PAPACO

Newsletter from African protected areas

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Editorial

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ARE EIAS USEFUL?

As we all know, one of the biggest drivers of environmental change is the multiplication of development projects sweeping our planet, in the form of new roads, dams, mines, housing estates, and extractive-industry developments, among others. We are urged not to be concerned, as each project is subjected to a "rigorous environmental impact assessment" (EIA) to ensure there is no lasting harm to nature. EIAs are a nearly universal instrument intended to limit the environmental tolls of development projects. However, lots of them suffer from major inaccuracies and some are even green-lighting projects that will have serious environmental and societal costs.

In a nutshell, many EIAs are failing to do their job, for at least four reasons: They are often limited to "quick and dirty" appraisals, whilst a rigorous environmental assessment would take more time, effort, and resources. Many EIAs are too short-term and small-scale to be effective. They rely on vested interests as the assessors are generally paid for by the project developer and therefore are unable to objectively present all negative impacts that would jeopardize the project. On top of all that, poor governance is obviously the main driver: governments have vested interests, too, pretending the project will equated with economic growth and jobs, a way to cover bribery and corruption, which are rife everywhere in the world when it comes to big money.

So, what could we do to help improve EIAs?

First, insist to government authorities that EIAs be made freely available online, and that anyone be allowed to comment on them. Governments often allow only local residents to comment on EIAs, but many projects have regional or global effects and would benefit from the review of top international experts, such as hydro-dam or mining specialists.

Then, expect bribery to plague most projects and tailor your strategies accordingly. Many projects that should never be approved move ahead because key decision-makers have been secretly paid off by the project proponent. Communicate these realities to journalists, and the general public.

Insist that the public be allowed to comment on projects early in the approvals process, before a project gains momentum and becomes a "fait accompli".

Also, urge that EIAs include funding for detailed pre-project surveys of environmental values, long-term monitoring and habitat rehabilitation after the project is completed, and insurance coverage for unexpected project disasters.

An important point: be aware that too many EIAs recommend approving projects with only minor 'tweaks' which will make the project seem palatable but are often minimally effective if not useless.

We need to say "no" to projects far more often because many proposed projects are simply a bad idea, with serious environmental, economic, social, and reputational risks that exceed their potential benefits.

Of course, you need to watch your government closely. Just because a completed EIA recommends certain mitigation measures does not mean the developer will be compelled to do them! Governments do better when they are closely monitored and scrutinized.

Finally, use your expertise to help environmental and social groups opposing ill-advised projects. Most environmental and public-interest groups are stretched thin and in dire need of financial help and volunteers.

In short, do not trust EIAs. Some may be relatively strong, others are passable but far too many are based on 'boilerplate' documents (standardized text that is reused with only minor changes) or superficial reports that fall apart on close inspection. Expect many EIAs to be full of holes, and you will not be disappointed. •

Read more: Laurance, W. F. 2022. Why environmental impact assessments often fail. Therya 13:67-72

MOOC Conservation

MOOCS

Ongoing session. A new session just started, registrations are still open!

Session dates: 17 January - 12 June 2022 (midnight).

MOOC registrations: mooc-conservation.org.

MOOC conservation

THE ESSENTIALS

Exams reset. Every MOOC session we reset Essential scores. So you can have another go at trying to obtain the attestation of participation.

What are they? They are short courses geared to a specific profile of protected area conservation actors.

Four options are possible: Rangers, Managers (involved in Research R or in Law enforcement L) and Leaders.

The Essentials are open throughout the year.

Inscriptions : mooc-conservation.org

RANGER ESSENTIAL
For protected area (PA) professionals who apply decisions and ensure the implementation of activities inside the PA.

MANAGER ESSENTIAL
For protected area professionals who need to plan, manage and assed the work carried out by field agents.

➔ **MANAGER LAW**: focuses on law enforcement and the valorisation of the PA and its natural resources.

➔ **MANAGER RESEARCH:** focuses on research activities, monitoring-evaluation and ecological monitoring.

LEADER ESSENTIAL
For actors who are influencing the protected area context at a larger scale, without necessarily working directly inside a protected area.

Ambassadors etc.

GATHERING OF CAMEROUN AND GABONESE STUDENTS IN DJEBALÈ

A tour of Djebalè Island was organized on December 18, to celebrate the end of the second MOOC session of 2021. Djebalè is an island located on the Wouri River in Cameroon which has an interesting ecosystem, mostly made up of mangroves.
The activity brought together fifteen MOOC students who talked about the conservation of the natural landscape, the history of the island and training offers. The particularity of this activity was the participation of some Gabonese students who came to join the group from Cameroon. This was possible thanks to the collaboration between ambassadors Pascale and Mathias from Cameroon and Hans and Brice from Gabon.

AMBASSADOR ? An ambassador is a designated Papaco MOOC student who volunteered to help students in his/her city or region.

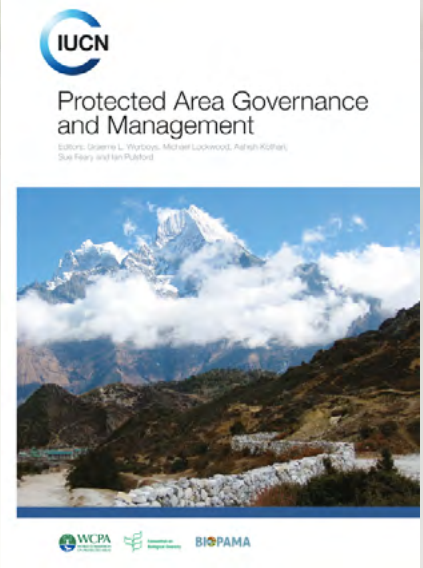
Website with all ambassadors: here.

List of ambassadors (click on the name to send them an email):

- Benin, Kévin
- Bouaké, Bernadette
- Burkina Faso, Valéry
- Burundi, Léonidas
- Comoros, Humblot
- Côte d'Ivoire, Mamadou
- Douala (Cameroon), Mathias
- Gabon, Brice
- Guinea (Conakry), Moussa
- Haïti, Talot
- Kara (Togo), Yenhame
- Kenya, James
- Kindu (DRC), Ohm
- Kinshasa (DRC), Emmanuel
- Kisangani (DRC), Richard
- Mali, Seydou
- Lomé (Togo), Valentin
- Lubumbashi (DRC), Albert
- Madagascar (Tana), Raymond
- Morocco, Rachid
- Mauritania, Fall
- Niger, Oumarou
- Nigeria, Michael
- Pointe Noire, Charmand
- Rwanda, Leonard
- Senegal, Thiam
- Chad, Seid
- Tunisia, Moadh
- Yaoundé (Cameroon), Pascale
- Zambia, Chewe
- Zimbabwe/South Africa, Fanuel
- Diffa (Niger), Omar
- Sierra Leone, James
- Dossa (Niger), Hama

IUCN PAPACO MOOC conservation

Featuring this month



PROTECTED AREA GOVERNANCE AND MANAGEMENT

Protected Area Governance and Management presents a compendium of original text, case studies and examples from across the world, by drawing on the literature, and on the knowledge and experience of those involved in protected areas. The book synthesises current knowledge and cutting-edge thinking from the diverse branches of practice and learning relevant to protected area governance and management. It is intended as an investment in the skills and competencies of people and consequently, the effective governance and management of protected areas for which they are responsible, now and into the future.

The global success of the protected area concept lies in its shared vision to protect natural and cultural heritage for the long term, and organisations such as International Union for the Conservation of Nature are a unifying force in this regard. Nonetheless, protected areas are a socio-political phenomenon and the ways that nations understand, govern and manage them is always open to contest and debate. The book aims to enlighten, educate and above all to challenge readers to think deeply about protected areas—their future and their past, as well as their present.

The book has been compiled by 169 authors and deals with all aspects of protected area governance and management. It provides information to support capacity development training of protected area field officers, managers in charge and executive level managers.

The entire book is freely accessible online in English on the Australian National University's website: https://press.anu.edu.au/node/372/download.

CHAPTER 19: MANAGING FRESHWATER, RIVER, WETLAND AND ESTUARINE PROTECTED AREAS

Jamie Pittock

Introduction

Better practices for managing inland aquatic ecosystems in protected areas—including rivers, other brackish and freshwater ecosystems, and coastal estuaries—are the focus of this chapter. Most natural protected areas are designated as 'terrestrial' or 'marine', and the obvious question for most managers is 'why should I worry about the (usually) small portion of my protected area that involves freshwater habitat'.

On the contrary, in this chapter, we argue that freshwater and estuarine habitats are significant for conserving biodiversity in most land-based protected areas and that managers need to apply the freshwater-specific conservation tools outlined here to do a good job. Freshwater ecosystems have the greatest species diversity per unit area, a larger portion of freshwater and estuarine species are threatened, and the ecosystem services of these biomes are used unsustainably to a greater extent than any other biomes. Many terrestrial

species depend on freshwater ecosystems. Rather than a marginal part of management, freshwater conservation is central to sustaining protected areas and their biodiversity.

Freshwater ecosystems

Defining freshwater ecosystems

The terms (non-marine) wetlands and freshwater ecosystems are used interchangeably in this chapter. In the parlance of the Convention on Biological Diversity, freshwater ecosystems are called 'inland waters'. Wetlands are places where water is the primary factor controlling plant and animal life and the wider environment, where the water table is at or near the land surface, or where water covers the land. The Ramsar Convention on Wetlands defines wetlands as 'areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres'.

Diversity and distribution of freshwater ecosystems

There is a tremendous diversity of freshwater ecosystems and many approaches for classifying them at different scales. At the global scale, freshwater ecosystems have been grouped into 426 freshwater ecoregions that largely follow watershed divides and capture the distributions of freshwater fish and ecological and evolutionary patterns. Lehner and Döll (2004) used remote sensing to map wetland occurrence to present a global map of wetland distribution (Figure 19.1, below).

The estimated percentage of wetlands included in protected areas is relatively high compared with many terrestrial ecosystems—around 30 per cent in Europe and North and South America —but these areas have not been reserved systematically, and are rarely accorded priority in management.

Freshwater ecological principles

Freshwater ecosystems are expressions of the geophysical and ecological histories of the landscape through which water flows. The water present in any freshwater ecosystem forms part of the global water cycle—the movement of water throughout the Earth and its atmospheric system. Freshwater and terrestrial ecosystems are intimately linked by the water flowing through them. Consequently, every

Figure 19.1 Global distribution of wetlands
Source: Modified from Lehner and Döll (2004)

land-use decision is effectively a water-use decision.

The effect of reduced flows on terrestrial habitats and communities has been demonstrated very clearly in many parts of the world. For example, the excessive diversion of inflowing rivers for irrigated agriculture from the 1960s shrank the Aral Sea to 10 per cent of its former area by 2007, degrading the surrounding land with saline, polluted dust. The importance of land cover, particularly forest cover, for hydrological flows is complex.

Effects from different upstream catchments are compounded as water moves downstream. This may be a challenge where multiple negative effects are compounded, or may provide solutions where the negative effects from one catchment are reduced by water flowing in from a non-impacted catchment. Freshwater flows carry carbon, nitrogen, oxygen and other substances that are essential for the functioning of downstream ecosystems, supporting a rich variety of life. These flows also carry sediments, washed in from upstream terrestrial habitats and eroding banks. The connectivity that exists across rivers, their tributaries and associated wetlands supports the diversity of species present, providing access to habitats for feeding and reproduction, and promoting population growth, community diversity and productivity.

In some cases, marine linkages are vital, such as when anadromous fish return to their natal river to spawn and, upon dying there, deposit many ocean-derived substances within freshwater systems. In the Pacific north-west of North America, for instance, there are some forests where much of the soil nitrogen is derived from marine sources via salmon migration.

Freshwater ecosystems are dependent on the quantity, timing and quality of water flowing through them. Many changes in the natural flow regime can compromise the survival of species that are adapted to the historical regime. Many wetland birds and terrestrial species undergo widespread migrations based on seasonal changes in the availability of water, habitat and food in rivers and wetlands. Disturbance of the flow regime in freshwater ecosystems can also promote the invasion of introduced and alien species that can tolerate the modified flow conditions. An important application of the concept of the natural flow regime is in the definition of 'environmental flows', which is detailed in a later section.

Managing threats to freshwater systems

Freshwater and estuarine ecosystems are among the most threatened in the world, with the Millennium Ecosystem Assessment describing freshwater ecosystems as being overused, under-represented in protected areas and having the highest portion of species threatened with extinction. People are inextricably linked to freshwater ecosystems, and both people and nature benefit by managing risks to the health of these habitats. Primary direct drivers of degradation and loss of riverine and other wetlands include infrastructure development, land conversion, water withdrawal, pollution, overharvesting and overexploitation of freshwater species, the introduction of invasive alien species, and global climate change. The World Commission on Protected Areas (WCPA) outlines how freshwater biodiversity is particularly threatened because its conservation depends on maintaining ground and surface water flows, managing activities within the catchment and coordinating the activities of multiple management authorities.

Water infrastructure and diversions

Water diversions and infrastructure alter flows that are vital to maintaining freshwater biodiversity. Wherever possible, redundant water storages in protected areas should be decommissioned. There are a number of manuals available for removing dams.

Where infrastructure is retained, there are four key measures that will reduce but not fully compensate for the impact on freshwater ecosystems: restoration of fish passage around dams; provision for release of environmental flows; building dam outlet structures that eliminate thermal pollution; and conservation of the river corridor below the dam—for example, by restoring riparian vegetation. Screening water diversion intakes to prevent loss of fish and other aquatic wildlife may also help.

Invasive species

Alien animal and plant species, once introduced into water bodies, are particularly difficult to eliminate or control. To prevent introductions and control those that do occur:

- identify vectors for introduction of species (for example, aquaculture farms, ornamental gardens) and seek voluntary or regulatory measures to prevent pest releases
- monitor freshwater ecosystems to identify new

problem species, drawing on information on pest species in your country or region

- eliminate newly observed populations of threat species (incursion management)
- prevent the spread of pest species (this may be a case where a barrier dam in a stream is used to protect upstream populations of indigenous species from exotic species spreading from downstream)
- institute control measures where this is feasible.

Recreational use of water bodies

Freshwater ecosystems are a major focus of visitor activities in most protected areas, requiring trade-offs between visitor use and biodiversity conservation. Riparian areas often provide a biodiverse corridor of moisture- loving vegetation running through drier regions, creating moist microclimates and habitat for many species. Fragmentation and trampling of this vegetation can significantly impact on the freshwater ecosystem. Sediment-laden run-off from roads and tracks into water bodies can seriously harm aquatic biota, by reducing filter feeding and prey visibility and by smothering rocky substrates used for fish spawning and insect development. The smallest 'jump' up to or over a causeway or culvert across a water body may be a barrier to migration of aquatic species like fish and invertebrates.

Key management responses should include: zoning land access, siting visitor facilities away from water bodies, fencing visitors out of riparian areas, creating boardwalks and access points to water, and regulating use of motorised vehicles. Roads and tracks should be located to drain run-off away from water bodies and onto land. Crossings should be built as bridges or broad culverts sunk into the stream bed so as to maintain passage for aquatic fauna. Regulating fishing activities is essential to conserve biodiversity. Avoiding contaminated discharge and treating sewage are particularly important in preventing pollution of water bodies. Toilet facilities should be sited well away from water bodies.

Pollution spills

Protected area management requires use of chemicals such as fuels and herbicides that would have negative impacts if discharged into water bodies. Spills should be prevented wherever possible through good workplace health and safety practices, including siting chemicals away from water bodies, and securing and labelling stored chemicals. Potential pollutants should be stored and used on hard, internally draining surfaces that can contain accidental spills. Materials for soaking up any spills such as hay, sawdust or cat litter should be available on site, plus tools and bags for removing them for treatment. Spills into waterways require urgent advice to downstream authorities to close water diversions and prevent use of polluted water by people, wildlife and livestock wherever possible.

Flood, drought and fire

Floods, droughts and fire are natural processes in many ecosystems and plants and animals can normally tolerate or recover from them. In particular, many freshwater species and ecosystems are adapted to variability in water volumes and timing of flows and require variability to thrive, such that regulated water bodies should not be managed with unnatural, permanent or stable flows. Some freshwater ecosystems are adapted to fire, such as floodplain forests in southern Australia, whereas others are destroyed by and should be protected from fire—for example, peat swamp forests in Borneo. Riparian forests are often naturally fire resistant even among other, flammable vegetation types. The traditional practices of local and indigenous peoples of cool patch burns around these ecosystems may conserve them from hot wildfires.

While this brief section on threats cannot detail all mitigation measures, a particularly concise source of information for managing wetlands in protected areas to avoid or mitigate these threats is Wetland Management Planning: A guide for site managers. The resolutions and guidelines of the Ramsar Convention and the Ramsar Handbooks for the Wise Use of Wetlands provide excellent advice on good international practices for almost any wetland management challenge. An adaptive management approach is important to facilitate the engagement and empowerment of stakeholders and rights-holders, inclusive and iterative learning, and purposeful action amid inherent complexities. We now turn to the conservation of freshwater species and protected area design options that involve mitigating threats and maximising biodiversity protection.

Freshwater protected area design

Freshwater conservation planning has traditionally lagged

behind the systematic and quantitative planning for terrestrial and marine realms, mainly due to the spatial and temporal complexities characteristic of freshwater systems. Fortunately, conservation studies in recent years have provided the methods to plan better for freshwater systems.

To be effective, protected areas must consider some particularities of freshwater ecosystems. Spatial– temporal connectivity plays a key role in maintaining important ecological processes, such as dispersal, gene flow or transport of energy and matter essential for the persistence of populations and species. There are examples of how to effectively incorporate connectivity in all its dimensions—longitudinal, lateral, vertical and temporal —into systematic conservation planning frameworks, which help design protected areas that are ecologically functional from a freshwater point of view. There also have been advances in integrating threats and degradation processes into conservation planning, to avoid the allocation of conservation efforts in areas where the existence of threats or their propagation could compromise the persistence of biodiversity.

Planning for persistence of biodiversity through maintenance of ecological resilience requires consideration of the political and socioeconomic factors that influence aquatic systems. Social and political aspects of conservation play an important role in the success or failure of a plan. This phenomenon is widely documented and is addressed in cross-governmental initiatives at national and international scales in river science.

The final key to effective conservation for fresh waters is embedding protection schemes in a wider environmental context—ideally at the whole catchment scale. This issue was identified as a critical point for the success of freshwater conservation by Abell et al. (2007), who called for multiple tiers in freshwater protection— from strict protected areas to catchment management zones.

Managing freshwater protected areas in the landscape

Ramsar Convention on wetlands

The Convention on Wetlands of International Importance arose from concerns of governments and NGOs to conserve diminishing wetlands. It was the first modern environmental treaty and was agreed in the Iranian city of Ramsar in 1971. The Ramsar Convention also implements the inland waters program of work on behalf of the Convention on Biological Diversity (CBD) and complements the activities of the Convention on Migratory Species (and related treaties). While other treaties also cover specific sites or values, the Ramsar Convention is discussed in depth here due to its wetlands focus.

The convention has a wide definition of wetlands that includes coastal, marine, artificial and inland ecosystems. A description of each designated wetland is provided by means of a Ramsar information sheet that includes data on scientific, conservation and management parameters and a map to delimit the boundaries of the site. Countries are encouraged to establish national wetland inventories as a basis for promoting the designation of the largest possible number of appropriate wetland sites. In 2012 only 43 per cent of countries had developed an inventory. A strategic framework provides a vision for the list to ‘develop and maintain an international network of wetlands which are important for the conservation of global biological diversity and for sustaining human life through the maintenance of their ecosystem components, processes and benefits/services’.

The strategic framework has objectives to:

- establish national networks of Ramsar sites that fully represent the diversity of wetlands and their key ecological and hydrological functions
- contribute to maintaining global biological diversity through the designation and management of appropriate wetland sites
- foster cooperation in the selection, designation and management of sites
- use the site network as a tool to promote national, supranational/regional and international cooperation over complementary environmental treaties.

The list in 2014 contained 2177 sites covering 2.08 million square kilometres, which represents 16 per cent of the estimated 12.8 million square kilometres of global wetlands. There are 795 inland freshwater wetlands on the Ramsar List, covering a total area of 104.7 million square kilometres.

Countries undertake to make wise use of all wetlands and maintain their ecological character—the combination of the ecosystem components, processes and benefits/ services that characterise the wetland. The convention also records reports of adverse change in the ecological character of Ramsar sites. These commitments are supported by an extensive suite of guidance for managers. Reviews of the convention's implementation suggest Ramsar sites have stronger legal status and are better conserved than non-Ramsar protected areas.

Catchment and water planning

Anthropogenic land use is a critical driver of terrestrial conditions that directly affect the structure, function and resilience of aquatic ecosystems, including within protected areas. Different places within a catchment will support varied movement pathways for biotic and abiotic elements, which, in turn, drive different aquatic processes. River catchments generally do not coincide with lines of human ownership, including protected area boundaries, requiring managers to engage in catchment-wide land and water-use planning outside protected areas. These processes may include catchment visioning, scenarios and trade-offs around water use and allocation, and granting of water licences for new developments outside the protected area.

Unfortunately, conservation management has conventionally been separated from water resource management. Protected area authorities, however, have a mandated responsibility to engage in planning for freshwater conservation. Where regional proactive development planning is absent, protected area authorities should catalyse these processes. Such proactive planning approaches will help to ensure that the water allocation and quality needed for freshwater conservation are met in downstream protected areas. If the protected area is in a headwater catchment, protected area authorities may also wish to seek benefit-sharing opportunities for the water provided to downstream communities. Protected area authorities therefore act as powerful stakeholders and negotiators for freshwater conservation within integrated water resource management processes. Where water development (for example, the building of dams and other water schemes) upstream of a protected area is necessary, managers should insist on the establishment and enforcement of environmental flow requirements for sustaining ecosystems.

Catchment management plans are a means of integrating the diverse land and water uses and owners, who, combined, may directly or indirectly influence the quality of a shared river system. They are opportunities for protected area managers to favourably influence stakeholders, rights-holders and neighbouring land users. Successful examples of catchment management and planning usually involve collaboration between community, governmental and non-governmental stakeholders and rights-holders.

Climate change

Climate has primary, direct and indirect sets of influences on the location, phenology and phenotypic expression of a water body, and the interactions within populations and between species. Water flows and dependant biota are intimately linked to the climate. Climate change will see the extension of the range of 'new' native species into protected areas, and this may signal effective autonomous adaptation rather than a species invasion that should be resisted. Likewise, declines in abundance may be evidence of a range shift. Species will need to be monitored and managed at a regional scale. More sessile or isolated species may require assistance to disperse to and establish in new habitats. Further, managing for a fixed ecological community definition may be counterproductive to effective climate-adaptive management.

A range of climate change adaptation interventions has been proposed to better conserve freshwater biodiversity in wetland protected areas and river systems, including a set of options detailed in Australia. These involve identifying and prioritising conservation of parts of the freshwater landscape that may be more resilient to climate change and which can provide refugia, such as river reaches shaded by mountains or those that form corridors that may enable species to move to more favourable habitats. Another option is to manage environmental flows to counter climate change impacts. Generally these flow measures are only possible on rivers with operable dams. These approaches require management institutions to maintain infrastructure and make timely decisions—for instance, to release water from dams. In contrast, free-flowing rivers do not require day-to-day management to provide the flows needed to

conserve aquatic species, but they may be at risk from climate-induced changes that cannot be addressed without infrastructure.

Many adaptation measures are 'no regrets' measures that offer benefits for the environment and people regardless of climate change. The restoration of riparian forests to shade adjoining freshwater ecosystems and provide other conservation benefits is one example . At Millingerwaard, restoration of the Rhine River floodplain as a climate change adaptation measure reduces flood risk and conserves biodiversity. The co-benefits for different groups of people associated with these no-regrets adaptation measures provide opportunities to build greater support from stakeholders and rights-holders for conservation.

Upgrading the safety standards of existing water infrastructure for climate change provides opportunities for protected area managers to secure further changes to aid biodiversity adaptation, such as by installing fish passages on dams. Proposed engineering interventions that use less water to conserve aquatic biodiversity, known as 'environmental water demand management' or 'environmental works and measures', are politically appealing but risk unforeseen environmental impacts and management failure, and should be considered with caution.

Infrastructure includes both built and 'natural' ecohydrological components of the landscape. Many institutions are promoting greater conservation of the environment to increase resilience to climate change impacts and aid adaptation. Jargon used to describe this approach includes 'green infrastructure', 'natural capital', 'ecosystem management', 'ecosystem-based adaptation' and 'ecosystem services'. These approaches often favour conservation of freshwater ecosystems.

Too often, decision-makers fix their attention on one intervention when each adaptation option has risks and costs as well as benefits that should be identified. The adoption of a suite of different but complementary interventions may spread risk, maximise benefits and avoid perverse outcomes. The use of environmental flows on regulated rivers linked to protection of free- flowing rivers is an example. With this in mind, Lukasiewicz et al. (2013) developed a catchment-scale framework for working with stakeholders and rights- holders to assess the risks, costs and benefits of options for climate change adaptation. As climate change will impact most if not all protected areas, these measures can help managers to assess priorities and achieve the best possible outcomes.

. • To read the full chapter, click here.

Announcements

PANORAMA
SOLUTIONS FOR A HEALTHY PLANET

Restoration of the northwestern banks of the Faro National Park

Since the advance of the agricultural front and the expansion of villages on the outskirts of Faro National Park in particular, people have modified natural ecosystems and used their resources. However, this modification is often synonymous with environmental degradation: intensive use of land, soil and water pollution, loss of habitats and biodiversity ... Restoring land and reintroducing trees to landscapes, including existing forests, helps provide forest products, conserve biodiversity, improve hydrological flows and soil fertility, and limit soil erosion . To succeed in restoring the banks of the Faro National Park, the population must be made aware of the importance of conserving the area, limiting the expansion of crops on the banks and relocating agricultural plots over a perimeter of 50 meters from the course of water and reforest the banks of the park with agroforestry species beneficial to the populations.

Reboisement aux berges du Faro

For more information on Panorama, click here.
To read the full solution, click here.

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UICN PAPACO

UNIVERSITY DIPLOMA: CALL FOR APPLICATION (FRANCOPHONE STUDENTS ONLY)

The 19th edition of IUCN-Papaco and Université Senghor's University diploma will take place in Ouagadougou from 21 March to 7 May 2022.

The goal of this training is to provide Western African protected areas staff with the tools and skills effectively improve parks management in the long term.

Please note that this training is open to French speaking students only.

More information (In French) : click here
Applications (in French) : click here
Application deadline: February 4 2022.

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