Restoration of the Black Marsh of Saint-Coulban

Year of issue

2025

Summary

Since 1984, the Ille-et-Vilaine Hunting Federation has been restoring a 550-ha peat marsh heavily drained and cropped in the 20th century. Maize fields were converted to hay meadows and pasture through agreements with farmers; a peat bog and a reedbed were restored; and water levels are artificially managed to enable winter flooding. The Méleuc was re-routed into a more natural course. The goals (improve staging conditions for migratory waterbirds and recover marsh functions (carbon sequestration, natural water purification)) have been met for bird use, while water-level management still needs optimisation. Recent sources add that the site forms part of the Ramsar “Bay of Mont-Saint-Michel” and its Natura 2000 network; roughly 380 ha are held by FDC35 and the Foundation for the Protection of Wildlife Habitats. A major reedbed project (“Bois de la Mare”) cleared poplar/spruce to restore ~16 ha of phragmites as compensation linked to the Mont-Saint-Michel maritime project, awarded France’s Ecological Engineering Prize in 2018. Management relies on mowing then grazing via agreements with about twenty farmers; hunting is excluded except targeted wild-boar control, and guided public activities are now offered. In 2021 the regional scientific council (CSRPN) issued a favourable opinion toward designation as a Regional Nature Reserve over a 768-ha perimeter (process ongoing). Winter counts report up to c. 6,000 anatids.

Photo Gallery



Location

48.5687, -1.914

Project

NWRM

National ID

France_09

Sector

Agriculture

Installation Date

1984-ongoing

Implementation status

Ongoing

Overview

Location of the project

Included in the vast Dol marshes (10,500 ha), the Châteauneuf marsh is a regularly flooded depression made up of peaty alluvium and juxtaposing the Mont-Saint-Michel bay.

Country

France

NUTS2 Code

Bretagne

Sponge measures implemented in the case study

Buffer strips and hedges

Wetland restoration and management

Meadows and pastures

Objectives

The initial objective was only the creation of an area for the wintering of anatidae. All the other environmental and hydrological objectives came after.

Involved partners

Authority type	Authority name	Authority role	Comments	Authority responsibility

Other	Hunting Federation of Ille-et-Vilaine Department	Initiation of the measure	—	Responsible
Local water authority	Authorized Syndicate Association (ASA) Digues et Marais du Dol	Other	The marsh management organization	Responsible
Regional / sub-national water authority	Agence de l'Eau Loire Bretagne	Financing	Provides financial support for land acquisition and restoration works	Supporting

Site Information

Climate Zone

Cool temperate moist

Temperature (°C)

11.90 °C

Elevation range

27 m

Slope range

0-1 %

Vegetation class

Mosaic dominated by wet hay/pasture meadows and reedbeds (Phragmites), with sedge/fen patches, ponds/canals, hedgerows and some woodland.

WFD Ecological status

Moderate

WFD Chemical status

Good

Water quality status

Historic drainage + maize monoculture → hydrologic dysfunction; summer drying drives peat mineralization and eutrophication risks; raising summer levels faces stakeholder conflict.

Design and Implementation

Project scale

Micro

Project scale specifications

It targets a single marsh site (≈370–550 ha) with localized hydromorphological and habitat measures within the Mont-Saint-Michel bay wetland complex.

Project area

392 ha

Project area specifications

Land belonging to the Hunting Federation (392 ha in 2024, increasing each year with land acquisitions). The whole marsh is about 550 ha.

Basis of design

There are 4 pillars identified for this marsh restoration to work :
- sluice gate for flooding in winter
- maintain minimum water levels in summer
- Bring back the river (Meleuc) into its original bed
- drain at the end of spring, ideally on June 1st

This last pillar is not followed, as the opening of sluice gates is on 1st of april instead.

Principles

The Hunter Federation undertook to acquire land on the marsh, to carry out ecological engineering work to restore the wetland from the agricultural field, then to maintain and manage the land, notably with a sluice gate system.

Favourable preconditions

The deployed mesaures were selected in the first place because they allowed the creation of habitats favorable to biodiversity and waterfowl parking.
However, the complete restoration of the hydrological functioning of the marsh has not been completed. The measures therefore need to be complemented by water level management by means of a valve.

Financing

Total cost information

Over € 100,000 - 120,000 per year, for land aquisition, ecological engineering, maintenance, communcation & animation s for the public.

Financing authorities

Authority name	Type of funding	Comments	Financing share
Agence de l'Eau Loire Bretagne	Sub-national funds	Funds for land acquisition	70 %
Hunters Federation (FDC35)	Private funds	—	—

Compensations

Non

Policy and Governance

Policy description

The marsh belongs to the complex of peripheral wetlands of the Bay of Mont-Saint-Michel, and as such plays a role in welcoming birds, especially during migration and winter. It is thus a migratory stage for the Aquatic Warbler, a passerine species classified as "vulnerable" on a global scale by IUCN and also the most threatened in Europe. The interest of the site also concerns other faunal groups as well as the flora, hosting some species that are uncommon or rare on the scale of Brittany. It is the most massive peat deposit in the region.

Until 1950, it included one residual lake (the Mare de St-Coulban), before it was dried out. The marsh has since been drained by the Meleuc river, which shows a strong recalibration. Before the project, the marsh was subject to an intensive agricultural use, mainly for corn. It included a former peat bog that had been mined and drained.

Land ownership

Co-owned mainly by FDC35 and the Foundation for the Protection of Wildlife Habitats (FPHFS): ~380 ha of ~550 ha; FDC35 manages the site.

Target remarks

Restore wet habitats, especially peat meadows;
Improve the marsh's carrying capacity for biodiversity, and in particular birdlife;
Improve the regulatory role of the marsh (carbon sequestration in peat, natural water purification);
Allow educational and recreational uses;
Enhance the value of the Hunting Federation of Ille-et-Vilaine Department action on the management of sensitive heritage habitats;
Collaborate with agricultural stakeholders.

Pressure remarks

The pressures on the site result from its development in the middle of the last century to facilitate agricultural activities: Corn monoculture; Hydrological dysfunction causing the marsh to dry up in both winter and summer, and promoting peat mineralization.

Part of a wider plan

Oui

Wider plan

Wider plan type	Wider plan focus	Name
Catchment-based	Environment & Biodiversity	Wetlands of the Bay of Mont-Saint-Michel

Public consultation

Non

Has contractual arrangements

Oui

Contractual arrangements

Arrangement type	Responsibility	Name	Role	Comments
Contractual agreement	—	Collective agreement between the Hunting Federation and the Authorized Syndicate Association "Digues et Marais du Dol".	—	Agreement on the water management of the marshland: sluice gates to be opened on April 1st each year. Minimal water levels are to be maintained in summer and winter in the marsh.

Arrangement type	Responsibility	Name	Role	Comments
Contractual agreement	In exchange for free access to ome marshland areas, farmers commit to comply with strict land-use practices, including: - Adherence to mowing and grazing calendars - Prohibition of phytosanitary products, fertilizers, and supplemental feeding - Preservation of hedgerows and flooded habitats	Collective agreement between the Hunting Federation and the farmers operating marshland areas.	—	This agreement has to be approved yearly, from May 1st to November 1st. In 2024, 260 ha were exploited by 21 different farmers.
Institutional arrangement	The Water Agency finances the Federation for land aquisition and public animations, in exchange for respecting good practices.	Territorial contract between the Lorie-Bretagne Water Agency and the Hunting Federation of Ille-et-Villaine	—	—
Organisational arrangement	An agreement on the marsh management in construction. It is supposed to include automatic managemetn system for the valves.	Règlement d'eau (project, 2025)	It aims at resolving the growing tensions between the Hunting Federation and the local authorities and farmers.	An agreement shall be reached in 2025, or a decision will be taken by the prefect.

Impacts and Monitoring

Monitoring System

Monitoring parameters

Piezometric monitoring: 20 piezometers have been installed and monitored monthly since 2016.
Physico-chemical monitoring: A physico-chemical probe is installed on the marsh and measures water transparency, conductivity, dissolved oxygen, water pH, water height and silt depth. Recurring samplings are made by the hunting federation.

Ecological monitoring: A monitoring of amphibians, reptiles (laying 80 herpetological plates), fish and aquatic invertebrates was carried out. The Large Marsh Grasshopper population has been monitored since 2019.
The floral procession evolution is monitored in oligotrophic and peaty areas by applying a National Museum of Natural History methodology to record the communities evolution.
Bird counts have been carried out by the Hunting Federation of Ille-et-Vilaine Department for 30 years. Since 2016, they have been supplemented by a winter waterbird count, a monitoring of the reedbed passerines, ardeidae and anatidae reproduction. A mapping of the singing passerines is also carried out. Monitoring of odonates and butterflies was carried out between 2017 and 2022.

Maintenance

Maintenance requirements

Minimal intervention (only the removal of fallen trees on a pathway for eg.), and valves maintenance.

Impact Assessment Methodology

Biophysical impact assessment method

Piezometric, physico chemical and ecological monitoring before and after the application.

Socio-economic Impacts

Direct benefits

The farmers who work on the marsh plots proposed by the hunter federation can exploit the field for free, keep for themselves all hay produced and are eligible to PAC.

The creation of a natural regional parc was helped by the presence of the Black Marsh, as a good argument on nature conservation in the territory.

Ancillary benefits

Social

Ancillary benefits information

The outreach program is funded by eco-contribution : 400 schoolchildren per year plus nature-related, cultural, and recreational events for the public. This programme targets local population instead of tourism.

Biophysical impacts: Hydrology

Hydrological effects

The measures implemented are very effective in absorbing winter floods.

Information on reducing flood risks quantity

The 2025 winter floods in the department showed an efficiency of the marsh to absrob the flood water. Areas in the north of the department were protected, unlike the south parts which suffered more damages.

Biophysical impacts: Biodiversity

Improved biodiversity

Oui

Information on improved biodiversity

The 200 ha core of the marsh has a restricted access, in favor of birds nesting and reproduction.

An increase in waterbirds halting;
An increase in breeding passerines;
An evolution of the common flora towards a more specific procession of peaty environment flora;
An increase in the geographical distribution of the Large Marsh Grasshopper, which is a good indicator of a well-preserved peat bog ecosystem.
The restoration of the reedbed has allowed the installation of paludiculous birds, like the Marsh Warbler which has only a few nests in Bretagne.

Biophysical impacts: Water & Soil Quality

Information on water quality overall

A visual observation of the area allowed the Departmental Hunting Federation to observe a decrease in eutrophication in the canals. The purification effect of the plants is clearly observed.
In 2022, massive drought caused water quality and qantity problems, with cyanobacteria blooms in particular.

Biophysical impacts: Others

Information on ecosystem impact GHG soil carbon

There is no confirmed carbon capture yet, but the project managed to slow down the opposite dynamic. The maintenance of minimum water levels even in summer prevents the peatland mineralization and carbon emissions.

Information on mitigation other biophysical impacts

Piezometric monitoring confirmed that the marsh dries out in the summer following the opening of the gates. The water levels obtained are too low to preserve the peat, and expose it to mineralization.

Lessons Learned

Key lessons

Overall and after 35 years of effort, the marsh has become again a waterbird halting with EU importance in the Mont-Saint-Michel bay. A lot of invertebrates are present while the typical plant community of a peat bog is hindered by the water level management still to be improved. In light of the measures implemented, they are very effective in absorbing winter floods, but clearly insufficient to address climate and biodiversity challenges. The hunting federation would want to increase the water levels in summer to avoid peat mineralisation but the farmers who are growing maize are against.
A public outreach program (for schools, events) provides additional social benefits.

Barriers

Barrier type	Barrier role	Comments
Attitude of relevant stakeholders	Main barrier	It has been difficult to make elected officials, the SAGE (water development and management scheme), as well as farmers who are still growing maize, understand the importance of restoring the wetland's functionality. These tensions have not eased despite the success of the restoration, and evolved into actual managemetn conflicts.

Drivers

Driver type	Driver role	Comments

Other	Secondary driver	Recognition of the work efficiency and importance leads to more public acceptance for further rstoration work. For example : - The 2015-2016 reedbed restoration in the marsh has won the 2018 Ecological Engineering Prize in Category 5 – "Habitat Restoration" (A-IGEco yearly contest). - The improved biodiversity lead to the designation of the site as a Sensitive Natural Area (ENS) by the Ille-et-Vilaine Department in 2024

Success factors

Success factor type	Success factor role	Comments
Attitude of decision makers	Main factor	Determination of the Hunter Federation of Ille-et-Vilaine, to keep the restoration and managemetn project running event through constant oppositions of the local authorities and farmers.
Other	Main factor	Land control and capacity for action of the federation : No need to get different opposing actors to agree on every little action.
Financing possibilities	Secondary factor	The access to many financing projects (funds, compensation measures of the Mount St Michel Bay, etc.) accross the years allowed to reach amitious goals of restoration.

Transferability

This kind of project is technically easily reproductible ; however it needs lots of determination, political support and financing.
The most damaged areas are where there is the greatest gain in regeneration.

Sources

Sources

Etat des lieux – Document d’objectifs Natura 2000 Baie du Mont-Saint-Michel.

Les marais de Dol à la fin du XIIe siècle: essai géographique rétrospective

W.A.T.E.R. Histoire d’une cooperation européenne autour des zones humides.

Opération de restauration d’une roselière dans le marais noir de saint coulban.

Exemple d’une cogestion réussie sur un marais breton

Plan de Gestion des parcelles acquises sur le Marais Noir de St-Coulban avec le soutien de l'Agence de l'Eau Loire-Bretagne

2024 General Assembly - Hunters federation Ile-et-Villaine

Presentation 2018 A-IGEco Ecological Engineering prize

Activity reports 2019-2022 - FDC35