram River © THANAPON PIMAN / SEI ASIA

region; no recent estimates are available due to a monitoring gap, though the catch has since decreased according to responses from conversations in the field.

The so-called flood pulse phenomenon has been identified as a key driver of the ecological system: the Songkhram River is a tributary of the Mekong River and is occasionally flooded when water levels rise downstream, delivering sediments and nutrients upstream (Blake & Pitakthepsombut, 2006). These pulsed episodes of flooding are critical for the maintenance of ecologically diverse and highly productive seasonally inundated riparian forest (or *paa boong paa thaam*), marshes, oxbows, and other wetland ecosystems. They also make the capture fishery several times more productive than the largest reservoir fisheries in the northeast of Thailand (Blake, 2008).

Local people in the lower Songkhram River basin have always used a variety of resources and a combination of activities to support their livelihoods, given the unpredictability of flooding due to climate change and the lack of control over Mekong River management, including the impacts of hydropower development in the upper Mekong River. Capture fisheries form the most valuable livelihood resource in the region, with 80% to 93% of households involved in fisheries part time and the rest involved in commercial-scale enterprises (Hortle & Suntornratana, 2008).

Both terrestrial and aquatic seasonal wetland products are harvested by local communities. The *paa boong paa thaam* is a source of mushrooms and bamboo shoots during the early rainy season, and other harvested products include wild vegetables, red ant eggs, tubers, fuel wood, wood or vines.

In addition to local natural wetland products, local livelihoods are also highly dependent on floodplain agriculture, including rice farming systems, livestock, cash crops and industrial tree plantations such as rubber. Small-scale systems that rely on small pumps or flood recession trap ponds have proven sustainable for rice farming, whereas the dry season rice cultivation promoted by the government using centralized irrigation systems has failed in the region (Blake, 2008).

Key drivers of change

The key drivers of change in the lower Songkhram River basin are related to development activities, which directly or indirectly impact wetland resources and biodiversity. Development has led to large-scale projects proposed to solve water resource shortages or drought problems for domestic, agricultural and industrial uses, as well as to address annual flood risk. Industrialization and agricultural expansion in the region have led to the introduction of pollutants and waste (Mankhoksoong & Promphakping, 2016).

Meanwhile, policies encourage conversion of riparian forests and expansion of agribusiness on sensitive floodplains (Blake & Pitakthepsombut, 2010). And the construction of new hydropower dams in the upper reaches of the Mekong River are changing the hydrology and flood levels within the lower Songkhram River basin (Soukhaphon et al., 2021). Finally, unsustainable fishing practices along the Mekong River, its tributaries such as the Songkhram River, and associated wetlands have led to collapsing fish stocks and loss of indigenous species.

Current conservation and management approach

Three different international and national frameworks prioritize the wetlands of the lower Songkhram River basin for conservation and protection: the Ramsar Convention, designated as Wetlands of International Importance; the Mekong River Commission (MRC), as a regional environmental asset; and the government of Thailand's Master Plan of Integrated Biodiversity Management, under the UN Convention on Biological Diversity.

Ramsar Wetland of International Importance

The Ramsar Convention recognized a 92-km stretch of the lower Songkhram River flowing into the greater Mekong River as a Wetland of International Importance in 2019 under several criteria, including the area's biological diversity, fish spawning grounds and other qualities (Ramsar Convention, 2020). In addition to its biodiversity significance, these wetlands are integral to the livelihoods and sustenance of over 14 000 households in 51 villages and are both culturally and spiritually significant to the local communities.

Management of the Ramsar site is led by five provincial government authorities: the Regional Environment Office 9 (Udon Thani), Nakhon Phanom Provincial Office of Natural Resource and Environment, Water Resources Regional Office 3, Nakhon Phanom Fisheries Office and the Royal Forest Department (RFD). Key conservation actions identified and implemented on-site include partial legal protection, water quality improvement, management of threatened species, and fisheries management.

MRC Regional Environmental assets

In 2010, the MRC estimated that only 2% of the original wetland area remains in the Mekong River delta (~100 000 km^2). To spearhead the conservation of critical wetland ecosystems, MRC has identified 12 regional environmental assets of importance and priority in the Lower Mekong Basin. In its *State of the Basin Report 2018* (Mekong River Commission, 2019), the MRC identified the need to facilitate agreement on basin-wide objectives, joint strategies and action plans for protecting and sustainably managing the remaining environmental assets.

In its Basin 2040 pathway, MRC envisioned a conservation framework through which wetland resources are managed sustainably within ecological limits (Mekong River Commission, 2021). The goal is to maintain ecosystem services such as flood and drought protection for the benefit of economies and people.

Master Plan for Integrated Biodiversity Management

The fourth Master Plan for Integrated Biodiversity Management (Office of Natural Resources and Environment Policy and Planning, 2015) extends partial legal protection to 47 wetlands of national importance, including those in the lower Songkhram River basin. This plan established national targets for implementing effective management measures, developing guidelines for the sustainable use of biodiversity, and conducting a systematic evaluation of management effectiveness across the wetlands network.

A national directive has also been outlined to “halt the loss of wetlands to ensure ecosystem services and support climate change adaptation”. The Thai National Committee on Wetland Management, the Technical Working Group on Wetlands, and the Ministry of Natural Resources and Environment have been identified as the nodal agencies for wetland management. Provincial wetland committees have been established to support local action and allow for cross-sectoral participation. The effectiveness of the plan's measures is constrained by the under-representation of wetlands and their functions in various facets of development planning.

Communities’ engagement in conservation actions

We interviewed residents and community groups during field trips to the lower Songkhram River basin in June 2022. Our interactions highlighted the unique connection that the communities have with natural resources in the region, including wetlands, and how they perceive immense value in preserving these ecosystems.

For example, the wetlands are protected as “community forests”, where resource use is controlled through various voluntary mechanisms set by village leaders. Cultural spiritual connections and folklore are also a component of community-based conservation strategies that preserve the values of ecosystem services and ensure sustainable use of natural resources, for example, fish and bamboo.

Three community-led networks have emerged over the years to protect and conserve natural resources in the lower Songkhram River basin: Communities Lower Songkhram River Conservation Network Association, Natural Resources and Environment Protection Volunteer Network, and Songkhram River Protection Association. Communities are actively leading the conservation and management of lower Songkhram River basin wetlands through these networks, and at times, they are also assisting public agencies, such as the Department of Natural Resources and Environment, in implementing various conservation measures and assessing the efficacy of site management activities.

Despite the strong drive and intent of the communities to lead such initiatives, these networks confront several significant issues. These include the following, as noted in field surveys with responsible agencies and communities:

- *Restricted use of traditional knowledge in resource planning* – Local communities rely on traditional knowledge to monitor and maintain the ecosystems in which they live and work. For example, they can judge whether a certain year is going to receive enough rainfall or not in advance, based on the movement or behaviour of certain species such as squirrels. The communities plan accordingly for the area to sow in rice paddies and water distribution in their respective villages. These knowledge elements usually are not included in government plans, decisions and activities, as they are not considered as credible as "scientific knowledge".

- *Limited resources* – Because of limited human and technology resources, responsible government agencies and local communities may fail to prioritize ecosystem conservation at times. Holistic ecosystem management and conservation require understanding systems and the utilization of advanced technologies, in addition to local knowledge.

Fishing gear used within the wetlands of the lower Songkhram River basin
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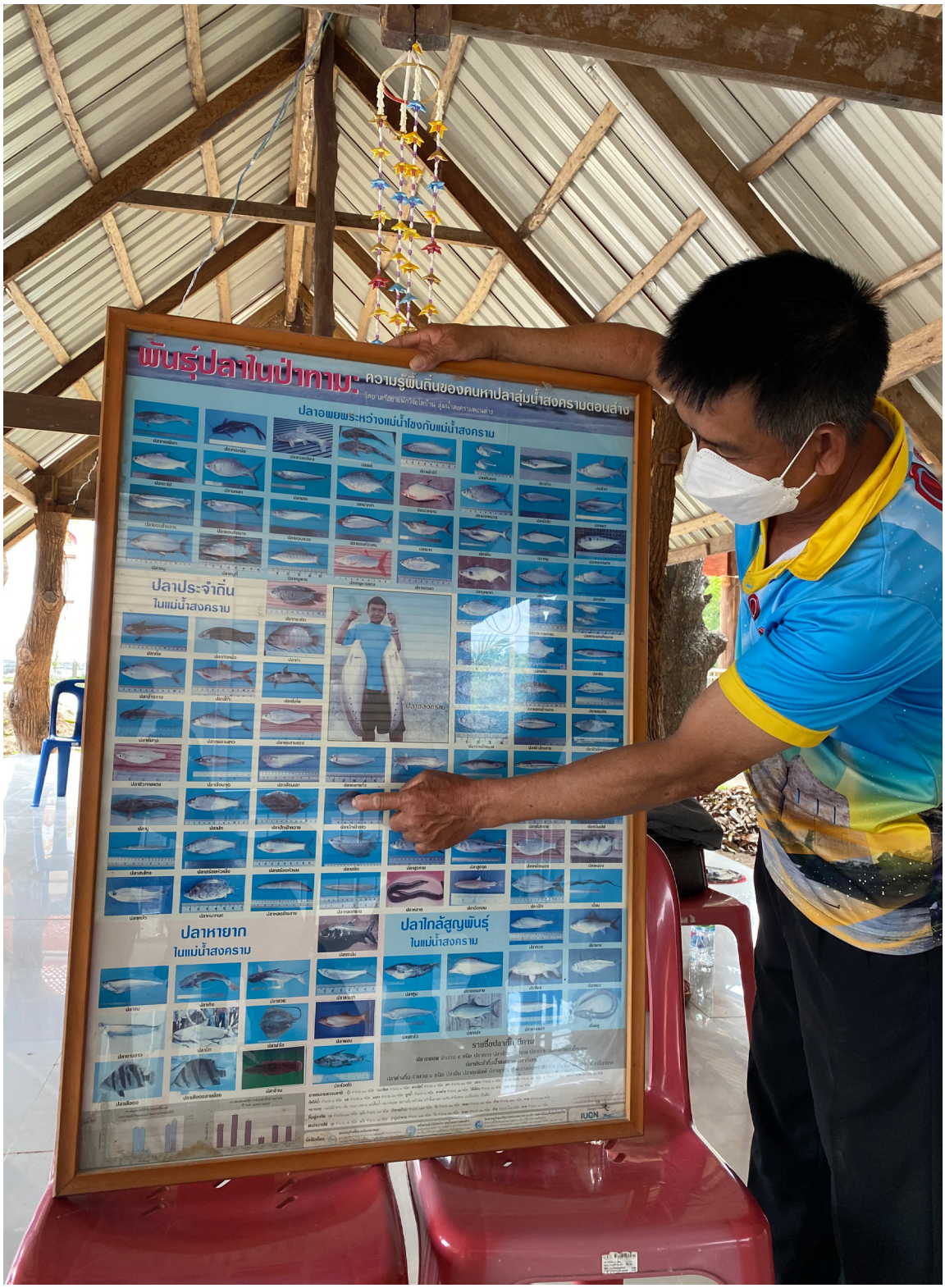
- *Low priority for policymakers* – Development takes precedence over ecological conservation in various sectors and responsible agencies. Development projects in ecologically sensitive places have been planned and implemented in a variety of locations in the lower Songkhram River basin, prompting retaliation from locals (Soukhaphon et al., 2021). Policymakers need to make conservation a priority; in addition to a lack of resources, processes are also lacking for the prioritization of wetland ecosystems.

Policy gaps

Despite the existence of a wide range of plans and policies to promote natural resource protection, conservation and management, clear directives and coordinated procedures for executing designated actions remain lacking.
For example, the Ministry of Natural Resources and Environment's strategic plan aspires to engage all parties responsible for natural resource and environmental management on a national and international level. Relevant stakeholders have been included at various levels, and knowledge is strongest at the local community level. More knowledge is needed on the wetland ecosystems, the services they provide, and their benefits at different scales. The wetlands are not yet equally prioritized across all sectors, resulting in lower budget allocation as compared to development activities.

Basin-level development plans assume a minimal environmental impact and provide no strategies for mitigating the impact of development projects on the ecosystems within sub-watersheds and basins. These strategies underestimate the flows required to support aquatic freshwater ecosystems, including wetlands downstream to the proposed projects, and instead focus on meeting increased agricultural water

demand. Provincial development plans aiming at addressing local people's needs lack a consistent method for involving and considering stakeholder viewpoints in natural resource and ecosystem planning and implementation. Stakeholder participation is limited to information sharing and public hearings at higher levels such as watershed, basin and regional scales.



Fish diversity in the lower Songkhram River wetlands © THANAPON PIMAN / SEI ASIA

Key recommendations

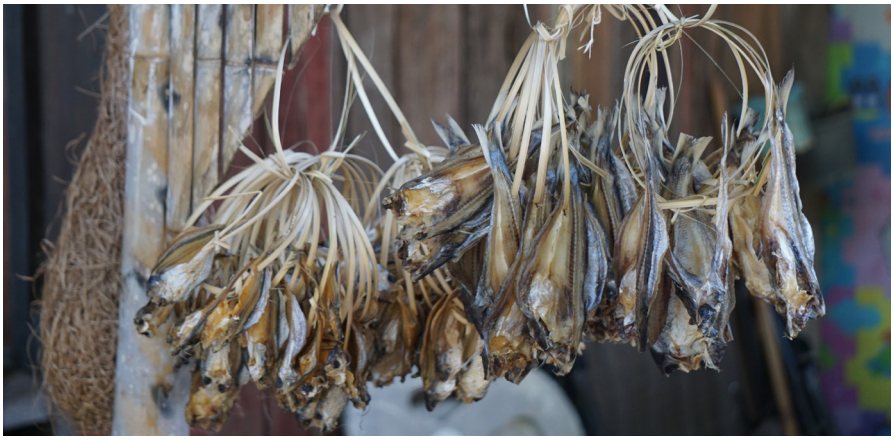
1. **Moving beyond Ramsar designation and enhancing conservation action:** To reduce pressure on wetland ecosystems, land use change within the Ramsar site and its buffer zone must be controlled. Government agencies must prioritize wetlands and biodiversity when considering development plans inside and outside of the basin. A comprehensive approach must be developed to assess the impacts on ecosystems while connecting upstream and downstream areas of the basin and synchronizing the planning process at national and regional scales.

2. **Strengthening collaborative governance:** Enhanced collaboration among government policymakers, line agencies, and local communities can improve knowledge and resource sharing for proactive wetland ecosystem management. The engagement to strengthen community narratives and systems should lie at the heart of strengthening collaborative governance of the lower Songkhram River basin by using and expanding the community networks already established to other villages and sub-districts in the region.

3. **Accounting for wetlands benefits***:* Precedence should be given to wetland ecosystems, as their services and values are critical to the food and water security of the region. Identification and valuation of these services within and beyond the lower Songkhram River basin will provide an impetus for proactive management of these fragile ecosystems, which will also ensure that the system changes remain within acceptable limits.

4. **Empowering local communities:** Specific communities in the region have made significant strides in natural resource conservation and management. Government agencies can help fund the creation of a platform that facilitates the exchange of best practices and experiences among the lower Songkhram River basin communities involved in the management of river water flows, fish, forests and rice farms. In collaboration with the communities, opportunities and mechanisms for adding value to community products and services such as fermented fish, mushrooms and bamboo-based products should be explored.

5. **Improving financial flows for conservation action and planning:** An increase in the overall budget allocated to natural resource conservation and planning at the national level is critical to ensuring effective wetlands conservation in the lower Songkhram River basin. Top-down financial flows from central agencies to local communities are critical to ensuring that communities benefit from resources and have better access to markets for increased livelihood opportunities.



Lower Songkhram River wetlands-derived community products © THANAPON PIMAN / SEI ASIA

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Author contacts
ridhi.saluja@sei.org
thanapon.piman@sei.org

Media contact
rajesh.daniel@sei.org

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Twitter: @SEIresearch
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Corrected policy brief posted on 19 August 2022: changes made to refer to sources for information on current fish catch (p. 2), as well as to specify where knowledge and funding need to be directed in future, with regard to the section on policy gaps (p. 5).