



ELSEVIER

Contents lists available at ScienceDirect

## Environmental Innovation and Societal Transitions

journal homepage: [www.elsevier.com/locate/eist](http://www.elsevier.com/locate/eist)



# Green tides in Brittany: What can we learn about niche–regime interactions?



Marion Diaz<sup>a</sup>, Ika Darnhofer<sup>b,\*</sup>, Catherine Darrot<sup>a</sup>,  
Jean-Eudes Beuret<sup>a</sup>

<sup>a</sup> ESO-UMR 6590, University Rennes 2, and AGROCAMPUS OUEST, Rennes, France

<sup>b</sup> Department of Economic and Social Sciences, University of Natural Resources and Life Sciences, Vienna, Austria

### ARTICLE INFO

#### Article history:

Received 1 September 2012

Received in revised form 9 March 2013

Accepted 26 April 2013

Available online 6 June 2013

#### Keywords:

ANT

Externalities

MLP

Niche–regime linking

Sustainable agriculture

### ABSTRACT

The coasts of Brittany (France) have witnessed algae blooms leading to 'green tides' since the 1970s. These are a typical example of a persistent environmental problem linked to intensive agriculture. We focus on how a mature niche, which proposes an extensive farming system, has extended its network, linked with the regime and drawn in resources. Within the Multi-Level Perspective, this case study is used to better understand the dynamics of niche–regime interactions. Using an ANT-based approach, we show how the network around the niche has evolved over the decades, how it adapted its core message, built alliances with diverse actors at niche and regime level, and recognized opportunities created by landscape pressures. This active work of building bridges through reinterpretation, of enrolling regime actors, of seizing windows of opportunity, highlights the 'social' aspect of social–technical transitions.

© 2013 Elsevier B.V. All rights reserved.

## 1. Introduction

Green tides appear on many seashores worldwide (Ye et al., 2011). The proliferation of macroalgae is a consequence of eutrophication, i.e. nutrient enrichment beyond the self-regulatory capacity of the

\* Corresponding author. Tel.: +43 1476543587.

E-mail address: [ika.darnhofer@boku.ac.at](mailto:ika.darnhofer@boku.ac.at) (I. Darnhofer).

marine ecosystem. In Brittany, the algae blooms have been recurring yearly in late spring and summer since the early 1970s (Morand and Merceron, 2005; Charlier et al., 2008). The green tides are perceived as problematic by a wide range of stakeholders, due to the threat they represent to marine ecosystems, the fact that the stranded algae make the bays unattractive to tourism, the cost incurred to collect and dispose of them, and due to health threats stemming from toxic gasses produced during algae decomposition on the beaches. Since they were first observed, numerous scientific studies have been completed to understand the causes, to model ecological relationships and to derive recommendations to avoid green tides. The general consensus among scientists is that algae growth is due to a combination of rivers discharging excessive levels of nutrients, and abiotic factors in sensitive bays, i.e. bays that are semi-enclosed and shallow so that water exchange with the open sea is reduced and temperatures are higher (CEVA, 2007; Ménesguen and Salomon, 1988). The key to address the problem is to reduce nitrate leakage from intensively used agricultural land. Although this has been proposed decades ago, and various policies implemented to encourage farmers to adapt production methods so as to reduce nitrate leakage, the green tides are still occurring yearly in a number of sensitive bays in Brittany.

Given that excessive nitrogen loading is one of the main causes for eutrophication of freshwater and coastal marine ecosystems (Millennium Ecosystem Assessment, 2005, p. 69), this case study allows shedding light on processes that stall a systemic shift towards more sustainable agricultural practices. Indeed, the example of Brittany seems indicative of many current sustainability problems: there is broad scientific consensus on both causes and mitigation measures, there are pressures by the civil society to address the problem, there is a well-developed niche that proposes alternative production practices, policy measures are designed and implemented to enable a change, yet there is little change 'on the ground': even decades later the green tides reappear every year. Focusing on the efforts by the niche to build links with the regime so as to induce change will allow us to contribute to the conceptualisation of niche–regime interactions, a key issue for bottom-up transition processes.

We will start this paper with a brief overview of the role and processes of niche–regime interactions and by providing an overview of the context of the green tides in Brittany, focusing on the case of Lannion Bay. Building on Actor-Network Theory we will highlight the networking and discursive practices between the niche and various regime actors. We will show how the niche – which promotes extensive grassland-based dairying – was able to develop links with regime actors at the local and the national level, thus drawing in resources and support. In this process, scientists – both marine ecologists and agronomists – as well as landscape-level pressures played a key role. The linking was also enabled by tensions within the regime, which is less homogeneous or unified than it may appear.

## 2. Conceptual framework and methods

Conceptually, we build the Multi-Level Perspective (Geels, 2005; 2011), and focus on niche–regime interactions. As Smith (2007) pointed out, insufficient attention has been given to the processes through which niches and regimes interact, although this is a key process in the take-off stage of a transition. Indeed, initiating a transition is not a matter of simply 'scaling-up' a technology that has been developed in a niche, but is a complex and often messy process (Stirling, 2008; Rotmans and Loorbach, 2010; Elzen et al., 2012a; Grin, 2012). For the niche to establish links with a regime thus rarely means that the technologies or practices it promotes are simply adopted by the regime, based on a rational choice process, e.g. because they are more 'efficient'. A transition towards a more sustainable regime will thus depend on contingencies and processes beyond the unilateral control of niche actors, including tensions within the incumbent regimes and pressures from the broader socio-economic landscape (Smith, 2007).

Smith (2007) explored how socio-technical elements developed by a niche could be taken up by the regime. He pointed out that to enable such a linking, the niche should have sufficient common ground with the regime, and the elements should be amenable to be 'slotted into' mainstream practices, i.e. added on without too much disturbance. Also, the practices should be sufficiently flexible to 'work' under the different context of the regime. Elzen et al. (2012b) focused on the linking process, especially as related to the introduction and spread of technical novelties. They highlighted that initially, the links between niche and regime are fragile and may easily be broken depending on how the process develops, thus suggesting the term 'anchoring' for these early stages of linking. In the case of successful

Download English Version:

<https://daneshyari.com/en/article/108235>

Download Persian Version:

<https://daneshyari.com/article/108235>

[Daneshyari.com](https://daneshyari.com)