Contradictions in public policies on management of aquatic species and habitats The case of policies for diadromous fish

Contradictions in public policies for biodiversity conservation are inherent in the complexity of the issues concerned and the relationships between stakeholders. How can conflicts of interest be reconciled? How can collective acceptance of conservation goals be improved? Topics for discussion are drawn from the example of policies for diadromous fish.

The contradictions of public policies concerning goals for biodiversity conservation constitute a vast topic and it would be presumptuous to think that a single article could cover the issue, even limited to the consequences for management of aquatic species and environments. The contradictions, inherent to the multiple and divergent interests concerning the use of water, wetlands and aquatic environments, reflect the difficulties and shortcomings in transcribing the complex issues into a consistent regulatory and legal framework and in implementing suitable solutions on the operational level. The approaches, often very sectoral (by geographical area, category of stakeholders, topic, etc.), generate contradictions when the issue is biodiversity, in itself a complex topic that often does not mean the same thing for different stakeholders. These contradictions are found between territorial echelons and even within a given administrative or territorial level. Keeping in mind the various situations, this discussion will be based mainly on examples from the national level, where the most frequent contradictions arise due to:

- political decisions made by different ministries that run directly counter each other;
- a State service defining goals desired by society, but that are immediately negated by the activity of a public company theoretically working in the public interest (we will see below an example involving EDF, the French national electricity company);
- executive-branch decisions that run counter to those of legislators, where the decisions of both branches are subject to intense lobbying.

One example is the goal of the Grenelle environmental agreement to reduce the use of phytopharmaceutical and biocidal products by 50% in ten years. At the same time, natural products used in organic agriculture to protect plants are, at the time of writing, still forbidden in France by a number of decisions made by the Agriculture ministry in 2009. This is in total contradiction with earlier decisions by the National Assembly and the Senate, which set the natural products outside the scope of the ban created by former texts [1].

Another example is bromadiolone, an anticoagulant used against nutria and muskrats, that has been forbidden since 2009 in France, following years of efforts by environmental-protection groups worried about the dangers of the product for wetland food chains. The groups found themselves caught between the Agriculture ministry, attentive to the lobbies and unconcerned with environmental risks, and the Ecology ministry devoid of any political will and in complete contradiction with its own goals. These examples, plus others that we will see below concerning the European sturgeon (see photo 1) and the Atlantic salmon, would be comical if the issue were not the conservation of threatened species, operation of natural environments, the continuation of economic activities that depend on the renewal of biological resources and, ultimately, human health. But we must wonder if the people in charge of public policies have understood that all the above are intimately related.

1. Notably during preparation of the 2006 law on water and aquatic environments to correct the agricultural law voted earlier the same year, that denied approval of the products if they had not gone through the standard market authorisation procedures.

2. It is even forbidden to mix two EU financial instruments.

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❶ Artificial reproduction of the european sturgeon *Acipenser sturio* from specimens bred in station for a reintroduction in the environment.

Europe, for better or for worse

France is a member of the EU and national policies for water and aquatic habitats are, consequently, largely derived from EU policies. The same is true for policies on transportation, energy, agriculture, industry, etc. European directives significantly influence three quarters of all French legislation, even though the latter is not a simple translation of the EU texts, but an interpretation adapted to the economic and social realities of France. It is therefore not surprising that the many contradictions on the EU level reappear on the national level and national politicians do not hesitate to underscore that fact as a means to justify the inconsistency of certain national policies. The EU framework does not always facilitate things. The extremely vertical and partitioned structure of the European commission, organised in directorates-general (DG), each with their own guidelines and financial instruments, does not encourage transversal approaches[2], in spite of specific programmes (e.g. the structural funds and the Cohesion fund), intended to assist in funding regional and sectoral activities that are the responsibility of the national governments. This partitioning between the DGs has from the beginning been the source of serious contradictions in EU policies, e.g. between the Agriculture and rural development DG (in charge of the Common agricultural policy CAP that for years encouraged intensive techniques) and the Environment DG, or between the latter and the Transport and energy DG which is in charge of large road, railroad and river transportation projects that are incompatible with the natural environments traversed, and large hydroelectric projects that run counter to goals to maintain or restore the ecological continuity of rivers, etc.

EU political orientations, whether in the form of European policies or private initiatives supported by the EU, often have repercussions in the field where biodiversity-conservation issues are quite real. Improvement of shipping access and security in the Gironde estuary is a major issue for the port of Bordeaux which must maintain a clear channel for the ships transporting Airbus A380 parts. It will be difficult to reconcile those goals with the fact that the estuary is a Natura 2000 zone and with the projected marine nature park. Dredging the channel would stir sediments that have trapped toxic substances arriving from upstream and which, released in estuarine waters, would inevitably contaminate food chains. That would hardly be favourable to the development of nursery zones for young European sturgeon, a species on the border of extinction whose last remaining specimens are found in France and for which a European action plan and a national restoration programme have been established. In spite of the halt to gravel mining thanks to the political courage of a local elected official willing to confront a prefect more inclined to listen to business arguments than to the reasons in terms of biology and sustainable management of water resources put forward by a majority of other stakeholders, this example shows the frequent difficulties in reconciling economic and biodiversity-preservation issues in a given zone. The contradiction lies at the very heart of the political decision in as much as it is not possible (or the political will is lacking) to establish priorities between the two.

Some changes are positive, such as the ecological conditions placed on CAP funding to reinforce consistency between water and agricultural policies, e.g. in France, irrigation subsidies require proof that the obligations contained in the law on water and aquatic environments are met, including mandatory accounting of the volumes drawn, in compliance with the WFD (Water framework directive). But others are worrisome for water and biodi-

❷ On the Anglin river, fishing is a leisure activity, this river is also a spawning ground of salmons.

versity, e.g. the river navigation projects for large ships. But whatever the imperfections in EU policies and the rigidities of the European commission, the lack of interest, ambition and courage on the national level is often the cause of multiple contradictions and the EU cannot always be used as a scapegoat, as the restoration policy for diadromous fish makes clear.

Diadromous-fish projects, water laws... and the results?

The issue of restoring the populations of diadromous fish arose in France in the 1970s. It started with salmon, an emblematic animal that revealed the major malfunctions in rivers that were being progressively drained of life. On the NGO side, the issue was luckily defended by two fishing associations, the International association for the defence of the Atlantic salmon and the TOS (trout, grayling, salmon) association, that had the minimum levels of influence and respectability to be taken seriously. On the institutional side, a few pioneering civil servants in the miniscule Ecology ministry and the High council on fisheries (CSP) succeeded in setting up various rescue plans between 1976 and 1992. The Saumon, Migrateurs and Retour aux sources programmes avoided the worst and the "salmon" approach was progressively expanded to seven other diadromous species, i.e. Allis shad, Twaite shad, eels, European sturgeon, sea and river lampreys, sea trout. These programmes slowed the extinction of salmon in the Loire river, where populations had dropped dramatically since the 1800s and the construction of the first dams. In the small river basins of Brittany and Normandy, the programmes, with significant support from civil society, showed very encouraging results in terms of maintaining, restoring and developing populations as well as the continuation of economic activities concerning fishing, primarily recreational.

These initial programmes, though highly commendable, remained very partial. Due to an almost complete lack of explanations and communication, they were on the whole not adopted by the local communities along rivers, to say nothing of the national population which had no idea they existed. Secondly, though the recreational fishers were brought in (see photo ❷), notably via groups in each major river basin [3], the professionals were largely neglected. That neglect was all the more regrettable that their continuous presence on rivers could have enabled acquisition of high-value data to understand population dynamics. Finally, most of the large environmental NGOs took little interest in diadromous fish, being more focussed on terrestrial species closer to their naturalist roots. And in local governments, elected officials ignored the issues for various reasons, but for two main ones, i.e. the lack of programme funding (and consequently of any economic attractiveness) and, secondly, a centralised political culture that has never understood that ecological policies are not possible without closely involving local officials and the populations they represent.

Following the 1984 Fishing law, which made it possible to attenuate some of the drawbacks of hydroelectric installations, legislators voted a new Water law in 1992. The law granted more weight to the issues of protecting and restoring aquatic ecosystems in that it created river-basin management plans (RBMP) that served, for the first time, to draw up (minimal) status reports that revealed the need to act throughout the country. Continuing its efforts, France reorganised its policy for diadromous fish by creating in 1994 an innovative system for greater integration and negotiation, the management committees for migratory fish [4] in each of the six major river basins in France. The COGEPOMIs served to establish discussions between the essential stakeholders on the best scale, that of river basins, but remained too focussed on recreational fishing, a legitimate partner, unfortunately to the detriment of conservation issues and cooperation with the professionals. The COGEPOMIs also suffered from a lack of coordination between themselves, the lack of a national strategy and the contradictions in the policies and practices between the Ecology and Agriculture ministries, also incapable of coordination. Starting in 2000, the WFD considerably reinforced the positive context for restoration and protection by creating new concepts such as "good ecological status" with performance obligations entailing financial penalties. The latter motivated the politicians of the time, but did not impress the French technical elite, as was made clear by the incredible delays in addressing the problem of nitrates in drinking water and the resulting crack down by the EU. Today, the gradual transfer of WFD principles to the RBMPs and application of the 2007 Eel regulation [5] show that a shift is underway. Now, in 2010, diadromous fish have finally made their way into political agendas.

3. Loire Grands Migrateurs, Migrateurs Garonne Dordogne, Migradour, Saumon Rhin, Seinormigr, Bretagne Grands Migrateurs, Migrateurs Rhône Méditerranée.

4. COGEPOMI, decree 94-157 dated 16 February 1994 on the capture of diadromous fish.

5. Eel populations have fallen to between 1 and 5% of 1980 levels, due in particular to the loss of ecological continuity in rivers.

Some 34 years after the first "Salmon" programme, it is worthwhile to examine the reasons behind the delays and shortcomings, and to understand why France never took the necessary steps to set up a protection and restoration policy for diadromous fish in line with its national and international obligations. There are obviously a number of causes that we can trace back to a general observation which is that, in France, the restoration of rivers and their biodiversity is a marginal issue. Diadromous fish are a topic lacking any general, collective interest and are virtually non-existent in schools and institutes, in NGOs, most associations and local governments. There is a lack of interest and awareness, of reactions, communication efforts and media attention. The human and financial means put into conservation by the State remain low compared to those of other major industrial countries such as the United States and the U.K. The lack of interest is also due to the extreme complexity of a topic involving an array of responsibilities and activities (i.e. also stakeholders and users) impacting on rivers. In light of the above, it is worthwhile to highlight what we see as a major cause, i.e. the pressure exerted by two powerful and well organised economic sectors, hydroelectric generation and irrigated agriculture. Their overwhelming legitimacy (supplying France and the world with food and energy!) enabled these two sectors to strangle restoration policies, though their hold is now loosening thanks to changes in social demands and in the sectors themselves[6].

These lobbies bear greater responsibility than others due to their capacity, approved by the State, to block public policies in favour of diadromous fish, policies that most elected officials, who could have acted as counterweights, continue to see solely as costs. Local governments, with few exceptions[7], have never seen the necessary efforts as investments, a source of culture (notably gastronomic), jobs, social ties, territorial development and local "identity".

Poutès or the politics of avoidance

One issue stood out starkly over the past years concerning salmon and restoration of habitats, the dismantling of the Poutès dam on the upper Allier river. In the 1930s, the Water and forestry service, recreational fishers and local tourism entities opposed its construction and warned on the risk of endangering what was already seen as an important population of salmon undertaking long freshwater migrations. The creation of an absolute barrier with a 10-km bypass of the Allier produced the same effect as all large dams on all rivers throughout the world, i.e. a severe drop in the salmon population from a few tens of thousands to a few hundred in the 1980s (see box ❶).

In 1986, ten years after the start of the Salmon programme, EDF installed a fishway, thus limiting its compliance, years late, to a best-efforts and not a performance obligation. The minimum flow rate in the bypassed section of the Allier remained ridiculously low at just a few hundred litres. Hydropeaking, intensified by the construction of the immense Naussac reservoir in 1980, was not modified either. Except during periods of favourable hydraulic conditions, the fishway was for years only partly effective for upstream migrations of adult fish. For the young salmon born upstream of the dam, the situation was no better because the main option for downstream migration was through the penstock and the turbines of the Monistrol d'Allier power station! The result of listing the Allier as a "migratory river", two national programmes and the continued decline in populations, monitored by CSP, in spite of efforts by a small fish farm, was an insufficiently effective fishway. Confronted with a public policy favouring "EDF revenues" over a "salmon economy requiring a complete overhaul"[8] and the collapsing salmon population, the NGOs initially pushed to increase the minimum flow rate downstream of the dam in the framework of the Loire vivante (Living Loire river) campaign[9]. They obtained that increase in part due to the change in the forces in presence manifested by the occupation of the Monistrol power station in the summer of 1991. Subsequently and in step with growing awareness of the importance of conserving the population, Loire vivante and WWF reiterated the initial demand of salmon fishers to dismantle the destructive dam when the license to generate electricity expired

6. We should mention efforts by EDF to "change its posture" with a seminar a few years ago on sustainable hydroelectricity to which the NGOs were invited and the procedure launched by the Committee for renewable energy (CLER), ADEME, NGOs and companies (France Hydroélectricité, EAF Federation of independent electricity producers, Gaz de France-Suez-CNR) to create a green hydroelectricity label similar to those created years ago in other European countries.

7. e.g. on the upper Allier river where in 1994 the tourist board created the salmon fish farm in Chanteuges which in 2006 became the National conservatory for wild salmon.

8. Between 1880 and 1960, salmon fishing drew tourists from all over Europe to the Allier river via the "Cevenol" train on the remarkable "Cevennes line".

9. From 1986 to 1994, dozens of NGOs, coordinated by WWF and FNE (France Nature Environnement), successfully opposed the plans for four large dams in the Loire basin promoted by EPALA (public development agency for the Loire basin which in 2004 became EPL), that now cooperates with WWF and various NGOs on restoring the river (Loire Nature, Poutès).

❶ Salmon in the Loire river

Salmon in the Loire river basin travel almost 1 000 km in freshwater to their spawning grounds in the Lozère department.
It is the last reproducing population with such a long migratory cycle.
An important characteristic is the fact that the fish spend several winters in the ocean. Of the original 2 200 hectares of spawning grounds in the Loire basin, 2 000 were rendered inaccessible by large dams starting in the 1800s. An example is the Decizes dam on the Loire, built in 1836. Already at that time, the spawning grounds had been cut in half, with only 1 060 ha remaining.

❸ A salmon on the Allier river.

❹ Poutès dam on the upper Allier river.

in 2006. A veterinary thesis (Cohendet, 1992) summed up the available knowledge on the subject and showed just how urgent the situation was for the salmon population, while making clear the overwhelming responsibility of the Poutès dam.

Following the success of Loire vivante in 1994, the Loire Grandeur Nature programme (see box ❷), launched the same year, profoundly transformed the projects for the Loire-Allier hydrosystem in that all plans for large dams were abandoned. Compared to the prior Retour aux sources programme, it spectacularly changed the scope of salmon restoration for a population that at that time had dropped to a few dozen individuals in the Allier river. France had finally adopted a clear, European-scale policy with considerable human and financial resources to save a "national and international treasure". But in fact, the Loire programme enabled France simply to reduce its considerable lateness in restoring its diadromous populations. More importantly, it did not address the issue of the Poutès dam (see photo ❹), in total contradiction with the restoration goals for the residual habitats in the last high-quality reproduction sites. In spite of the increasing risks of extinction, the clear need to remove the dam was simply ignored.

Restore diadromous populations, yes. But confront EDF and plan dismantling to conserve salmon and other diadromous fish, no. In 1995, in spite of the Loire programme and international conservation issues, the Industry ministry started the procedure to renew the Poutès operating license. In 2002, the NGOs[10] attempted to halt the procedure by proposing negotiations to the public authorities, ADEME and EDF to find local and regional alternatives for the renewable power generated by Poutès. With remarkable steadfastness, the State and the Loire programme (regional environmental agency, Water agency), but not EPL and CSP, refused to discuss the matter. The large dams on the upper Allier and elsewhere were sacred cows, not to be disturbed by efforts on the part of society in favour of nature conservation and a new form of development for rural areas. It required great efforts by the NGOs, the resulting press coverage, great human and financial investment in finding alternatives and an appeal to the EU to halt automatic renewal of the license, proposed with minor improvements, for a dam offering financial benefits, but at the cost of sacrificing salmon. Even though the dismantling of various dams by the Loire programme, starting in 1998, had clearly shown the exceptional vigour of the recolonisation by certain species, e.g. the return to the Vienne river in 2006 of 12 000 Allis shad (see photo ❺) and 92 000 sea lampreys, making possible the launch of a commercial fishing company. An insignificant detail for the State, a minor affair for the Loire programme.

Given the political forces in presence and the glaring contradictions between two public policies, the government finally decided at the end of 2006 not to renew the license, putting Poutès into the highly debatable "sliding deadline" procedure[11]. The dam continued to operate in a legal "never-never land". In 2007, the Grenelle environmental meetings, a context where such topics could be raised, requested dismantling of Poutès and of the Vézins and Roche qui Boit dams on the Sélune river in the Manche department. This decision was accompanied by the launch of negotiations on an "Agreement on sustainable hydroelectricity", bringing State services, energy producers, elected officials and NGOs together to discuss the future of the sector, compatible with the restoration of hydrosystems. Unfortunately, in February 2009, a few legislators from the Haute-Loire department blocked the procedure, disregarding public opinion in favour of restoring rivers and unwilling to see dismantling of Poutès as part of a national and European conservation effort for a unique population. One year later, in spite of a new report, requested by the legislators, that came to the conclusion that Poutès must be dismantled rapidly, the final decision has not yet been officially announced. Is it possible to speak of consistent public policy when a country, with a considerable budget and the support of the EU, cannot come to a decision on such a clear issue?

If, in the end, Poutès is simply a grotesque example in a country having problems adopting a new "environmental culture", it will not be a major problem. If Poutès is the last incident before shifting to a conservation policy worthy of the International year of biodiversity, that again will not be a major problem. But if it is the sign of unreformable foot-dragging on the part of our administrative and political elites in meeting the ecological challenges of the new century, it is most worrisome.

10. WWF, FNE, SOS Loire Vivante, Fédération nationale pour la pêche en France, Anper-TOS, the fishing federations in the Haute-Loire, Loire, Ardèche and Lozère departments, Fondation Nicolas Hulot and Fondation Nature et découvertes.

11. A number of dams in France are still in this situation where they are operated without a renewed license, i.e. no legal status.

❷ The Loire programme

The budget for the Loire programme 2007-2013 is approximately 300 million euros, including 34 million euros for a European operational programme. The "migratory fish" policy has amounted to 27 million euros since 1994.
Some 30 people work on its implementation in different organisations.

Shift the paradigm by focussing on conservation and local populations, addressing problems differently and changing the rules of the game

The examples above, among many others, shed light on a national incapacity to take seriously the issue of biodiversity conservation, particularly aquatic biodiversity. The glaring contradictions and the disconnect between the intentions and the results illustrate the difficulty for public policies to address complex and transversal issues in what remains a centralised and hierarchical system. The ecological crisis does not mix well with rigid administrative procedures that often seize up. Yet the scientific studies on the need to act now and the international commitments (red lists, CITES - Convention on international trade in endangered species of wild fauna and flora, and many other agreements) have not lost their validity. They pile up, unobserved, particularly by our technical elites who cannot quite shake their numbed immobility on the issue. We must however collectively attempt to develop or redevelop a feeling for nature and some of our political elites must publicly accept a collective culture that is concerned with nature. That is the case in the United States, a country that is not among the laggards of the civilised world. So why not in France? It is paradoxical in the country of Claude Lévi-Strauss, who studied so closely the links between nature and culture and who warned against industrial societies imposing their model everywhere, that so few politicians deliberately promote a new perception of nature, of naturalness, that would enable us to drop a certain arrogance and superiority toward the subject in France.

We must change. First our outlook, then our acts. This collective change, together, not top-down, i.e. following long debates to ensure acceptance by all and particularly the local populations, must also be managed by the State, which represents the overriding public interest and has the necessary legitimacy in the field of biodiversity conservation. Awareness of the growing threats will help. It will reinforce changes in the elite schools, modify the governance of national and regional agencies for the environment and energy, of the Water agencies which, paradoxically, have not made the necessary efforts because the lobbies for industrial agriculture and electricity are too strong.

We must also encourage massive injections of private money in restoration projects via the emergence of foundations that have not yet found their place in the national conservation community, in spite of their success over decades in other countries. Similarly, we must better integrate NGOs in conservation programmes and biodiversity-restoration efforts in the public interest, as well as users and local economic players who depend on biodiversity and the natural environment, such as commercial fishing companies, forest managers, bee keepers, farmers, etc. For the time being, the Grenelle agreement has not addressed these aspects.

We must also continue decentralisation efforts by granting greater responsibilities to local governments for nature conservation, which means that elected officials should also receive solid training in ecological matters. Our country must reform part of its excessively rigid system of governance. Conservation programmes operate correctly when people on the lower level, where there is a shared interest, understand the issues and the central State trusts them to manage their own future. Will our "cultural difference" in France continue to impose decisions from Paris concerning every aspect of programmes and efforts to restore sturgeon, eels and salmon in our waters?

❺ Shads are caught when they migrated from their fattening areas to the reproduction ones.

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Conclusion

If we take into consideration only the occasionally insurmountable conservatism of a part of our elites, one must wonder if it is possible to launch ambitious and consistent conservation policies in France, capable of meeting the goals set by the national biodiversity strategy adopted in 2004. But that possibility is in fact a probability given the need for action. After all, who would have believed just ten years ago that EPALA (Loire river management agency), which dreamt of dams all along the river, would become EPL, an agency intent on applying the principles of sustainable river management, eager to cooperate with NGOs and open to the values implied by a "wild Loire"? Who would have believed that along the Dordogne river with its many dams, it would be possible to stir EDF to set up the "Hydropeaking challenge" in 2007, which significantly improved reproduction and survival of alevins thanks to the major involvement of Epidor, the Dordogne river management agency? The contradictions, past and present, reflect our long history, but can be overcome, transcended and produce beneficial change for our regions and the people who live there, close to those magnificent animals that we have neglected for so long, diadromous fish.

We are certain of two things. The first is that if we truly want to stop biodiversity erosion, the solutions will be complex, necessarily collective and necessarily difficult to implement. The second is that the French must take a greater interest in the "ecological public good", strengthen their desire to participate in restoring the world and its biodiversity, and at the same time, the top-down oriented elites must accept the new ecological culture of a changing world. The job of NGOs is to mediate between these two poles, basing their action on scientific data and working with the support of economic players. After all, biodiversity is also a question of economics. Renewable and sustainable. And now, back to work! ■

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WWF and its partners published several documents between 2004 and 2008 on large dams, salmon and biodiversity, energy alternatives, dam dismantling, etc. WWF participated in a seminar (Renewable energy, salmon and us) organised in March 2007 to study how to reconcile renewable energy and biodiversity. See also the proceedings of the seminar Managing Atlantic salmon habitats and fish farms for restocking, organised by Onema in 2009.

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Spawning ground of common trout.