



CASE STUDY:

Impacts of human activities in Chausey's archipelago.



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ABSTRACT

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In that research paper, I will try to understand the different human impacts which occurred, occur, and will occur in the Chausey's archipelago (France, Channel Sea). My final aims are to find a sustainable way to use and preserve this island.

This place is the biggest European archipelago, washed twice a day by the highest tides of the old continent. Here the landscape and biodiversity are wonderful and need to be preserved from human activities which are the fishing and above all, the tourism.

The history built the island as it is today, and human activities were already having some impacts on it before the tourism development. Especially around 1825 were the population was the most important and used resources as granite. But it is central to study also the current impacts of human actions on that island.

The tourism is the main current activity in Chausey. First, I explain the definition of the tourism that I have chosen, and some general issues which are important to comprehend our case study. Actually the possible negative impacts, as the positive ones are often global phenomenons. Then it is interesting to study the notion of sustainable tourism because it the way toward we want to go. However, the archipelago presents some specific matters which need to be exploring into details. That is the occasion to propose some additional ideas at what is already done there. In fact some problems have to be solved if we want to manage this area in a sustainable way, and not to damage it to much with our recreational activities.

Chausey is an exceptional place for its natural resources as fauna and flora, which are extremely diversified. So it is a really good place for scientific studies and plant or animal inventories, thanks to the number of species as for their scarcity. For that reason, the archipelago has enjoyed several successive protecting measures from 1968, which are detailed and commented.

However, all this regulations are not efficient to totally preserve this island, a comparison with other case permits to find some good suggestions for its future management. We will particularly try to understand the fishing activity with its possible problems upon the biodiversity. And that this recreation could produce conflicts between amateur and fishermen. The best protection regulation seems to be the national park's but it offers some disadvantages too and is not always potential. This case is view through the Port-Cros'archipelago's examination. Then, to see what have already been done in Chausey's region and what the specific problems are; an analysis of Sein Island appears judicious. Actually, this place has a lot of common points with our case study.

It is sure that human activities impact on their surrounding especially when they are very well developed as the tourism in Chausey. But some improvements can be finding as the introduction of juridical measures, the improvement of public awareness. One essential thing is to enforce the laws and to protect the biodiversity without provoking conflicts, even if it far from easy. That is why those conclusive statements are only suggestions and hopes.

KEYWORDS

Archipelago, island, tourism, fishing, regulations, preservation, conservation, sustainability, biodiversity, landscape.

INDEX

INTRODUCTION

Background ideas

Personal background

Purpose and main objectives

METHODOLOGY, SITE DESCRIPTION

RESULTS, ANALYSIS AND DISCUSSION

I°) Historic evolution of the archipelago and its different human impacts

Chausey's presentation

History of Chausey, and the impacts of past human activities on this archipelago

II°) Study of the main human activity on Chausey: the tourism

General issues about Tourism

The specific case of the tourism on Chausey

III°) Preservation and conservation regulations of the island

Why need the resources to be protected in the archipelago?

The regulations have evaluated with the history

IV°) The specific case of the fishing activity, and some suggestions for the future of Chausey by comparison with other islands' regulations

The fishing activity in Chausey as an example for the comparisons basis

The case of the national park of Port-Cros (France, Mediterranean sea)

Comparison with the Sein Island which has a similar context

V°) Little discussion about my work

CONCLUSION

REFERENCES

ACKNOWLEDGEMENTS

INTRODUCTION

In this small part, I will try to explain the context of my report; especially about the evolution of the tourism in the really popular Chausey's archipelago. I will justify the choice of that study with my personal background and expose the purpose of this research paper.

Background ideas

The tourism really appears with the emergence of the paid holidays, and the improvement of transport facilities. The seashore was the first destination for the touring public. By the 1910s and 1920s the beaches were regularly invaded by holiday-goers (Lier, 1993). From this period, a tourism economy begins to appear, with the setting up of tourism facilities in the coasts. So the landscape starts to change with this activity. In the region of Chausey we can observe a peak tourism period in the summer, in truth the weather is not enough good to enjoy the beach otherwise. This specificity can reach some problems which will be developed later. And it is important to understand from the introduction that a lot of particular statements will come from the fact that the study takes place in a coast region.

From the late 1980s in the developed countries of the world, it is possible to remark an environmental trend and an increase of the awareness with regard to the nature. Tourism can record the same tendency, so a demand emerges to visit some areas which are regarded as 'natural' and 'unspoilt' (Holden, 2000). Indeed, our society is more and more urban, and need some calm places where the human hand is less present in order to have a rest. In this context, Chausey islands are the perfect area thanks to their wildlife and natural aspect.

Personal background

Even if the population wants more to go on vacation in natural places, they are not always aware of the impacts of the tourism on the environment and so on. But the people who are going on ecotourism often know that the nature is very fragile and need to be preserved (Holden, 2000). Especially if the people are frequently coming in the same area, they want to protect it for their future visits, and for their children. I think it is the case for Chausey because a lot of the visitors are living in the region, so they are concerned by the future of the archipelago. But they do not always know what to do to take care of the environment even if they do not want this area to be destroyed. And unfortunately, the vacationers are not all acting as ecotourists.

I am one of those people who are often going to the Chausey's archipelago. And, like all of



Picture 1: beach, with 'Grande Ile' in the background.
<http://www.ileschausey.com/textes/larchipel/ouest.htm>

them, I am in love with that place and I want it to be conserved. I am regularly moving there from the beginning of my life. I have had the time to enjoy it without asking me any questions but; becoming older; I want to be more and more involved in the future of these islands. I am in fact really interested by the landscape, the environment, the biodiversity's preservation. It is for me the occasion to understand better those things through the case study of Chausey.

The tourism will go on increasing, which is why the question of its future management is necessary to find a way toward a sustainable management.

Purpose and main objectives

It is well known that human activities have a lot of impacts in their surroundings, and I would like to understand it better through this special case. I aspire to go into details in several fields as landscape, biodiversity, environment, ecology and economy in order to understand better the whole system. In truth, everything is connected and I cannot appreciate the impacts neglecting one of those aspects.

I would like first to be familiar with the history of Chausey, see what evolutions took place and why. Before trying to protect this area and look in the future, I need to be aware of his past to appreciate better its present. I will try to comprehend different past impacts on the archipelago, because the tourism is not the only activity which transformed this region.

Then I would like to specify the case of the tourism which is the main current activity in Chausey. It would be interesting to define the tourism in general and then in this specific case, and to identify the profile of the tourists. Examining their activities and wants, it would be easier to describe the different impacts they can have in that zone.

An important part of my work will be to study the different preservation and conservation measures existing and their implications. One way to find some suggestions for a sustainable management could be to make some comparisons with some other islands, more or less protected. I will begin by the fishing activity which provides a good example for conservation differences. And then, try to see if adaptations to the Chausey islands could be possible.

METHODOLOGY, SITE DESCRIPTION

Beforehand, I just want to make a vocabulary clarification. In this paper, I will often speak about “the island of Chausey” which is in fact an archipelago. I should call them the Chausey islands, but it is also possible to see them as a unity, which can justify this singular.

In order to understand better the principles which take place in my study, I will always try to begin by general definitions, in which I can include the case of Chausey. But as I want to go into details with this peculiar spot, I will then try to identify the specific issues concerned. As I explained before, I will begin by a global view of diverse activities’ impacts through its history. Then I will focus on the particular tourism interests, from global statements to specific ones. I will particularly work on the different protection and conservation regulations existing, to see what is already done and what need to be improved. And this will be the occasion to compare this isolate case to others where the stakes are identical, especially with the fishing example.



Figure 1: Localisation of Chausey (France, Manche department).
<http://www.ileschausey.com/textes/viepratique/viepratique.htm>

Chausey is a group of small islands, islets and rocks that forms part of the Channel Islands, but under a French jurisdiction. At 9 nautical miles from Granville and at around 15 from Saint-Malo, this zone is anchor in the Mont-Saint Michel’s bay. It is the biggest European archipelago (more than 7 nautical miles long, and half wide), washed twice a day by the highest tides of the old continent. In fact, between the highest and the lowest level of the tide exists 14 meters, or the high of a 4 floors building (WP conservatoire-du-littoral, 2008).

If at the flood tide level, its size is only 65 hectares, it is almost 100 times more at ebb tide. The legend tells that you have 365 islands (as the days in a year) at low tide, and that they become 52 (as the weeks in a year) at high tide. But this credence explains well how mutable is the landscape, with the rise or the withdrawal of the sea (WP geocities, 2008).

Chausey is administratively part of the commune of Granville in the Manche department. This archipelago is divided in two parts, a small public one (around 8 hectares) and a huge private one. The public part is attached to the town of Granville since 1804. All the leftovers (main island and islets) belonged to the SCI, *Société Civile Immobilière* (gen property society), founded in 1919 by three families of Chausey. This society manages the archipelago and its protection, and tolerates the visitors even if it is a private property.

The economic activity mainly comes from tourism as from lobster and prawn fishing (WP Granville, 2008). The vast plateau of the archipelago is also exploited for the breeding of mussel and oyster (WP wikipedia, 2008).

The *Grande île* (Main Island) is only 46 hectares-sized. Despite its name, this isle is only one kilometer and a half long, and 500 meters wide. But the landscapes are really diversified as we will see later. Except the *île Aneret*, with a little house, the *Grande île* is the only inhabited one (with around 50 dwellings), the other islets are the land of sea birds and shellfish. Here, roads are unknown, as cars and bicycles.

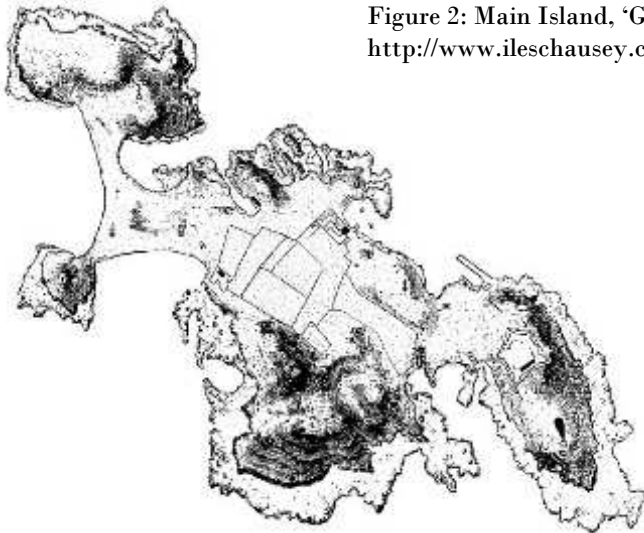


Figure 2: Main Island, 'Grande île'.

<http://www.ileschausey.com/textes/grandeile/grandeile.htm>

RESULTS, ANALYSIS AND DISCUSSION

1°) Historic evolution of the archipelago and its different human impacts

Chausey's presentation



Picture 2: Aerial view of the archipelago, IGN .
<http://www.ileschausey.com/textes/larchipel/larchipel.htm>

The norman archipelago is wonderfully wild, authentic and protected of the lust by its statute of conservation area. However this marvelous inorganic place is not easily accessible. Actually, the strong tidal stream, huge tides, small islets, shoals, sandbank, winding channels...require a really good navigation. In this area, salty water controls everything: rock erosion, sand movements, algae growing,

boundaries for terrestrial vegetation, the animal cycle of life and the human activities. In this clear water continually tossed by violent currents, you can discover a magnificent archipelago very diversified and rich in biodiversity. This is notably thanks to the GulfStream which produces a micro-climate on this specific zone. Nevertheless, crowds of people (tourists and amateur fishermen) rush into this heaven during the solstice or equinox tides. We will see later that this phenomenon disturbs the balance of a fragile locus which needs to be protected.

The *Grande Ile* (Main Island) has a lot of diversified landscapes which is extremely good for the biodiversity, and by the same occasion for the tourists' pleasure. Sometimes the landscape looks like more as a Norman hedged farmland than as seashore, or sometimes as a Mediterranean landscape. In fact the white cottages are surrounded by loose stones with thick plants and maritime pines. Here is the only island where the shuttles from Granville dump tourists,



Figure 3: Map of the Grande Ile, Chausey.

http://www.ville-granville.fr/presentation/en/Les_iles_Chausey.html

only the amateur sailors can go dock in the islets. But everything is

here to satisfy tourists even if it is very small. One of the charming points of the *Grande Ile* is that they can only stroll walking because there is no cars or bikes. They can visit the monuments as the light house, the fort, the Baudry and Lambert towers ...and some megalithic curiosity. In addition, there are six beaches of fine and white sand; three of them are essentially dedicated for tourists. And the exceptional natural resources are also a nice aspect of this island, for the fauna as for the flora. It is possible to spend one day in the isle as a long time depending on the activities that they want to do (fishing, sailing...), even if there are few places in the only hostel or in the shelters.

But a big part of the landscapes and biodiversity are in the islets of the archipelago. The Est portion is an impressive inorganic plain where the mica and granite are everywhere. It is characterized by some rocky islets disseminated in a huge expanse of sandbanks, some mussel beds and a lot of birds which whitened the rocks with guano (WP iles chausey, 2008). The centre groups most of the biggest islets of the archipelago. Irrigated by four parallel channels, this area is covered with dense vegetation so difficult accessible.

Concerning the western fraction, it is the wildest and more difficult accessible part which is often exposed to the storms. It is also in this lunar landscape that crowds of people are coming from the *Grande-Ile* to catch prawns, crustaceans and shellfishes.

History of Chausey, and the impacts of past human activities on this archipelago

English and French fought for a long time for Chausey Island. Unlike its neighbors Channel Islands, the archipelago has been French in 1499. But it was more a site of piracy and smuggling, attended by seafarers engaged in illegal business (WP geocities, 2008).

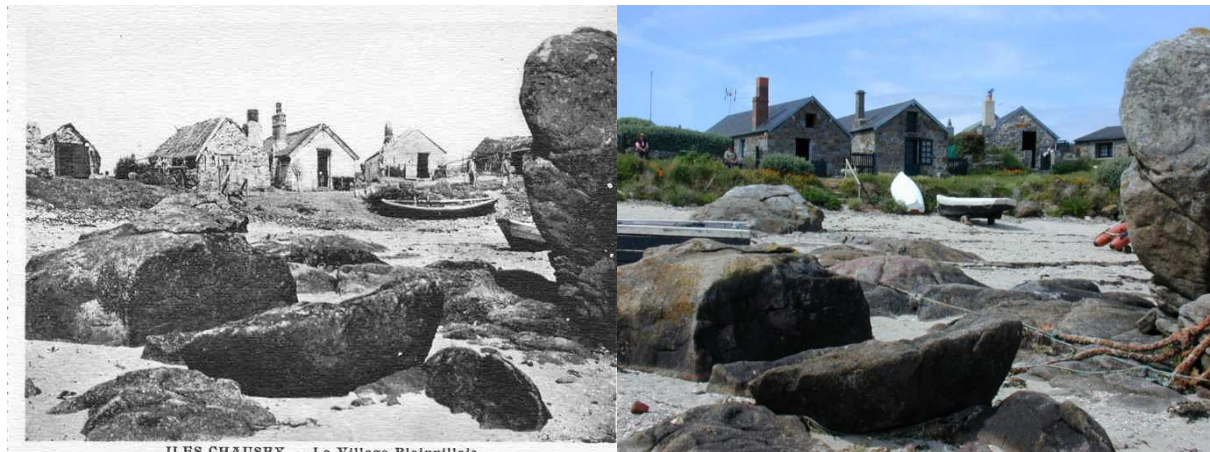
After several owners, Louis XV offered it to the priest Nolin the 28 of July 1772; the current property of Chausey comes from there. At that period, the island was neglected from roughly 500 years. One important thing done later is the reviving of the economic activities with the agriculture, the caustic soda industry (the workers mowed the wrack, cooked it, the caustic soda is then extracted and used by the glassblowers in the continent) and the granite exploitation which was abandoned from half a century. In 1780, the population



Picture 3: Houses in Chausey, beginning of XX century.
<http://www.ileschausey.com/textes/sci/origine.htm>

of Chausey was of 72 persons (40 soda workers, 12 quarry workers) and around 200 animals in the farm. Some impacts of human activities appeared here with the exploitation itself and with the growing of the population. Indeed the granite is one of the main elements visible in the landscape of Chausey, an important activity has therefore an impact on the landscape. Moreover, the increase of the residents required the increasing of the farming and of the number of houses. The panorama was transformed by the cultures and the grazing, as by the building of more dwellings. The biodiversity was probably affected by the agriculture and other human activities. And as the refuse disposal was not really developed, the archipelago was certainly victim of human contamination which has always consequences for the

landscape and the global environment. But it is important not to forget the positive impacts of those modifications on social and economical aspects.



Picture 4: Blainvillers village, 1905 and 2005.
<http://www.ileschausey.com/textes/cartes/blainvillais1.htm>

Around 1825, some people from *Blainville-sur-Mer* came and created the *Blainvillers* village, and worked to increase the caustic soda industry. 400 quarry people were employed too! 37 islets out of 53 were so inhabited and the last monuments were built (WP iles chausey, 2008). The impacts on the landscape, environment and biodiversity are the same because the activities are identical. Only the strength is really different owing to the number of people in such a small island, and this can change everything. In fact the impacts can become significant and lead to some irreversible damages. Consequently the injuries of those buildings were not all perpetuals but maybe had impacts for a long time in the archipelago even if only few ruins, eaten by the vegetation, can still be detected.

From the end of the XIXe century, the activities do not give up decreasing. One after one other, the islets are abandoned and return to their silence.

In 1891, the islands property change again of manager and Chausey is now totally owned by the same family. The 10 of May 1919, the archipelago is sold to the SCI (gen property society) composed by three families. Forty years and four generation later the creation of the SCI, three families are always sharing with equality the capital of this society.



Figure 4: S.C.I. logo.
<http://www.ileschausey.com/textes/sci/sci-accueil.htm>

The landscape of the archipelago as it is today has been modeled by the history of that place. The different activities and the different managers have left some vestiges which form now part of Chausey. The question is not to judge the evolutions of Chausey, just to study what are the impacts possible with the human actions and why this area is like it is today. Each building has his story and it could be very interesting to go into details, but I think that a more important thing is to understand our current impacts on this site. In order to answer that question, it will be important to focus on the present human activities which are the fishing, but above all, the tourism.

II°) Study of the main human activity on Chausey: the tourism

General issues about Tourism

The tourism industry has expanded rapidly since 1950, but are environments benefiting from or being damaged by the tourists who visit them?

A lot of different definitions of tourism are existing, but the tourism I will study in this chapter (with the case of Chausey) can be defined like the World Tourism Organization did it in 1991: 'Tourism comprises the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business or other purposes.' Although there is no definitive definition of tourism because of its complexity, tourism



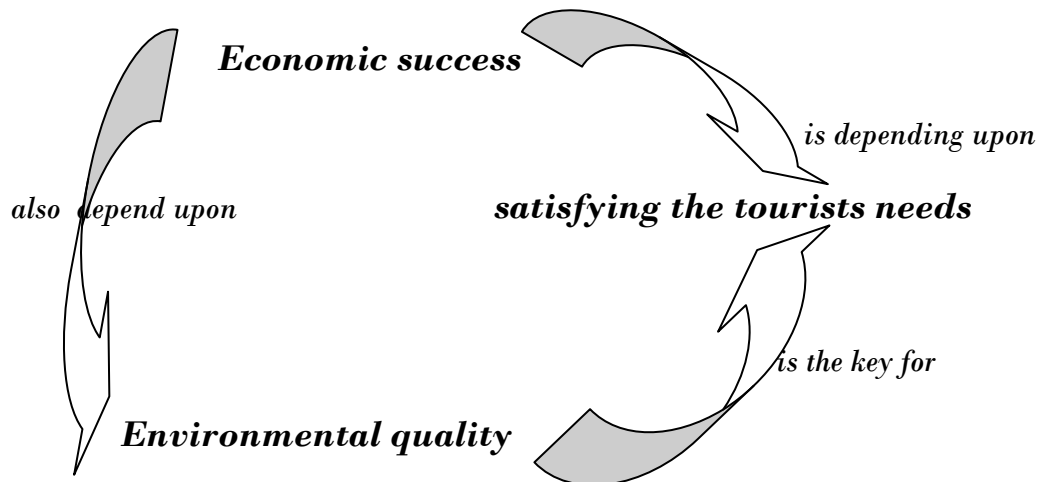
Picture 5: View of the Sound, the main channel, at low tide.
<http://www.geocities.com/TheTropics/Resort/6756/islands/Chausey>.

development involves the use of physical and natural resources and will subsequently impact upon the economies, cultures and ecology of the destinations it develops in (Holden, 2000). Difficult is a reflection on tourism as diverse stakeholders or groups are involved: governments, the tourism industry, local communities and tourists. With their different aspirations and interests, and subsequently hold different perspectives on what they want to achieve.

As the area of wilderness worldwide continues to decrease, national parks and other protected areas become increasingly valuable. It seems that tourism interests, government as well as commercial, recognize this value and its future growth, and are trying to capture them (Buckley, 2003). And a new categorize of tourists is developing, who are, or wants to be more environmentally aware, independent, flexible and quality conscious than the tourists who form the bulk of the mass market. But it is a general trend which makes people more conscious of the possible tourism impacts.

The amount we know about the effects of tourism is limited, but it is possible to expose some of its impacts on the environment. Tourism can have negative impacts upon the environment. Major issues of concern rest over resource usage, pollution and aspects of tourist behavior toward the environment they are visiting. The harmful effects upon the environment include both physical and cultural aspects. Furthermore, one of the economic problems which appear with the market is that externalities are produced by our consumption; this suggests that tourism will bring environmental and cultural changes (Field, 200). In fact, the market does not take into account that our productions have impacts on the environment. And the nature cannot easily be introduced in the economic system as it does no have any defined value (Turner, 1994). However, the tourism can help to protect the

environment from potentially more damaging forms of development, and can have a particularly beneficial role in the regeneration of economically depressed environments. It can also be used as an educational way about the environment and make people more involved in the nature protection. This circle system explains well that a sustainable tourism needs a protection of the visiting areas: (Holden, 2000)



Truly, the main aim of sustainable development is satisfying the needs of the world's population without threatened the earth's resources, nor the ability of future generations to satisfy their own needs (Gunn, 1988). It is also necessary to realize that sustainable tourism incorporates cultural, economic, and political dimensions. And I think that it is already the case in Chausey, but more public communication should be done to increase the awareness. Ecotourism can really have considerable benefits for conservation by providing economic incentives for protecting a habitat or population (Lindberg, 1991).

The problem is that the tourism is essentially a sector of the economy that is heavily based upon free enterprise, so not easily controlled by government rules. In Chausey it is not the case, even if the SCI is a private society, it aims with the local authorities are to conserve the archipelago, not to make profit; which is really good.

The specific case of the tourism on Chausey

In 150 years, the economic life of the archipelago has changed a lot. The numerous quarry and soda workers have left and the seasoned fishermen have progressively settled here. In the same way of the tourism development, the landscape has been transformed. Nowadays, the *Grande-Ile* is much diversified with its mowed fields, trees and hedged scenery. In this context, the SCI's landscaping has one principle: all the profits coming from the rent of its houses are reinvested to maintain the island.

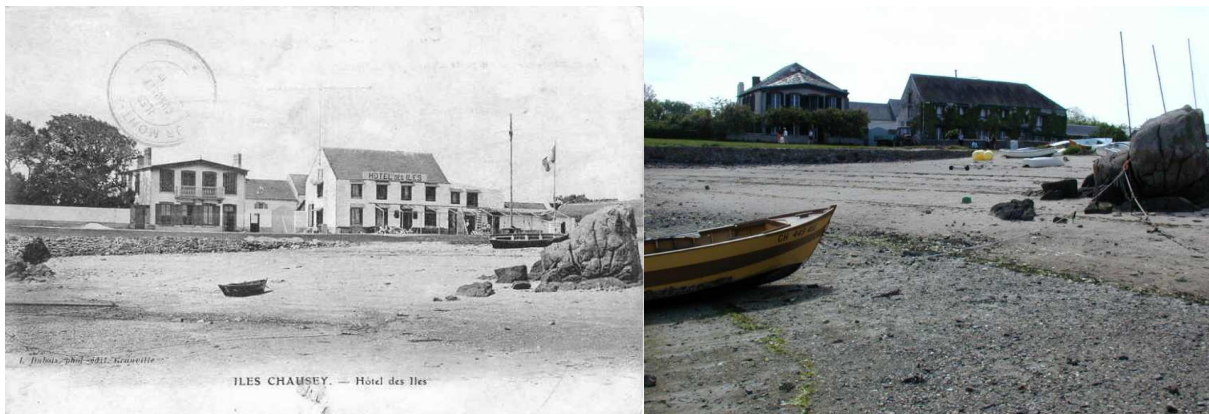
Picture 6: Le sound, main channel of Chausey.
<http://www.ileschausey.com/textes/larchipel/sound.htm>



Chausey is exposed to regional and national (economic boom of

Granville, and more generally a boat democratization, and popularity of islands...) economic phenomenon. This make the frequenting increasing, so the number of tourists are estimated at 200 000 per year! But this is not all, because this figure is expected to augment with the development of the tourism in the *Manche* department, and the enlargement of several ports (WP conseil général, 2008). The nearest is Granville, which welcoming capacities will be amplified by 60 per cent. Besides, if its passenger harbor has, as it is planed, an open access whatever the tide time, the shuttles will commute more often to the archipelago. I think that it is not good at all to increase the number of tourists in the archipelago, and in the contrary, this figure should be reduce. But above all, it would be efficient to target a specific kind of tourists who would understand the fragility of the environment and would not want to damage it (Blowers, 1993). Another specific problem of this region is that the tourism is very important for a short period (especially July and August) and cannot have its impacts spread in the year. In fact, for a same annual frequenting, the damages are more important if all the visitors are coming during a short period because the environment cannot tolerate so many people at the same time (Lier, 1993). One of my suggestions would be to make each people paying a bit for the preservation, and to increase the public awareness on environmental issues. Why not showing them a short documentary about Chausey and the good behavior to have there, it would be possible at the beginning of the sea crossing (in the shuttle)?

There are very few tourism facilities in Chausey. Actually, only one grocer's, a ten rooms' hotel, 25 resting places and two restaurants are opened (often from April to October). It is forbidden to do camping and the rooms or houses reservation should be done early because of the huge apply. So the visitors are often coming with the shuttles for the day in *Grande-Ile*, and the others can sleep in their individual boats.



Picture 7 and 8: The hostel 'hotel des îles' around 1900 and in 2005.
<http://www.ileschausey.com/textes/cartes/hoteliles.htm>

Thus I think that the landscape as not changed to much because of the tourism, as the main buildings were already existing and have only seen an evolution on their uses. The tourism development has encouraging the abandon of the agriculture, but is not the only responsible. This does not mean that the tourism has no impacts on the environment and in the biodiversity, which is sure! On other important aspect is that there are neither cars nor bikes. It is so by foot attended by the gull, waves and wind songs; that the tourists have to discover the island's charms. This permits not to destroy to much the tracks and not to

pollute with cars. But a trouble is that people do not respect the rules and are often going out of the tracks or do not use the bins for their rubbishes.

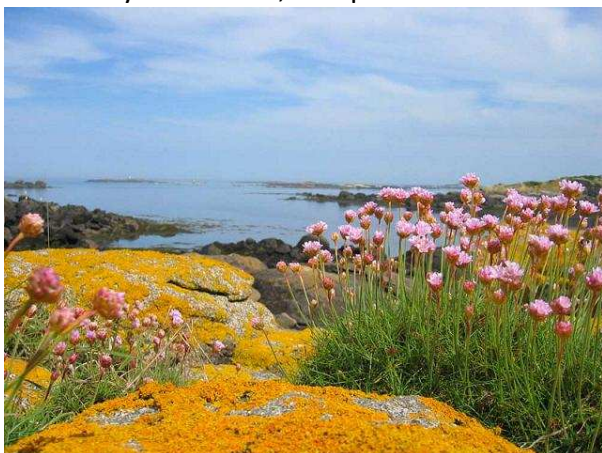
However, the tourism is an economic activity which permits the SCI to earn money in order to conserve Chausey, so should not be seen only as a bad thing for the archipelago which otherwise must be abandoned. Thanks to those incomes the SCI has done several works for the built as for the environment. Concerning the built in Chausey, the main targets are to homogenize the materials (granite and slate) and to restore the buildings. The houses can now welcome people in a longer period and are comply with the regulations. About the environment, the major improvements have been made to renovate the hedged farmland: rebuilt the walls and plant new trees. The heaths, the farm garden and so one are progressively reconditioned too. During those last 25 years, the landscaping had two different periods. From 1975 to 1990, the landscape maintenance and protection has been done with the fields draining, the safeguarding of ditches, new tree and marram plantations. Then the actions were more because of the increase of the tourism: reinforcement for tracks and access to the sea, dry heaths preservation and firebreak building.

III°) Preservation and conservation regulations of the island

It is interesting to wonder about the paradox between nature and human interventions in that special case where the last ones are made to improve the nature... Obviously in our regions, those sites are only natural by their names. The administration of those areas is not something where the human beings should be away, but where they should use their conscious and their know-how to permit the maximum nature potentials. One other interesting interrogation is about how is view the nature by a lot of people. In fact, only the nice tourism aspects of that environment are often accepted. But it is essential to understand that others ecosystems as wetlands are really important for the biodiversity...

Why need the resources to be protected in the archipelago?

Chausey is an exceptional place for its natural resources as fauna and flora which are extremely diversified, and permit a lot of scientific researches and inventories.



Picture 9: Rocky vegetation in Chausey.
<http://www.symel.fr/espaces-littoraux/iles-presentation.php>

Concerning the flora in the *Grande-Ile*, more than 300 vegetable species are inventoried which reflect well the environments' diversity. Several are all the more interesting that they are in different level of rarity. The humid meadows or dune specifics flora merits interest too, so does the littoral shrubbery. But the six plants to remember are mainly the *Centaurea calcitrapa* L., the *Dianthus hyssopifolius* subsp. *gallicus* , the *Euphorbia peplis* L., the *Galium verum* L., the *Geranium sanguineum* L. and the *Rumex rupestris* Le Gall because they are all relatively scarce and protected (WP

conservatoire-du-littoral, 2008).

Chausey is also a heaven for the marine animals: lobster, prawns, conger and other fishes, seashells, thousands of birds, plus some dolphins, penguins, turtles and seals. There is no pollution on the seashore owing to the tide which cleans beaches and rocks twice a day, and most of the islets are considered as game reserves. The richness comes essentially from the exceptional ornithological resources. Actually most of the islets are 'nature reserves' where a lot of rare species are nesting: Northern gannets (*Morus bassanus*), razorbill (*Alca torda*)... Those protected places allowed birds to have a rest and to nest in all tranquility. So many birds move in Chausey that it is an advanced base for their observation by the Ornithological Normand Group (WP conservatoire-du-littoral, 2008).

It is now easier understanding why this zone needs to be protected; indeed a lot of those species are scarce and could painlessly disappear if their environment is too much disturbed by human activities. Especially because they are isolated and cannot easily move to find better living conditions (Hudson, 1991). It is more than important to look after that fantastic biodiversity which can permit a lot of biological researches and which makes Chausey so superb and diversified.

The regulations have evaluated with the history

In his report on the tourist frequenting, published in 1996, Louis Brigand proposed four reflection themes that are more than current topics:

1. Contain the boat frequenting.
2. Maintain a good quality in the kind of visitations.
3. Restrict the tourist facilities in the island.
4. Maintain the environmental and biodiversity quality.

As we have seen before, the SCI is doing a lot of things to look after the heritage, the landscape and the environment. But even if they are using the tourism economy to keep Chausey in a very good situation, some statutes and regulations are necessary to sincerely preserve the archipelago:

- That is why from 1968, the SCI build Chausey up in a 'voluntary reserve', and in a 'reinforced protection' in 1973 thanks to agreements with the French National Office of the Hunting and the Ornithological Normand Group.
- In 1976, Chausey becomes a 'classified site' after the request of the SCI.
- In 1987, the SCI signs a convention with the Ornithological Normand Group which is in charge of the protected species' inventory, especially for the migratory birds. Chausey becomes a 'Z.N.I.E.F.F.' (Natural Zone with Flora and Fauna Interests) and a 'Special Bird Protection Zone' at the same time.

Picture 10: islets at low tide.
<http://www.ileschausey.com/textes/association/>



This Z.N.I.E.F.F. plan was created in 1982 by the environment ministry, with the target of generating a knowledge tool about the natural French ecosystems. This could be possible

thanks to an exhaustive and permanent awareness of natural places, fact their interests reside either in the balance and the ecosystem richness or in the presence of scarce and threatened species. Even if that Z.N.I.E.F.F. does not have any special protection regulations; this will permit a better prevision of the land settlement incidences and a superior protection of several fragile spaces (WP znieff, 2008).

- In 1988, Chausey is classified in 'ZPS' (Special Protection Zone).

Those zones asked by 'The bird directive of 1979' are judged as really important for the conservation, reproduction, alimentation and migration of the birds inside the European Union (WP wikipedia, 2008). Those ZPS are the national correspondent of the international ZICO (Important Zone for the Birds Conservation).

- In 1998, 5 hectares of the archipelago become property of the Coastal Conservatory, with the creation of a management outline.

The Coastal Conservatory is a public organization created in 1975, member of the French UICN (International Union for the Nature Conservation in France) committee. It leads a ground rent politic to aim at a definitive protection of natural spaces and landscapes localized in the maritime or lake shores. It acquires fragile or threatened lands and does some renovation works before to confide the management to communes, others locale authorities or to associations (WP symel, 2008). With the help of specialists, he determines the management way of the different sites to permit the nature to be as rich and nice as possible, and defines the compatibles activities (in particular farming ones) with those objectives. The conservatory was protecting 65 587 hectares (on 485 different areas) in 2002, representing 861 km of shores that is more than 10 percent of the coastal line (WP iles chausey, 2008).

- In 2000, a tripartite convention initiated by the SCI permits to define precisely the roles and tasks of each organization: the National Office of the Hunting is in charge of making the protection measures and to monitor the reserve; the Ornithological Normand Group has to do the inventory and to achieve the ornithological follow-up. This convention has been strengthened by a decree in March 2000, which forbids the docking on the islets plus the access to the closed fields in the *Grande-Ile*.



Picture 11: A Troil *Uria aalge* near Chausey.
<http://forum.gonm.org/viewtopic.php?t=272>

- In 2004, Chausey is integrated in the Natura 2000 network.

Natura 2000 is a European directive of which goals are to contribute to preserve the biological biodiversity in the European territory. This network has to maintain or restore the state of community interest habitats. A peculiar branch, called 'Natura 2000 in sea', is dedicated to the seashore zones as Chausey (WP natura 2000, 2008). If all the targets are carrying out, the network should cover 18 percent of the European territory in 2010. In the direction of reinforce the protection in the Natura 2000 sites, the environmental responsibility directive is based on the 'polluting agent/payer' principle. It would bind the

author of damages to compensate the deteriorations as to restore the habitats and affected species (WP wikipédia, 2008).

But the special case of Chausey is arising some difficulties concerning its public acceptance. By lack of information, will to defend the ancestral fishing methods, almost total absence of regulations' respect, insufficient communication from the authorities... The Natura 2000 process is similar as the 'natural maritime park' trial in the 80^{ies}: petitions, revolts, creation of protection associations, polemic article and politic embarrassments. In front of that difficult situation, the SCI wants to going on its efforts to reach its aims, continuing its protection improvements of the site. In order to succeed with this project, the politic wills should be stronger and the cultural fences need to be destroyed with more communication.

- And the latest thing appears in 2005 with the signature of a 'sustainable development convention' between the SCI and the Coastal Conservatory. Moreover, they introduce several Natura 2000 contracts for the preservation of some really fragile natural places.

So the successive regulations permit to conserve Chausey from a lot of damages, and to supervise the future evolutions. This is extremely good, but all are not always enforced.

IV°) The specific case of the fishing activity, and some suggestions for the future of Chausey, by comparison with other islands' regulations

The fishing activity in Chausey as an example for the comparisons basis

The protected marine areas are not anymore as some 'islands' of nature surrounded by an ocean of incompatible usages. They are actually integrated in a regional or national environmental management (protected and non-protected areas) where the humans are not excluded. In most of those protected zones, the fishing is not forbidden, except in some special cases as the national park of *Port-Cros*.

A lot of fishing regulations exist in the region of Chausey, but the fishing is not forbidden at all, the laws are the same as in the entire department. The exception is for the islets situated in the East part on an imaginary line (from the lighthouse of *Grande-Ile* to the tower of *Enseigne*) where it is forbidden to go from the 21th of April to the 1st of July, because of the bird nesting. In the general rules, there are informations about each species which can be catch. It is specified which is the minimal size, the allowed period of fishing, the authorized tool and the maximal quantity for each person/for each day. The description of the tools which can be used is also very precise in the regulation paper (WP Manche, 2008). The problem is that the controls are not frequent and a lot of tourists are not aware of these restrictions. So, even if laws exist, they are not always efficient.

Picture 12: Red mullet in Chausey.

<http://www.symel.fr/la-gestion/pourquoi-gerer.php>



The fishing activity is especially well developed is that island because the tourists do not have a lot of other things to do than enjoy the environment and fish. And it is a real heritage

to angle in the archipelago; crowds of people are coming during the biggest tides especially for that. It is true that it is not so hard to find some prawns, shellfish... but the number of people is so impressive that it could quickly become a problem for the ecosystem balance. In Chausey, where the touristic frequenting is important during the summer or the highest tides, the amateur fishermen catches are far from negligible, perhaps in the same rate as the



professional fishing. Moreover, there is often a huge covering between the amateur and professional fishermen catches. That is why in addition of the possible impacts on the biodiversity; it is also a competitive activity for the professional fishing resources, which can lead to some conflicts. The regulations should exist for the two different kinds of fishermen.

Picture 13: Fishermen in a oyster park.

http://www.cg50.fr/economie/economie/peche_aquaculture.asphttp

The aims of protected marine areas are diversified, but all those ones could be interpreting in a way to produce a sustainable fishing, especially the number five. But it is really important to understand that a big part of the protection begins by the public awareness and the monitoring of the species to have adapted rules (Boudouresque, 2004).

1. Set up conservatories for threatened species and habitats.
2. Provide sites for public education on the environment
3. Provide reference areas for scientific research
4. Provide attractive landscapes for tourism
5. Establish no-take areas where fish density and sex-ratio make mating and spawning possible, and which subsequently export eggs, larvae and adults to surrounding unprotected places and therefore enhance catches by fishermen.
6. Manage the different uses of the sea in a recreation way, so that they do not conflict with each other or with conservation aims.

But is it really possible to forbid the fishing in Chausey without breaking on of its cultural aspects? And is it really necessary? The solution would maybe be to control better the fishing and maybe to have special regulations for the threatened species. The monitoring of species could be an excellent way to see how they evolve and react (Sutherland, 2000). But one good thing is also to have a part where nothing can be catch; perhaps it could be good



Picture 14: Boats of Chausey.

<http://www.ileschausey.com/textes/canots/canots-accueil.htm>

to extend the no fishing rule for all the year and not only for the bird nesting period. Another solution could be to regulate the number of visitors, especially during the highest tides and the summer time.

It is not true to say that nothing is possible to do to conserve this wonderful heritage: Chausey. In order to find good solutions, it would be judicious to watch to other islands' regulations and see if it is adaptable to our specific case, especially the fishing one. For instance, Tatihou (Manche department) and a lot of islands have restriction access. It is especially the situation for the St Honorat Island (France, *Alpes-Maritimes* department) which established drastic laws. The visitors were 200 000 in 2000, and this figure decrease to 70 000 in 2006. In this part I will try to study the particular case of a natural park, Port-Cros. Then I would like to examine an island very similar to Chausey (size, place, context...) to see what have already be done in our region, and what are our specific problems.

The case of the national park of Port-Cros (France, Mediterranean sea)

It is interesting to begin by a general analysis of the costs and benefits of a national park. The positive aspects are a protection of landscapes, wildlife and ecological communities. It also provides a place for people to have access and to experience the countryside. And tourists can supply revenues for scientific research and conservation projects. Besides, it offers employment opportunities for local people to become involved in environmental conservation. However, unless carefully managed, recreation and tourism can pose a threat to both the landscape and wildlife that the park was established to protect. Actually the activities has to be well defined according to the context not to destroy those fragile areas (infrastructures, number of visitors, type of tourist and their behavior, environmental education, economic or social difficulties...).

The case of the national park of Port-Cros: This Park was the first in Europe, created in 1963, it recovers 700 terrestrial hectares and 1300 marine ones. With a strong protection, the park wants to conserve the marvelous natural, historical and landscape heritage, without excluding the public access. As Chausey, the Port-Cros' archipelago presents a huge biodiversity with several scarce species. And it has more tourism facilities than Chausey, but it is proportional to its size. And the tourism frequenting is also really important, especially in the summer (WP port cros, 2008).

The different methods used to protect the park are sometimes the same as in Chausey, with additional ones that I would like to comment.



Picture 15 : Port-Cros Island.

<http://www.portcrosparenational.fr/visite/portcros/presentation/>

To protect the archipelago, some more juridical measures exist. It is notably forbidden to collect or gather anything, or to bring his dog out of the village to maintain the biodiversity in an optimal situation. Moreover, on the way of preserving the marine flora and fauna, it is not allowed to do amateur fishing. One example could be use to show the efficiency of this rule: The number of *Epinephelus marginatus* decreased dangerously because of fishing activity. But thanks to that banning, it managed to reproduced and now keep a good level for its

survival. Otherwise, it must have disappeared. Besides the tourists cannot go out of the tracks, which is not enough respected in Chausey. What is really good is also the communication with all the stockholders (The scuba diving centre, fishermen ...) which

permit to decide together and to see the regulations more enforced. A strong additional control permits to have a good respect of the laws (WP port cros, 2008).

Some legacy controls are important too, as a better management of the boats (places available controlled), which is not done at all for amateur sailors in Chausey.

And above all, some pedagogical measures can be done, which should to be improved in Chausey (information office, exhibitions, museums, pedagogical actions...). And the scientific activities can be enhanced as they are in Port-Cros with some more facilities.

So a lot of good ideas could be transposed to our case study, but we must not forget that a national park cost a lot (numerous employees and renovation actions).

Comparison with the Sein Island which has a similar context

As Chausey, Sein Island forms part of the 'Iles du Ponant' grouping. This gathering of 15 frenches islands (North-West) is characterized by three key points (WP wikipédia, 2008):

- To have a permanent population, even small.
- To have a community statute.
- Not to have a permanent link with the continent (no bridges or roads).

The aims of this association are to maintain the insular populations and to promote and protect the islands. Although Sein is the smallest one, it attracts a lot of tourists who should respect some rules if they do not want to destroy the nice and fragile island (WP iles du ponant, 2008). But Sein Island is also integrated in the Armorica regional park (WP enezsun, 2008). Created in 1969, it covers 122 terrestrial hectares and 60 000 maritime ones. This park as the same goals as the previous association, and wants in addition to develop the welcoming facilities and increase the environmental awareness (WP parc-naturel-armorique, 2008).

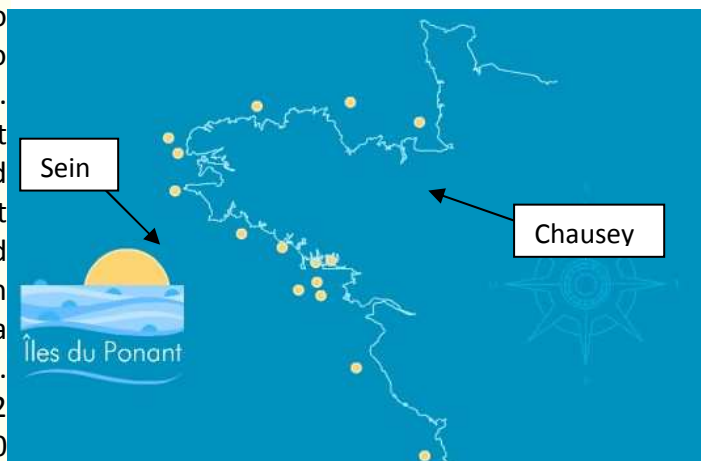


Figure 5:
Localisation of the Islands in the 'Iles du ponant' grouping.
<http://www.enezsun.com/Fauneetflore/Lesilesduponant.htm>

In Sein Island; it is forbidden to pick plants as to approach the nesting areas, and the tourists have to preserve fresh water and to sort their rubbish. This exists in Chausey but more controls are needed to really have law enforcement. Besides, one tax exists in each shuttle ticket, in order to manage and maintain the protected zones. The problem is how estimate the cost of their damages? I think this last thing should be done in Chausey, but not only on the shuttle tickets because this only concerns one part of the tourists. In order to increase the public awareness, they communicate a lot about the natural spaces knowledge, particularly about flora and fauna. They also enhance the public involvement with some actions as the direct participation to the management of those areas. One solution to improve the consciousness is to encourage the public to express their sentiments and to develop the membership feelings of the inhabitants. The creation of papers and free discovering days are other methods to develop a good communication.

They also would like to create a national park because the biggest advantage, as we have already seen, is the possibility to install juridical regulations. And they do not want to make the same mistake as Chausey in 1970 when it should become a national park but finally did not. In fact, several shellfish species have almost disappeared there because of a lack of rules. Nevertheless, the same oppositions exist as they were at that period in Chausey, and this project is stopped in Sein Island for the moment.

V°) Little discussion about my work:

Even if I found a lot of references, it was difficult to find figures about the issues presented in that study. How to know if fishing and tourism impacts more in Chausey than the past activities, or if the actual protection is enough? How to know if the species are only scarce or certainly threatened? The problem is that when the impacts are really visible, it is often too late: that is why I opt for the prevention. But is it the right way of thinking? Most of my suggestions should be discussed about their feasibility and their real improvements; in fact it is difficult to appreciate the impacts of such propositions. Besides, I would have liked to have enough time and place to moderate my words because this subject is very complex and cannot be solved in so little time. Actually, these conclusions are often subjective and maybe not all as good as I thought they were. If it was possible, I would like to go on with interviews and discussions with aware people. The regulations should especially be adapted to each kind of stakeholder (tourists, shopkeeper, amateur fishermen, fishermen...). In fact, I think that each suggestion can have positive or negative impacts depending on the point of view, and debates could be a good way to understand all the aspects of this topic. The communication is often the way to solve a lot of problems!

CONCLUSION

It would be possible to create that Chausey is a natural zone where the human hand is not present. But it is sure that some human activities had existed as the agriculture, the rock extraction, or; more recently; the tourism. As we have seen, all of them had impacts on the landscape, the environment ...the economy.

The tourism is a difficult notion because it involves diverse stakeholders and point of views. It is nevertheless possible to say that the negative impacts upon the environment concern especially the resource usage, pollution and tourist behavior. The harmful effects upon the environment include both physical and cultural aspects. We have also seen that some problems come from the market law, as the externalities or the environment value. However, the tourism can help to protect the environment particularly in an economically depressed one. And it can be used as an educational way to make people more involved in the nature protection. It is also necessary to realize that sustainable tourism incorporates cultural, economic, and political dimensions. About the case of the archipelago, a lot of renovation works are done by the SCI which is fine. Moreover it could be efficient to target a specific kind of tourists, more conscious, and to make them pay a bit for the preservation. The public awareness should be improved too by different ways, and the laws need to be better explained and enforced, by more controls.

Chausey, remarkable place for its biodiversity, has enjoyed several successive protecting measures for 40 years. From 1968, the SCI built Chausey in a 'hunting reserve'. In 1976 the archipelago became a 'classified site', then a special protection ('Z.N.I.E.F.F.' statute). Finally, this place was selection to enter the Natura 2000 project. But is it really possible to speak about a 'classified site' if the tourist development is always increasing? If the current regulation is not enforced? If there is not a global discussion with all the stakeholders?

The study of other island regulations show that it could be efficient to introduce some juridical measures, but for that, the national park statute is required. Moreover, on the way of preserving the marine flora and fauna, it seems good to ban fishing at least in one part on the archipelago. Actually, the fishing activity forms part of the heritage in Chausey but threaten some species. One solution could be to control better the fishing and maybe to have special regulations for the threatened species, thanks to the scientific researches. Another suggestion is to regulate the number of visitors, especially during the highest tides and the summer time. A superior management of boats would permit to control the frequenting in a reasonable rate.

What is also necessary is the communication with all the stockholders, and strong additional control to have law enforcement. This goes through the public awareness too, which has to be improved. One answer is to improve the consciousness, to encourage the public and dwellers' expression, and to develop their membership feelings. The case of Sein Island, although very close from Chausey's context, teaches us that one solution could be to set up a tax for the environment preservation.

Furthermore, it is possible to see that it is difficult to introduce new regulations without causing conflicts; it is notably the case with the question of a national park creation.

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