

TC DOCUMENT

I. Basic Information for TC

▪ Country/Region:	Regional
▪ TC Name:	Managing regional marine and freshwater ecosystems for biodiversity conservation
▪ TC Number:	RG-T2400
▪ Indicate if: Operational Support, Client Support or Research & Dissemination	Research & Dissemination
▪ Team Leader/Members:	Team leader: Michele Lemay (INE/RND); Team members: Annette Killmer (RND/CBR); Maria Claudia Perazza (INE/RND); Ermani Pilla (VPS/ESG); Ashley Camhi (INE/RND); Javier Bedoya (LEG/SGO); and Lisa Restrepo (INE/RND)
▪ Date of TC Abstract authorization:	September 10, 2013
▪ Beneficiary:	Countries of Latin America and the Caribbean
▪ Executing Agency and contact name	IDB
▪ Donors providing funding:	Fund for Biodiversity and Ecosystem Services Special Program (GN-2703)
▪ IDB Funding Requested:	US\$750,000
▪ Local counterpart funding, if any:	N/A
▪ Disbursement and Execution period:	18 months
▪ Required start date:	November 1, 2013
▪ Types of consultants:	Firm and individual consultants
▪ Prepared by Unit:	INE/RND
▪ Unit of Disbursement Responsibility:	INE/RND
▪ TC Included in Country Strategy (y/n):	N/A
▪ TC included in CPD (y/n):	N/A
▪ GCI-9 Sector Priority:	Poverty reduction and equity enhancement; climate change, sustainable (including renewable) energy, and environmental sustainability

II. Objectives and Justification of the TC

The general objective of the TC is to contribute to and disseminate best practices in managing marine and freshwater ecosystems of regional significance in Latin America and the Caribbean (LAC) for biodiversity conservation and ecosystem services. Specific objectives are to: (i) support regional exchanges of information on tools and methodologies for the management of marine and freshwater ecosystems for the conservation of biodiversity and ecosystem services; (ii) demonstrate the benefits and build regional capacity in the application of tools and methodologies for the conservation of freshwater and marine ecosystems of regional significance.

The Latin America and Caribbean (LAC) Region has been deemed the superpower of biodiversity because it is the Region with the most natural capital in the world. With only 16% of the planet's land, the Region holds 40% of the world's biological diversity, including seven of the world's 25 biodiversity hotspots and six of the 17 "megadiverse" countries. The LAC Region possesses a vast array of terrestrial, freshwater, coastal, and marine ecosystems representing many of the earth's

biomes¹. For instance, LAC contains 11 freshwater ecoregions considered globally outstanding in terms of biodiversity². LAC coastal and marine areas are also rich in biodiversity³ with several Large Marine Ecosystems (LMEs) in the Pacific and Atlantic displaying both very high levels of marine productivity and endemism.

Marine and freshwater ecosystems continue to make an important contribution to national GDPs in the Region, and many communities living in coastal zones and along rivers are highly dependent on small-scale fishing as a source of protein and livelihoods. An estimated 1.3 million people work as fishers or fish farmers in LAC⁴. Fisheries contribute 6.3% of GDP in Ecuador, 3.9% in Colombia and 2% or more for example in Guyana and Peru. In 2007, fisheries products contributed more than \$3 billion of exports in Chile and more than \$1 billion in Argentina, Ecuador and Peru⁵

Yet, outstanding biodiversity and rich waters in LAC suffer from a number of significant resource management challenges that threaten these systems and the benefits they provide. The greatest challenges in marine ecosystems are from the impacts of overfishing, fishing practices that damage or degrade habitats and the impact of non-selective gears on non-target species. One of the largest threats in freshwater ecosystems is from the expansion of poorly planned infrastructure, particularly hydropower. As a result, hydrological flows and associated river and wetland ecosystems downstream from reservoirs are disrupted leading to increased stresses on freshwater fish species of high commercial and ecological value. The loss of these ‘keystone’ ecosystem-regulating species causes cascading effects that disrupt economically important services such as fisheries productivity and ultimately reduce jobs, incomes, and food supplies.

Such threats are being observed at the regional scale and are affecting the status of LAC’s key aquatic ecosystems, of which most are shared by several countries with potentially significant economic implications for sectors such as fisheries, aquaculture and tourism. Reducing these threats requires an understanding of the potential to shift from unsustainable practices to management approaches in productive sectors and infrastructure that conserve the biodiversity of these significant marine and freshwater ecosystems. Despite considerable improvements over the last decade, the lack of information and ability to scale up sustainable activities represents a significant constraint to development in the Region. While successful models have been established⁶, little effort has been made to share experiences and technical expertise between countries that share the responsibility for managing and conserving these marine and freshwater ecosystems.

The proposed TC will focus on the following marine and freshwater ecosystems of regional ecological and economic significance:

- a. **Amazon basin and sub-basins:** The Amazon River system is the world’s largest freshwater ecosystem with nearly 20% of the Earth’s freshwater discharge. The aquatic diversity of the Amazon is the consequence of geological history, the sheer size of the basin, the contrasting nature of the constituent sub-basins and the significant habitat heterogeneity of each individual

¹ Bovarnick, A., F. Alpizar, C. Schnell (eds.). 2010. Latin America and the Caribbean: A biodiversity superpower. United Nations Development Program (UNDP) and United Nations Environment Program (UNEP). 2010. Atlas of Our Changing Environment: Latin America and the Caribbean, UNEP.

² Blackman et al., 2012. Prioritizing Policies for Biodiversity Conservation in Latin America and the Caribbean: a Rapid Assessment. Resources for the Future.

³ Miloslavich, P. et al. 2011. Marine Biodiversity in the Atlantic and Pacific coasts of South American. Knowledge and Gaps. PLoSone 6(1): e14631.

⁴ FAO. 2010. The State of World Fisheries and Aquaculture.

⁵ Bovarnick, A. et al. 2010. Ibid.

⁶ For instance in fisheries co-management in Ecuador and the recovery of black sea bass in Argentina.

floodplain⁷. The Marañon River sub-basin is one of the most important water sources in Peru and a key Amazon tributary. Characterized by high levels of endemism and ecosystem diversity, it has also been referred to as the ‘energy artery of Peru’ with several existing and planned hydropower projects. The cumulative impacts of planned or existing individual hydropower projects may jeopardize entire river systems in the absence of a comprehensive strategy of mitigation measures at the aggregate level (be that a river, watershed or basin scale).

- b. **Eastern Pacific Tropical Marine Corridor (EPTMC):** The islands and waters along the Pacific coast of Costa Rica, Panama, Colombia and Ecuador belong to one of the world’s most diverse marine biogeographic regions. The EPTMC has a high degree of ecological connectivity and complex oceanographic characteristics, primarily due to the convergence of major marine currents which facilitate the dispersal of marine larvae and support abundant fish stocks. UNESCO has recognized the region’s significance by designating a unique cluster of seven marine protected areas as World Heritage sites. Marine fisheries of the four countries that share the EPTMC make an important contribution to GDP and coastal communities are highly dependent on small-scale fishing as a source of protein and livelihoods.
- c. **North Brazil-Guianas Shelf Large Marine Ecosystem (NBGS):** This Large Marine Ecosystem extends along the northeastern coast of South America from the Parnaíba River estuary in Brazil to the Orinoco River in Venezuela (with portions also in Guyana, Suriname and French Guiana). The LME is considered a highly productive ecosystem, with the Amazon River and its extensive plume being the main source of nutrients. The shrimp resources in the NBGS support one of the most important export oriented shrimp fisheries in the world⁸. The groundfish resources such as red snapper and corvine are important for commercial and social reasons. Both the shrimp and groundfish resources are transboundary stocks, which require harmonized management regimes among the countries that share the stocks. The value of annual fish landings in the area are in the order of US\$900 million. Yet, even judging from a currently limited understanding of their full impacts on marine biodiversity and ecosystems, destructive fishing practices and excessive fisheries by-catch and discards cause severe and unnecessary losses.

All three ecosystems are transboundary and require South-South cooperation for effective management. The proposed TC will support this South-South cooperation through activities that encompass regional workshops, seminars, study tours and other types of exchanges (e.g., webinars) with the specific objective of producing regional work plans for continued cooperation, best practice manuals as well as harmonized guidelines and methodologies for replicating experience to other marine and freshwater ecosystems (or other parts of the same system). All South-South activities will actively seek to engage governments (national, local), academic and research institutions, conservation organizations and associations of the private sector (e.g., hydropower and fisheries) within the Region. In all cases, this TC is expected to leverage funds for future Bank operations (e.g., for GEF projects) as well as generate opportunities for future green investments in sustainable hydropower, fisheries and natural or green infrastructure.

The proposed TC will contribute to the following GCI-9 lending program priority targets: (i) poverty reduction and equity enhancement, as the TC will promote information exchange between countries that will support development and environmental protection and (ii) climate change, sustainable (including renewable) energy, and environmental sustainability, as the TC will promote environmental sustainability within marine and aquatic ecosystems. In addition, the

⁷ Killeen, T. 2007. A Perfect Storm in the Amazon Wilderness. AABS.

⁸ Phillips, T. 2007. Thematic Report for the Guianas-Brazil Sub-region. CERMES, University of West Indies.

proposed TC will contribute to the sector priority, “Protect the environment, respond to climate change, promote renewable energy, and ensure food security.” Lastly, the proposed TC supports the Biodiversity and Ecosystem Services Program, as the TC will support South-South cooperation for improved management of priority ecosystems of regional significance.

III. Description of activities/components and budget

Component 1: Basin-Scale Planning for Hydropower Development. This component will support the development of regional best practice for basin-scale planning of hydropower development, with a view of disseminating information on tools for avoiding, minimizing and compensating impacts from hydropower development on freshwater biodiversity and ecosystem services. Emerging best practice in this field includes the application of aquatic biodiversity offsets to address cumulative impacts on river systems, under a comprehensive strategy of mitigation measures applied at watershed or basin scale. To date, offsets have been applied primarily for terrestrial ecosystems at a project-specific level, and a system of standardized metrics are needed for freshwater ecosystems, so that specific issues that involve, for instance, changes in river flows, river fragmentation, barrier effects and loss of connectivity may be addressed to ensure ecosystem integrity and maintenance of key ecological flows. Activities to be financed under this component include: (i) compilation of case studies of the application of selected tools for the design of aquatic offsets; (ii) preparation of status reports on each country’s regulatory framework regarding planning and licensing of hydropower projects incorporating biodiversity considerations; (iii) organizing and holding multi-day, multi-country workshop(s) with a focus on hydropower and aquatic offset compensation; (iv) step-wise approach to developing best practice document targeting government permitting offices, private sector and scientific community. The countries to be involved include for example countries that have or are exploring offset policies such as Colombia, Peru, Brazil, Panama, Chile and Paraguay.

Component 2: Regional conservation of biodiversity and sustainable fisheries in freshwater ecosystems in the Amazon. This component will support the demonstration of cooperative approaches to improved management of freshwater ecosystems in the Amazon Basin. Activities to be financed under this component include: (i) a pilot assessment of freshwater biodiversity in the Marañon River basin, including the collection and analysis of data (primary and secondary) on fish diversity and critical habitat for spawning and nurseries in selected river courses; (ii) analyses of associated freshwater ecosystem services (including economic valuation of provisioning and other services to local economies). This will entail modeling changes in ecosystem services, using a spatial analysis and valuation tools such as InVEST and ARIES, to compare different development scenarios, especially considering the hydropower projects planned for the Marañon River ; (iii) pilot demonstration of best practice for ecosystem-based freshwater fisheries management in selected sub-basin(s) of the Amazon to be impacted by infrastructure, including hydropower; and (iv) documentation and web-based dissemination of the case study. Countries to be involved include Peru, Brazil, Ecuador and Colombia.

Component 3: Supporting recovery of small-scale fisheries in the Pacific and Atlantic LMEs of LAC (EPTMC and NBGS). This component will support the development of fully endorsed cooperative work plans for the recovery of marine fisheries in LMEs in the Pacific and Atlantic coasts of LAC. The intent is to forge the regional network of fisheries authorities, cooperatives and companies that need to work together to reverse the trends of declining marine fisheries stocks and marine ecosystem degradation in the Eastern Pacific Tropical Marine Corridor (EPTMC) and the North Brazil-Guianas Shelf (NBGS) LME. Activities to be financed for the EPTMC include:

(i) researching and documenting two business cases for marine fisheries improvement projects in the region (candidate small-scale fisheries in the EPTMC have been identified). This will entail undertaking business assessments of each fishery to develop return on investment scenarios. This information will be used to generate private sector interest in financing for transitioning fisheries from overexploitation back to sustainable, profit-generating levels; and (ii) organizing and holding a regional workshop to support the formulation of a work plan for the ETPS that will utilize an integrated approach to address the primary drivers behind unsustainable fishing. Countries to be involved include Costa Rica, Panama, Colombia and Ecuador. Activities to be financed for the NBGS LME include: (i) organizing and holding a regional seminar to promote harmonization of ecosystem-based fisheries management regimes in the NBGS; and (ii) development of a regional proposal for the development of a regional ecosystem-based fisheries management plan for shrimp and groundfish resources and cooperative enforcement regime. Countries to be involved include Brazil (States of Amapá and Pará), Suriname, Guyana, Venezuela and Trinidad and Tobago.

Indicative Results Matrix

Project Component		
General		TC General Outcome: Increased regional capacity to apply best practices in managing marine and freshwater ecosystems of regional significance in LAC for biodiversity conservation and ecosystem services
1. Basin-Scale Planning for Hydropower Development	<p><u>Output 1A:</u> 4 documented case studies of hydropower projects mainstreaming BES in LAC and 6 country reports on the status of regulatory context of BES mainstreaming in hydropower planning and licensing including aquatic offsets.</p> <p><u>Output 1B:</u> at least 3 regional workshops on aquatic offsets in LAC</p> <p><u>Output 1C:</u> 1 best practice document on mainstreaming BES in hydropower planning and development including aquatic offsets</p>	Outcome 1: At least 100 professionals trained in best practices for mainstreaming BES in hydropower planning and development including the application of aquatic offsets
2. Regional conservation of biodiversity and sustainable fisheries in freshwater ecosystems in the Amazon	<p><u>Output 2A:</u> 1 pilot fish biodiversity assessment of the Marañon River basin (Peru)</p> <p><u>Output 2B:</u> At least 1 ecosystem services valuation (including freshwater fisheries) in selected Amazon sub-basins</p> <p><u>Output 2C:</u> At least 1 demonstration of ecosystem-based freshwater fisheries management</p> <p><u>Output 2D:</u> Web-based documentation of case study</p>	Outcome 2: Empirical evidence of the ecological and economic value of freshwater biodiversity and fisheries in the Amazon
3. Supporting recovery of small-scale fisheries in the Pacific and Atlantic LMEs of LAC (EPTMC and NBGS)	<p><u>Output 3A:</u> At least 2 business cases for small-scale fisheries recovery in the EPTMC</p> <p><u>Output 3B:</u> 1 regional workshop and 4 country workshops for the preparation of EPTMC fisheries recovery work plan proposal</p> <p><u>Output 3C:</u> 1 regional workshop for ecosystem-based fisheries management regime for NBGS LME</p> <p><u>Output 3D:</u> Consultancy for development of regional proposal for NBGS LME</p>	Outcome 3: Fully-endorsed regional proposals for the recovery of marine fisheries for the EPTMC (4 countries) and the NBGS LME (4 countries)

Indicative Budget

The total budget for this technical cooperation has been estimated at US\$750,000 as shown in the following table:

Activity/Component	Description	IDB/ Fund Funding US\$	Counterpart Funding	Total Funding US\$
Activities				
1. Basin-Scale Planning for Hydropower Development	• Consultancies for compiling case studies and country reports	54,000		150,000
	• Regional workshops	74,000		
	• Best practice document	22,000		
	Subtotal	150,000		150,000
2. Regional conservation of biodiversity and sustainable fisheries in freshwater ecosystems in the Amazon	• Pilot fish biodiversity assessment of the Marañon River basin	150,000		350,000
	• Ecosystem services valuation (including freshwater fisheries)	50,000		
	• Demonstration of ecosystem-based freshwater fisheries management	140,000		
	• Web-based documentation	10,000		
	Subtotal	350,000		350,000
3. Supporting recovery of small-scale fisheries in the Pacific and Atlantic LMEs of LAC (EPTMC and NBGS)	• Research and documentation of two business cases for EPTMC	100,000		250,000
	• Workshops for the preparation of EPTMC fisheries recovery work plan proposal	75,000		
	• Regional workshop for ecosystem-based fisheries management regime for NBGS LME	25,000		
	• Consultancy for development of regional proposal for NBGS LME	50,000		
	Subtotal	250,000		250,000
TOTAL		US\$750,000		US\$750,000

The TC will be financed with resources of the Biodiversity and Ecosystem Services Program. IDB resources will finance services of individual consultants/consulting firms and workshops and the development of web-based documentation. While no counterpart funding is included for budgeting purposes, it is anticipated that the key stakeholders (e.g., fishers' organizations, research institutions) will make in kind contributions of their time, local venues for workshops and data.

IV. Executing agency and execution structure

Given the strategic objectives of the TC in promoting South-South cooperation around priority marine and freshwater ecosystems of regional significance – one of the four lines of action of the

Biodiversity and Ecosystem Services Program, the TC will be executed by the Bank. The Bank has the regional convening capacity for obtaining cooperation and broad consensus on best practice from the public sector, private sector, scientific community and NGOs. The Bank also has the capacity to ensure effective regional dissemination of best practice developed by this TC throughout LAC. Since several of the activities such as the regional workshops will take place in the territories of the beneficiary countries, the Bank will obtain a letter of non-objection from the corresponding country previous to initiating any activity in such country.

INE/RND will have responsibility for the execution of this TC. The monitoring and supervision of the TC will be carried out by INE/RND with the support of RND specialists in the country offices of participating countries.

The Bank will select and contract all consulting services (firms and individuals) according to current corporate procurement policies and procedures (GN-2303-20). The terms of reference for the consultancies and the procurement plan are included as Annexes.

V. Major issues and risks

There is a risk that the time required to reach consensus among the countries sharing management responsibility over the trans-boundary ecosystems could delay delivery of some of the outputs. This risk will be mitigated by involving in a timely manner regional experts (e.g., in freshwater fisheries) that can provide concrete examples of the economic benefits of cooperative management regimes. There is a small risk that the regional dissemination of best practices, tools and methodologies will be geographically restricted to the countries directly participating in the activities financed by the TC, thereby limiting the impact of the operation. To ensure that the research and knowledge receives full dissemination, all workshops will be broadcast as webinars and reports distributed online through websites of the BES Program and its strategic partners. In addition, the use of complementary instruments such as CT Intras or dissemination in other regional events of relevance will be used to ensure participation beyond identified beneficiaries.

VI. Exceptions to Bank policy

There are no exceptions to Bank Policy.

VII. Environmental and Social Strategy

It is not anticipated that the activities to be financed in this TC will have negative direct or indirect social or environmental effects. Therefore the team considers that, according to the Bank's Safeguards Screening Toolkit, this operation should be given a classification of "C": (i) no environmental or social risks; (ii) direct contribution to solve an environmental issue.

Required Annexes:

- [Procurement Plan](#)
- [Safeguard Policy Filter and Screening Form Report](#)
- [Terms of Reference for activities/components to be procured](#)