

## Article

# A Neopragmatic Perspective on the Processual Nature of Landscape—Coastal Land Loss in Louisiana in the Context of Scientific Findings, Social Patterns of Interpretation, and Individual Experience

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**Abstract:** The changes on the Louisiana coast due to land loss can be understood as a process, and the social construction of these processes is highly complex. Due to this complexity, we will examine these social patterns of interpretation as well as individual experiences of coastal land loss in Louisiana within a neopragmatic meta-theoretical framework using several methods, data, researcher perspectives, forms of representation, and theories, with a special focus on the construction of coastal land loss by the media. For this purpose, comments below a YouTube video on a hurricane event on Grand Isle, Louisiana, as well as on-site interviews with people affected by coastal land loss, were qualitatively analyzed. The results were interpreted with the help of various theories such as the theory of three landscapes, Dahrendorf's conflict theory, Bourdieu's theory of social capital, and Luhmann's autopoietic systems theory. The research reveals patterns of interpretation, categorization, and evaluation of processes from an internal and external perspective that are highly morally charged.

**Keywords:** neopragmatism; three landscapes theory; autopoietic systems theory; symbolic capital; conflict theory; coastal land loss; qualitative content analysis; Louisiana; effects of climate change



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## 1. Introduction

Changes in landscape in general, and on the Louisiana coast in particular, are often understood as 'transformation' (see, for example, [1–4]). In this article, we understand change as process, as a special case of transformation. Addressing the processuality of landscapes means emphasizing the goal-directedness but also the active element of influencing the material foundations of landscape; transformation can also be understood passively and undirectedly [5]. In addition, the concept of process focuses more strongly on the context-dependency of changes than the more general concept of transformation is able to do [6,7]. Landscape processes are contextualized on and between three levels: The first level refers to the physical space interpreted as landscape, the second to that of individual consciousness, and the third to that of socially shared patterns of interpretation, evaluation, and categorization. Even this brief outline of the complexity of landscape processes makes it clear how little landscape, especially if its temporal dynamics are to be examined, can be understood from the perspective of a single theory. In this respect, we will approach the topic of coastal land loss in Louisiana in the context of scientific findings, social patterns of interpretation, and individual experience in a neopragmatic way. In brief, neopragmatism combines the tradition of American pragmatism with the tradition of the continental utopian philosophy of language. In this work, it forms a metatheoretical basis. Against the background of considerations of suitability, it enables a combination of different theories, methods, researcher perspectives, data, and forms of representation.

This paper is an expression of a larger research program (see, e.g., [8–10]) whose aim is to make philosophical neopragmatism available to regional geography in order to provide it with a theoretical framework that integrates social constructions, individual contributions, and material foundations. In this paper, we focus on the social resonances of land loss in Louisiana (Louisiana being the space in which the neopragmatic research program is tested).

Our article pursues the following objectives. At the level of the research object, our aim is to identify different patterns of interpretation, categorization, and evaluation of landscape processes in the context of coastal land loss in Louisiana and examine their interrelationships. On the level of landscape theoretical research, our aim is to understand the differentiation of landscape-related constructions and thus contribute to the understanding of the social construction of landscape as well as the individual experience of landscape. On a meta-theoretical level, the aim of our article is to test the suitability of (further) neopragmatic combinations of theories. This article aims to contribute to the understanding of the perception, interpretation, and evaluation of landscape processes that are partly caused by climate change, which is commonly considered to be at least partly based on the unsustainable behavior of a society.

In Section 2, neopragmatism as the meta-theoretical framework of this paper and the various theories used are examined. Section 3 then introduces the theory of the Three Landscapes derived from Popper and Section 4 deals with the construction of the world through media. In order to gain a better overview of land loss in Louisiana, the processes causing coastal land loss are then explained in more detail in Section 5. In Section 6, we will explain the research design before going into detail about the empirical findings in Sections 7 and 8. Section 9 discusses the analysis with reference back to theory, which is followed by Section 10, offering a final conclusion.

## 2. Neopragmatic Metatheoretical Framework and Theoretical Perspectives

Neopragmatism forms the meta-theoretical basis of the research program for the neopragmatic justification of dealing with regional geographies. This is necessary because triangulations of theories, methods, data, researcher perspectives, and the integration of people with different degrees of professionalism, as well as the presentation of results, are carried out.

In philosophy, neopragmatism is associated in particular with Richard Rorty [11–16], but also with Hilary Putnam [17–19] (detailed introductions to neopragmatism can be found in [20–24]). Neopragmatism is based on American pragmatism, which favors practical criteria over abstract theory. The criterion for ‘truth’ is the success of ideas, “interests, values and goals” [25] (p. 1544). Truth becomes what “happens to an idea. It becomes true, it is made true by events” [26] (p. 67). This pragmatic understanding of truth ignores normative/moral meanings (‘good’ vs. ‘evil’) (cf. [27]). With his concept of ‘warranted assertibility’, John Dewey specifies the pragmatic concept of truth [28,29]: Dewey calls ‘true’ that which has already been elaborated upon by means of scientific methods and results and that which can be described as valid by means of the methods and results to be developed in the future (cf. [29,30]). An idea that—as will become clear later—also characterizes neopragmatism.

Neopragmatism draws on the basic features of pragmatic thinking (in particular the idea of suitability, but also skepticism towards the idea of definitive knowledge). However, it expands these basic features to include linguistic theory and, in part, post-structuralist approaches [31]. This broadening of the perspective of neopragmatism is summarized by Barnes [25] (p. 1543) as follows: “In addition to the usual American suspects (Rorty’s favorite was Dewey), his worldview also included European philosophers such as Wittgenstein, Heidegger, Foucault and Derrida”. Rorty’s turn towards language theory is also evident in his replacement of the concept of ‘truth’ with ‘redescription’. This term not only reveals the constitutive meaning of language but also the contingency of the world [31]. Against the background that neither knowledge of nature nor moral convictions

or insights into social facts represent the image of any kind of ‘reality’ [31], the concept of ‘discovery’ (of a context) also becomes obsolete. Rorty replaces it with the concept of ‘invention’ [12,13,31]. With recourse to the pragmatic tradition, fundamental dichotomous differences such as lie/truth or appearance/reality are replaced by the understanding of useful or less useful ways of speaking [32]. In the tradition of Dewey, Rorty understands ideas (i.e., also scientific theories) as instruments or tools that are intended to enable people to access them in a way that enables them to solve problems [33,34].

Contingency, one, if not the central concept in neopragmatism as coined by Rorty, denotes that which is neither necessary nor impossible. For Rorty, contingency stands “at one end of a series of opposites, at the other end of which are terms such as *necessary in different ways, essential, immanent or unconditional*” ([35] (p. 958), emphasis in original). Neopragmatism is associated with the insight “that [one’s own] central beliefs and needs are contingent” [36] (p. 14). This has implications not only for philosophy: “For it is not enough to recognize that a multitude of other vocabularies exist alongside one’s own; rather, one must relate this observation to anti-foundationalist conceptions of language, man and the world in order to be able to make the diagnosis of contingency” [37] (p. 158). Rorty [12] understands ‘vocabularies’ in reference to Wittgenstein’s [38] ‘language games’, as common platforms of social justification practice. Justification, in turn, is contextually bound to the vocabulary of a concrete linguistic community [21]. As a result of the diversity of linguistic communities, there is a need for the justification of one’s own approaches to the world [39], whereby ‘justification’ is not to be understood as ‘proof’ or ‘substantiation’ but as “developing reasons that speak in favor of this conviction” [40] (p. 259).

The quality of redescription is measured by their suitability, which highlights the pragmatic roots of his theory. Accordingly, redescription—whereby the connection to Rorty’s central concept described above becomes clear—“contribute to demonstrating the sheer contingency of our concepts and perspectives. Once a person recognizes the contingency of their inherited definitive vocabulary and other definitive vocabularies, they are more inclined to experiment with different descriptions or conceptions of themselves and others, as well as alternative ways of living” [41] (pp. 462–463). Redescription becomes necessary when a ‘time-honored’ vocabulary has become questionable. Questionability is measured by the fact that a vocabulary is no longer able to fulfill its claim to suitability [13]. Furthermore, redescription can be understood as an attempt to deal with unsolvable problems, unsolvable conflicts, or unsolvable anomalies, in short, to regulate how to deal with them without producing a fundamental and universally valid solution. Old vocabularies are not simply shelved in redescription but form the basis of a new ‘fabric’. Redescription is ultimately a process of reweaving ‘traditional’ vocabularies into a new vocabulary [35]. Remnants of old vocabularies that prove to be suitable are thus recycled [13,35]. The quality of the redescription is measured, firstly, by its current suitability to interpret the ‘world’. Secondly, the quality of a redescription is measured by its openness to become part of the fabric of a future redescription [13,35].

Scientific redescription can be understood as an attempt to generate a suitable and contingent interpretation of complex questions. The focus on suitability, the tool character of theories, and the anti-fundamentalist attitude of neopragmatism suggest a combination of theoretical perspectives (but also methods, researcher perspectives, data, etc.) when dealing with complex questions (for more details, see [8–10,42,43]). The combination of theories is measured on the one hand by their expected suitability for redescription (to be confirmed in the research process) and on the other hand by their acceptance of contingency. The latter criterion consequently excludes essentialist understandings of the world from integration into a neopragmatic theoretical framework.

Neopragmatism forms the basis for combining theories (including methods, data, etc.) that have different claims to validity, even those that are in competition with each other. As explained above, it is about generating useful redescription of the world, following the pragmatic legacy of neopragmatism to pursue self-contained science that is consistent in itself, based on principles designed for eternity. Neopragmatism is interested in making

suggestions for the contingent interpretation of the world with the aim of contributing to solving problems (an approach that can also be seen in Popper, e.g., [44])—in our case, the social interpretation of land loss in Louisiana.

In this study, we draw on three theories: firstly, Niklas Luhmann's autopoietic systems theory; secondly, Pierre Bourdieu's theory of symbolic capital; and, thirdly, Ralf Dahrendorf's conflict theory. The autopoietic systems theory of Niklas Luhmann [45,46]—in the tradition of classical social science systems theories—assumes that the social world can be divided into social systems that are entrusted with specific tasks for society as a whole, such as the regulation of scarcity for the economy, fundamental decisions of social development for politics, the production of knowledge for science, ensuring compliance with legal standards for the legal system, and so on. Luhmann now assumes that these social subsystems are only able to construct the world according to their system codes and only do so when they are set in resonance. For example, landscape processes only become relevant for the economic system when money is gained/lost, for the political system when this enables a gain in power or threatens a loss of power, for the scientific system when (publishable) knowledge can be generated, etc. In our context, this approach is interesting because it allows access to the specific constructions of coastal land loss in the individual social subsystems.

This view is supplemented by Pierre Bourdieu's symbolic capital approach [47,48]. He assumes that three relevant forms of capital are traded in society: economic capital (which can be exchanged for money), social capital (resilient social networks), and cultural capital (education, educational qualifications, and works of art). On the one hand, these capitals can be exchanged for each other; on the other hand, together, they form the basis of symbolic capital, by which a person's position in society is measured. Economic, social, and cultural capital are neither equally distributed in society nor, as a rule, individually—so people with a high level of cultural capital do not necessarily also have a high level of economic capital (a frequently cited example is the cab driver with a doctorate in philosophy) and vice versa (classic here: the *nouveau riche*). This approach by Bourdieu—in combination with a-, b-, and c-modal construction patterns of landscape—serves to examine distinctive communication processes in the context of the communicative construction of coastal land loss in Louisiana.

The third theoretical approach to the communicative construction of coastal land loss in Louisiana is Ralf Dahrendorf's conflict theory [49–51]. In short, Dahrendorf assumes that social conflicts are a normality in all societies and have a productive potential. However, they can only develop this productive potential if they are regulated and not fought until bloodshed. In order to be able to settle conflicts productively, he formulates a number of prerequisites: Parties to the conflict must be as organized as possible, recognize the legitimacy of the position of the other party in the conflict, and comply with the procedural rules for settling the conflict, and there must be a third party who, should no agreement be reached between the parties of the conflict, is in a position to end the conflict through a powerful intervention (for Dahrendorf, this function is usually assigned to the state). With the help of Dahrendorf's conflict theory, we want to trace the lines of conflict in the context of coastal land loss in Louisiana and assess whether and to what extent the possibility of a productive conflict settlement exists.

Before we discuss the different methods and data types, we will address the analytical approach of our study, namely, the theory of the Three Landscapes.

### 3. The Theory of the Three Landscapes as an Analytical Approach

The theory of the Three Landscapes is developed from Karl Popper's Three Worlds theory [52–54]. The development of the theory of the three landscapes has been explained and justified in detail elsewhere (e.g., in [9,55–57]). It has also proven its worth in landscape research on various occasions (e.g., in [58–61]). It offers an analytical framework that contributes to understanding the complexity of the concept of landscape. Such a differentiation is necessary because the concept of landscape—even in specialist terminology—has a large

‘semantic yard’. It unites aesthetic, ontological, and moral constructions, blending the level of material objects with that of social and individual construction.

Popper divides the world into three levels [52–54]: world 1 comprises the world of material objects, world 2 is that of individual consciousness, and world 3 is that of cultural content. Worlds 1 and 3 are connected via world 2. Three spaces can be developed accordingly: space 1 refers to material objects in a spatial arrangement, space 2 to individual ideas of space, and space 3 to socially shared ideas of space. Landscapes 1, 2, and 3 can also be formed analogously. The difference between space and landscape lies on the one hand in the constitutive level: individual spatial ideas arise from the elementary experience of space 1, whereas landscape is a societal synthesis guide; the ideas of landscape 3 are conveyed to landscape 2 through socialization and then projected into space 1 as landscape 1. On the other hand, landscape can also be understood as a subset of space, so landscape 1 consists of a socially preformed selection of objects of space 1 that are subjected to a synthesis (blades of grass are generally not understood individually as part of landscape but after a previous synthesis to ‘meadow’). In addition, the understanding of landscape 3 extends beyond the boundaries of space 3 when the term ‘landscape’ is used metaphorically to describe, for example, the synopsis of ‘something’, such as political landscape, religious landscape, or educational landscape.

In the following, the general Three Worlds Theory is operationalized for landscape research. In doing so, it follows a tradition that—with regard to a more general spatial theory—has been pursued for some time, particularly in social geography (see, among others, [62–68]). The theory of the Three Landscapes forms the differentiating basis of further investigation. On the basis of the theory of the Three Landscapes, the following section will analyze whether the material dimension of landscape is addressed, that of individual attention, or that of social construction. The theory of the Three Landscapes was developed elsewhere; it is a hermeneutically derived understanding, which is derived on the one hand from the sociology knowledge of Peter Berger and Thomas Luckmann [69,70], with recourse to the social phenomenology of Alfred Schütz [71,72], and on the other hand from numerous empirical studies (qualitative and quantitative; see, e.g., [73–78]). It forms the basis for further explanations of landscape theory. As the derivation and justification of the theory have been explained in detail elsewhere (see above), we will only summarize it briefly here.

Landscape 3—as the constitutive level of landscape—is culture-specific (see, among others, [79–81]) and socially differentiated. In the following, we will deal with the social differentiation of landscape 3 and subsequently also landscape 2 and landscape 1. The available patterns of interpretation, categorization, and evaluation in relation to landscape are socially distributed differently. This unequal distribution can be assigned to different modes of landscape construction. The a-modal mode of construction refers to the ‘native normal landscape’. This is created in childhood and adolescence under the guidance of significant others (parents, siblings, etc.; [82]) in the experience of space 1, especially in the surroundings of the parental home. This is constructed as ‘normal’—regardless of whether it corresponds to stereotypical aesthetic ideas or not. The normative expectation of space 1, interpreted as landscape 1a, can be described as stability. The b-modal landscape construction is that of the ‘commonsense landscape’. The formation of this understanding of landscape takes place primarily in youth, and is not completed in later life, but generally takes place throughout life. It is based on content from school lessons, internet videos, illustrated books, television content, etc., and includes aesthetic and increasingly also ecological stereotypes. In normative terms, the claim to space interpreted as landscape 1b is linked to compliance with these stereotypes (see, for example, [83–85]). The c-modal landscape reference is based on ‘expert-like special knowledge’, which is acquired in particular through specialized studies. These special bodies of knowledge are strongly linked to the various specialist traditions. The c-modal construction of landscape is, firstly, normatively strongly linked to the fit of space 1 to the technical requirements of landscape 1c; secondly, it is also characterized by strong paradigmatic interpretative competitions; and, thirdly, it is strongly

oriented towards innovation (more on this: [86–90]). The b-mode is characterized by selectively adopting patterns of interpretation, categorization, and evaluation of landscape from the c-mode. The selectivity results in particular from a reduction of statements while (largely) ignoring complex technical contexts, theoretical foundations, and methodological considerations (more on this: [91–94]).

These statements represent a clear abstraction. They serve to facilitate an understanding of the social construction of landscape and are generated under neopragmatic conditions in order to be absorbed into more suitable approaches. Approaches, for example, that take greater account of cultural influences.

This differentiated modal construction of landscape can be summarized as follows. Highly different landscapes 1a, 1b, and 1c are synthesized into space 1, whereby the landscapes in a-mode clearly differ from one another as a result of individual formation. The landscapes in the c-mode also differ very clearly from one another as a result of disciplinary ties as well as different paradigmatic orientations. As a result of the general internet-based availability of c-modal content, among other things, b-modal access to landscape is also differentiated—and this is certainly interest-driven—which we will also illustrate in the presentation of our empirical results. Before we turn our attention to the social construction of coastal land loss, we will—since we have a strong focus on social media communication—take a look at the mechanisms of the construction of the world by mass media in the following section.

#### **4. The Construction of the World by the Media—Introductory Remarks**

The influence of the media on our perception of the world has been the subject of scientific and, in particular, geographical studies for some time (among others, [95–115]). At the center of spatial-scientific studies of the media are often, therefore, questions regarding the influence on and questioning of constructions of reality, the creation of world views by the media, and the geographies created by the media [98,116] (p. 89). This article is based in part on the interpretation of mass media communication and the corresponding construction of the section of the physical environment discussed. Therefore, in the following paragraph, some overview-like remarks on the media construction of the world are given, which should lay the foundation for further analysis.

Mass media are ascribed a central role in the construction of the world because “[t]he mass media play a profoundly significant role in the appropriation and interpretation of the meanings of social reality. They have the capability to shape conceptions of our physical, economic, political, and social environments” [117] (p. 194). According to constructivist understandings of the world, media already provide “mediatized, often artificially produced images of reality through selection, perspective, coloring, lighting, language and commentary” [118] (p. 14) and are not in a position to convey objectivity or even ‘reality’. This is why media are often referred to as “worldview generators” [116] (p. 89) or “reality apparatuses” [119] (p. 98). Sometimes the influence on the viewing expectations of the spaces about which media impressions are conveyed goes so far that the media-constructed viewing expectations and the space that can be physically found on site can no longer be reconciled (see also [120]). Luhmann [121] (pp. 14–15) speaks with regard to the ‘reality’ of the mass media of a “doubling of reality” that takes place within the system of the mass media through observing their operations. He describes the analysis of mediated information as the “observation of observers” [121] (p. 154) so that the reality of the mass media only becomes apparent through a “second-order observation” [121] (p. 153). Of particular interest here are the links between media, space, society, and the individual because media communication attempts to address society as a whole and bring its social subsystems into resonance [121].

#### **5. Coastal Land Loss in Louisiana—Some Basic Features**

Before turning to the media and individual constructions and perceptions of coastal land loss in Louisiana, we will give a brief overview of the processes causing coastal land

loss (for a more detailed elaboration, see [91,113,122–127]). In this section, we largely refer to scientific findings. These are mostly derived from a basic positivist perspective. However, they have proven their usefulness in dealing with coastal land loss in Louisiana; after all, humans are somatic beings [128,129]. The aim of neopragmatic landscape research is to enable an integrative consideration of materiality, individual approaches, and social constructions. In this respect, positivist studies are also used as a substrate for the investigation of landscape construction processes.

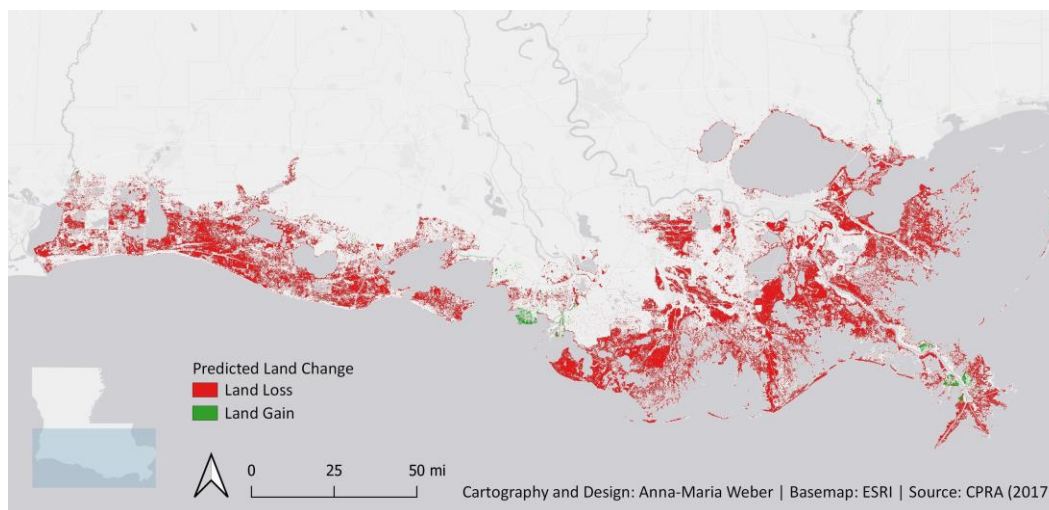
The processes leading to coastal land loss (space 1) are manifold. Some are beyond the control of humans; others are caused by humans and result from specific systemic logics of the utilization of space 1.

The glacial isostatic subsidence caused by the melting of the North American inland ice after the last glacial cannot be influenced by humans. As a result, coastal space 1 of Louisiana is subsiding as the lithosphere relieved in the north is now rising [130]. The subsidence process is intensified by the additional load from Mississippian sediments. These represent an additional regional load on the lithosphere, pushing it into the asthenosphere [122,131]. This initially loosely deposited sediment is also subject to compaction, causing the earth's surface to sink. In addition, parts of the poured sediments tend to become mobile under load. This leads to displacement towards the Gulf of Mexico but also to the formation of salt diapirs [131–133]. The dissolution of the salt in these diapirs in turn results in the subsidence of overlying sediments.

However, the processes leading to Louisiana's coastal land loss are also secondary consequences of human activity. Extensive levees were constructed along the Mississippi River, particularly to prevent flooding. However, these also prevent the extensive sedimentation that accompanies the floods. Accordingly, a process that had compensated for the subsidence of the regional earth's surface for a long time is missing [134]. In order to create suitable areas for agricultural use but also for infrastructure, industrial uses, and settlements, a drainage system was developed to drain land. Drainage, in turn, accelerates subsidence in mineral soils and oxidation in organic soils. Both processes lead to a lowering of the ground surface [133,135]. This subsidence is further increased with high loads (such as large buildings like in downtown New Orleans) [131,133]. The extraction of oil and gas (characterized by c-modal access) is associated with a pressure loss in the reservoir rock. The extraction of raw materials also leads to the ingress of water into salt diapirs. Both processes lead to surface subsidence [133,136]. In order to transport material, technical equipment, and people on the one hand and oil and gas on the other, the coastal region of Louisiana has been crisscrossed by countless pipelines and canals (space 1c). This is associated with the intrusion of salt water, which disturbs the autochthonous vegetation, vegetation that has already been damaged by invasive species (such as Roseau scale insects) [137,138]. Not least, these processes result in the loss of buffer zones that offer protection from approaching hurricanes from the Gulf of Mexico—the frequency and strength of which are expected to increase further as a result of anthropogenic climate change (see, e.g., [139])—before they hit the mainland and inhabited areas. The result is ever greater destruction and a greater reach of the hurricane inland. However, the strongest effects are felt on the Barrier Islands on the Gulf of Mexico, over which hurricanes and storm surges pass almost unchecked—and thus contribute to further erosion through strong waves and squalls (among others, [1,137,140–143]). These processes make the Louisiana coast particularly vulnerable to the consequences of anthropogenic climate change. This applies not only to sea level rises but also to the predicted increase in the number and strength of hurricanes (space 1 with effects on spaces 2 and 3; [122]).

All in all, these various processes have resulted in high amounts of land loss on the southern Louisiana coast. For example, the relative sea level rise in the Gulf of Mexico resulted in an annual land loss on the southern coastal area of Louisiana of approximately 77 km<sup>2</sup> (30 mi<sup>2</sup>) in the years between 1978 and 2000 alone [1]. In total, sea levels at the northern coast of the Gulf of Mexico are projected to rise from 0.34 cm to 1.9 m by the end of this century relative to that of the beginning of the twenty-first century [139,144]. These

projections would entail a further loss of coastal land until the end of the century between 2188.97 km<sup>2</sup> and up to 5875.27 km<sup>2</sup> (which equals between 9% and up to 24% of the wetland area calculated in 2007; [144,145]). Resulting from the processes of coastal land loss, the Coastal Protection and Restoration Authority of Louisiana is expecting annual damages between USD 15.2 billion up to USD 24.3 billion as well as annual structural damages between 14,000 and 22,000 structure equivalents within the next 50 years without protective and restorative measures [146]. Figure 1 shows that, according to a 2017 projection by the Coastal Protection and Restoration Authority of Louisiana (CPRA), even more areas of Louisiana's coastal region are projected to disappear within the next 50 years [147,148].



**Figure 1.** The map shows the predicted massive land loss within the next 50 years (own representation based on [147]).

## 6. Research Methods

In accordance with the neopragmatic meta-theoretical basis of this article, we not only relied on the integration of different theoretical foundations—as was made clear in the previous sections—but also approached the object of research empirically by means of a triangulation of methods and data. In order to identify the different patterns of interpretation, categorization, and evaluation of landscape processes in the context of coastal land loss, examine their mutual relationships, and understand the differentiation of landscape-related constructions, we relied empirically on two approaches and research objects. We examined interviews and conversations conducted on-site in southern Louisiana as well as the comments of a media discussion in response to a topic-related YouTube video. Using these two data corpora, the individual patterns of interpretation and construction could be detected and categorized particularly well. In order to do justice to the amount and density of information in the statements and result in categorization of the statements, we methodically approached them using qualitative content analyses according to Mayring [149] and Kuckartz and Rädiker [150]. The reason for this is that we tried to discover patterns of interpretation, for which a qualitative approach was suitable since qualitative research is “providing process-based insights, understandings of the lived experience of different conditions, and generating possible causal explanations for phenomena” [151] (p. 5). Qualitative methods do not aim to be representative [152]. However, in order for qualitative research not to be anecdotal and unscientific, three conditions should be met according to Cope and Hay [151]. These include the triangulation of different data and methods, which is also the basis of the neopragmatic approach that we pursue in this work. The second dimension is transferability, which means that the “goal of the production of knowledge is to contribute to broad understandings of the world” [151] (p. 11). Since there is already research on the topic, we will address later in the discussion how our study contributes to the current state of research. Ultimately, the third dimension of good qualitative research is



that of transparency, i.e., the awareness of the presence of biases and critical self-reflection, which we achieve through our disclosure of methods including their disadvantages [151]. Consequently, the aim of this paper is to understand the different perceptions and interpretations of individuals based on inductive categories in an interpretative and understanding way. The opportunity offered by qualitative methods lies in a sensitivity to precisely this diversity and differentiation that exist in society (among others, [153]). The use of two different sets of data as well as different ways of collecting and interpreting them (methods as well as data triangulation) allowed us to investigate our main research aim—how the coastal land loss in Louisiana is precepted and interpreted by different individuals (affected as well as not-affected ones)—from different perspectives. The exact procedures and application of the methods are emphasized in more detail in the following two sections.

### *6.1. Qualitative Content Analysis of YouTube Comments on the Media Discussion about Coastal Land Loss in Louisiana*

The comments under a YouTube video were used to examine the media construction of coastal land loss. The possibility of expressing oneself more freely through anonymization on social media [154] as well as the increased importance of online media in recent years [155] make the study of YouTube comments an interesting subject of research. YouTube comments also provide the opportunity to access a large volume of publicly available data [156] in which people's opinions and reactions are shared and a wide variety of topics are discussed.

The YouTube video was selected via the YouTube search query "Hurricane Ida Grand Isle". Grand Isle is a permanently inhabited barrier island located in Louisiana's Jefferson Parish [157] that, due to its high exposure to storm surges and hurricanes, is confronted with particularly strong erosion activities [158–160]. The Coastal Protection and Restoration Authority (CPRA) assumes that Grand Isle is one of eleven parishes in Louisiana that will be uninhabitable in the coming decades [161].

In order to analyze the media construction of the coastal land loss on Grand Isle in a targeted manner, the video was selected according to the following criteria:

1. Spatial criterion: Since the situation on Grand Isle is to be addressed, only videos from Grand Isle were considered.
2. Time criterion: The time frame was defined broadly in the selection in order to include both the event of the hurricane itself and its consequences. This means that videos were also included in the selection in which, for example, the build-up to Hurricane Ida or the situation a few months after the event was discussed.

Based on these selection criteria, several videos could be considered. Even if the number of cases of qualitative studies was much less significant than that of quantitative designs [152], the selection of the video still fell on the one with the largest number of comments, thereby showing the most impact. From the philosophical, pragmatic perspective framing this article, the video with the most comments was thus seen as the most useful by viewers and, consequently, for our analysis [162–164]. Qualitative research aims to achieve saturation [165] and, since analyzing comments is shorter compared to other qualitative methods, such as analyzing interviews, an attempt was made to use the largest possible database. Based on one video, saturation could already be achieved, which is why adding another video would not have led to any further insights. The saturation is also reflected in the comparability of the results with those of similar research [91]. We therefore selected a video from the Live Storms Media channel entitled "8-31-2021 Grand Isle, La Hurricane Ida aftermath—widespread destruction drone" [166]. The video was uploaded on 1 September 2021 and has since received 845 comments (as of 2 February 2023). The video shows a drone flight of Grand Isle after Hurricane Ida that reveals the damage after the event, such as destroyed buildings, damaged infrastructure, and damage to other property and objects such as means of transportation. Parts of the island are still flooded at the time of filming and debris and rubble are scattered across the island.

The comments were then subjected to an inductive, content-structuring qualitative content analysis according to Kuckartz and Rädiker [150]. The analysis was carried out using MaxQDA 2020 software. Content-structuring qualitative content analysis is particularly suitable for exploring media constructions as the focus is on the content aspects that are to be identified and structured [167]. The procedure is divided into seven phases by Kuckartz and Rädiker [150].

The first phase is described by Kuckartz and Rädiker ([150], translated by the authors) as “initiating text work, memos, case summaries”, in which initial ideas for categories are drawn up. In the second phase, the first main categories are developed, based on the categories of the first phase. In this phase, a codebook was already created. The main categories had a high level of abstraction and referred to the argumentation patterns and intentions of the persons commenting. The category “not part of the analysis” was introduced, which contained comments that were not suitable for analysis for various reasons. This included, for example, duplicate, incomprehensible, and non-English comments. A first test run with the main categories was carried out and led into phase 3, i.e., the first coding process. The main categories were assigned to the respective comments, whereby a comment was understood as a coding unit in order to enable a frequency analysis of the categories. In phase 4, subcategories were inductively formed. The subcategories were based on a lower level of abstraction than the main categories. This was followed by a second coding process in phase 5, in which the comments were assigned to the subcategories.

Once the comments had been fully coded, the codebook could be finalized. The codebook was then used to categorize the data in its entirety in a final coding process. In the case of comments that could not be clearly assigned to one code, the dominant statement was selected. With the category system and coding, secondary evaluation steps could then be carried out in phase 6 [150] (p. 147). For this purpose, a comparison of the main and subcategories and the formation of interpretative patterns was carried out. The results of the code frequencies were also quantified and visualized. In the last phase, the results were written down and the procedure was documented.

## 6.2. Guided Interviews and Ero-Epic Conversations to Analyze the Individual Experience

To analyze the individual experience of coastal land loss in Louisiana, we conducted a total of 27 guided interviews and 30 ero-epic interviews with a total of 71 people living in the coastal region of Louisiana between May and October 2022. Girtler [168] characterizes ero-epic interviews as a form of interview that arises from chance encounters in everyday life and follows a topic-centered but open and unstructured form, thus creating a low-threshold environment for interviewees. The open structure of the interviews allows the interviewees to speak freely and present their points of view [169,170]. As we wanted to shed more light on the constructs of land loss, this method was more suitable compared to structured interviews. The main interview locations were lingering places with a relaxed atmosphere, such as cafés, lively squares (for example, on university campuses), or tourist attractions, where we approached specific people and asked them for an interview or struck up a conversation through chance encounters and spontaneous interactions. The interviews lasted from a few minutes to over an hour, with up to four interviewees taking part. All interviewees had in common that they lived in southern Louisiana; no further restrictions were made regarding age, ethnicity, gender, or socio-economic status as the focus of the study was on the individual experience and personal perception of diverse individuals—not on a group that was as homogeneous as possible. In total, we conducted interviews at 13 different locations in the coastal region of Louisiana. Figure 2 shows the locations where interviews were conducted, with the point size of the locations increasing linearly with the number of interviews conducted at that location. Among the interviewees, there was little physical distance between their homes and the Louisiana wetlands and areas affected by coastal land loss. Nevertheless, the different distances to the coastline and wetlands reveal possible differences in the interviewees’ perceptions.

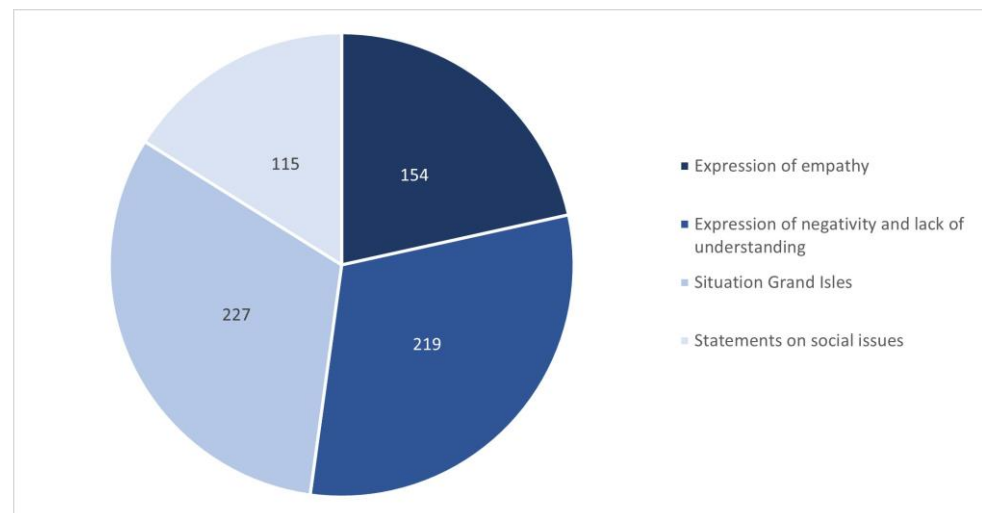


**Figure 2.** The map shows the locations where the guided interviews and ero-epic interviews were conducted. All locations were within the coastal region of Louisiana and close to the wetlands (own representation based on [171,172]).

The questions used to stimulate the ero-epic interviews were based on the questions used in the guided interviews, which made it possible to create a level of comparison between the interviews. The questions related to individual perception, personal experience, and the assessment of one's own impact and resulting measures were aimed at working out different patterns of interpretation and evaluation. For this purpose, the collected material was subjected to inductive coding after the interviews were conducted and evaluated in the sense of a summarizing content analysis according to Mayring's scheme, as this enables the systematic investigation of qualitative content with regard to different interpretations and attributions [149,170,173,174]. However, the interviewees were only a small, selective subset of the diverse coastal population of Louisiana. Baton Rouge and New Orleans are overrepresented in the data corpus due to the fact that these are the two most populous places and provided busy areas in which to conduct the interviews. In addition, many of the people and groups of people we approached, especially groups with less symbolic capital, such as ethnic minorities or the socio-economically disadvantaged, refused to be interviewed, revealing a lack of trust in strangers on the one hand and research fatigue on the other. Lambert et al. [175] (p. 12) had a similar experience with their interviewees in their study, which they attributed to the "repeated experience of turning one's personal experiences into an object of study for outsiders".

## 7. The Media Construction of Coastal Land Loss in Louisiana

The results of the analysis of the YouTube comments are presented below. (Comments have been grammatically adjusted and spell-checked to improve readability. Emojis have been removed and comments anonymized.) The comments are numbered consecutively; responses to comments are displayed with a hyphen (e.g., the sixth response to the 200th comment is referred to as K200-6). In total, the 715 comments were divided into four categories (cf. Figure 3).



**Figure 3.** Main categories of the analysis of media construction via YouTube comments (own illustration).

### 7.1. The Situation on Grand Isle

The first pattern of interpretation consisted of descriptive explanations as well as personal opinions on the situation of Grand Isle. However, the comments were mainly about how the physical environment of Grand Isle is perceived.

These included factual statements about Grand Isle in general. For example, there were statements about Grand Isle without any reference to the hurricane event (K042-6) or statements that only referred to facts about hurricanes, without reference to Grand Isle (e.g., K025-1). The future of Grand Isle and hurricanes was also considered in this context (K266). The event itself and its visible consequences were also discussed. On the one hand, there were the physical consequences, such as descriptive comments about the destruction (K037), and on the other hand, socio-economic consequences were explained (K004-07). Comparisons were also frequently made, especially of the destruction and damage caused by other, similar events (K168), which led to the evaluation and classification of the event, e.g., that the damage caused by Hurricane Ida was worse than that of another event and what significance this would have for the duration of the reconstruction (K195). It was also discussed whether an evacuation had taken place (K002). A frequently discussed aspect was the construction, which was discussed in terms of buildings and structures and their quality and functionality, especially in view of the hurricane exposure (K078). The degree and differences of destruction between the buildings were frequently discussed (K077) and suggestions were made for better, more functional construction methods and better coverage of the legal building codes (K093-6). The effectiveness of hurricane protection measures was also discussed and questioned (K004-06).

### 7.2. Statements on Social Issues

Another pattern of interpretation was that the commenters made statements about social issues that also contained opinions. While some of these statements were clearly associated with Grand Isle, others often only tangentially touched on the subject of Grand Isle and Hurricane Ida and expressed general views evoked by the event. These commenters' statements were often about assigning responsibility for the event.

Responsibility was sought in religion or higher forces, for example, when God was assigned responsibility for Hurricane Ida (K296). At the same time, there were also expressions of criticism of religious practices as a counter-reaction to people praying for the people on Grand Isle (K026-2; cf. Expression of empathy). "Mother Nature" was identified as a higher force that was also seen as responsible for the event (K121). What is striking here is the reference to the inequality of power between a higher force or a religious leader and man-made things. Another aspect was the climate, with a particular focus on climate change and its significance for Grand Isle (K366). As a result, criticism was also leveled

at the handling of climate change (K210-08). This was contrasted with conspiracy theory approaches, such as the conspiracy theory surrounding H.A.A.R.P., to which responsibility for the event was also conferred (K298). Responsibility was also given to politics or the government, which was accused of not paying sufficient attention to the pursuit of climate protection goals (e.g., K459). The government's handling of the existing situation was criticized (K220) but also met with approval (K039-05). The way insurance companies deal with situations like Hurricane Ida was also criticized in, for example, explanations of how difficult it is to insure houses in hurricane areas (K035-2). In addition to these more frequently mentioned aspects, there were a few others in which the commenters discussed other subjects, such as aid organizations (K039-03).

### *7.3. Expression of Empathy*

In the following two sections, it can be seen that the commenters referred strongly to the people of Grand Isle and how they dealt with the situation. The comments analyzed included reactions from the commenters, which showed in various ways that they had empathy for the people of Grand Isle. This can be seen both in an understanding of how the population was being treated and in the emotions expressed by the commenters on the situation of the population.

One aspect that showed the empathy of the commenters was expressed in the acceptance of reconstruction after the event by, for example, hoping that reconstruction could take place (K291). Arguments were also given to justify reconstruction (K027-05). For some commenters, the video triggered personal memories, which was why they shared their inner view of Grand Isle in the comments. These included both positive memories, for example, when a person talked about their former life on Grand Isle (K339), and negative connotations, for example, when someone was disappointed to discover that their uncle's summer house was now gone (K489). Empathy also became clear when people stated that they were in a similar situation. Some people expressed that they lived in the area around Grand Isle, where Hurricane Ida also caused damage (K503). Another aspect was the commenters' understanding of the housing decisions of the residents. For example, the connection to home was mentioned: "Clearly, there's more to a home's value than meets the eye" (K184). One argued that hurricanes do not occur very often and, therefore, there is no need to constantly rebuild (K097-1). Further reasons for understanding the decision to live there were proximity to the workplace (K042-3) and the beauty and way of life on the island (K281). Empathy was also expressed through concern; hope or joy that the population had been evacuated and was safe was mentioned several times (e.g., K037-1). There were also comments without an argumentative structure in which it was expressed, for example, that the commenters think of the video or the event as sad (e.g., K009, among many) or heartbreaking (e.g., K259, among others). The commenters were sorry (K359) or felt bad (K144). Wishes and hopes were expressed (K374) and prayers were voiced for those affected (e.g., K507). They also responded to negative comments and defended the residents or those affected (K024-1).

### *7.4. Expression of Negativity and Lack of Understanding*

Furthermore, the people commenting also referred to the population of Grand Isle, but expressed themselves negatively towards them or had a lack of understanding of the way the population of Grand Isle was dealing with the situation. In some cases, the commenters even went further and became insulting or sarcastic.

One aspect of this was the attribution of blame. The population of Grand Isle was blamed for personal, social, and worldly disadvantages. For example, financial disadvantages were cited, such as the increase in insurance resulting from the event (K186) or the redistribution of tax payments to the population of Grand Isle (K116-01). Another motive for apportioning blame was environmental pollution and waste of resources (K456). It was also argued that the population was not affected because it was wealthy (K428) and therefore not confronted with substantial damage from Hurricane Ida (KK039-09). This

was also related to the assumption that a large proportion of the buildings were used as vacation homes from which a profit was made, especially if the insurance covered the damage (K035-1). Similar comments implied that there was no population on Grand Isle and, therefore, nobody that could be affected (K028-1). In contrast to the previous section, there was also resistance to the reconstruction. For example, it was commented that the residents should relocate (K172). The arguments that hurricanes would return and become more frequent and that it is a cycle of reconstruction and destruction in which the population finds itself (K058-3) were often given as reasons for rejecting reconstruction. This contradicted one of the comments from the previous section, in which it was claimed that hurricanes are rare (K027-5), making it clear that the knowledge of the commenters differs. The population was also described as crazy (K119-1) and insulted (e.g., K027-10) due to reconstruction efforts. Other possible uses for the island were also discussed and suggestions were made as to how reconstruction could be made possible (e.g., K349). There was a great lack of understanding as to why people expose themselves to a situation like Hurricane Ida (K389). The lack of understanding was often expressed by referring the situation to themselves and stating that they would not want to expose themselves to the situation (K163). It was also argued that the situation was to be expected (e.g., K438). Here, too, attachment to the homeland and the beauty of the island were cited, but the risks were rated as more significant (K166). Jokes were also made at the expense of those affected and irony or sarcasm was expressed (e.g., K433), which was also an expression of negativity and a lack of understanding.

## 8. The Extra-Media Construction and Individual Experience of Coastal Land Loss

Following the evaluation of the YouTube comments, the following section contrasts the findings of the guideline-based interviews and empirical discussions with regard to the individual experience of coastal land loss in Louisiana. The aim is to supplement and compare the results from the social media analysis with the internal perspective of people living and affected there. The section is structured according to the thematic aspects that emerged from the empirical material and supplemented with direct quotes from the interviews. The quotes are marked with an abbreviation (I = guided interview, E = ero-epic interview, numbered chronologically), which enables a clear allocation and differentiation of the various positions of the interviewees. First, the interviewees' attachment to the place and their knowledge of and points of contact with coastal land loss are discussed. This is followed by comments on the personal experiences and events described and the measures taken in relation to the ongoing loss of land. A more in-depth and detailed presentation of the results, limited here to the essential aspects, can be found in Weber [176].

### 8.1. *The Attachment to Southern Louisiana as Home*

All interviewees exhibited an a-modal attachment to the coastal region of Louisiana and their hometown, constructed through personal references and experiences. The interviewees particularly emphasized the diverse culture, music, typical regional cuisine, and "colorful, vibrant" (I04) life. In addition, the interviews show that attachment to place was primarily based on strong family and intergenerational ties as well as deeply rooted history and communities. The interviewees outside Baton Rouge and New Orleans also had a close connection to the wetlands. Swamps, bayous, marshes, cypresses, and alligators were not emphasized as a threat but as part of their living environment and were seen as a landscape element that defined their home. This was particularly evident in the high value placed on outdoor activities such as hunting, fishing, and other water-related activities, which respondents accentuated as typical leisure activities. It was also emphasized that the wetlands and waterways of Louisiana formed the livelihood and economic basis for fishermen, oyster farmers, tourist sport fishermen, and the oil and gas industry in Louisiana.

### *8.2. Knowledge about and Points of Contact with Coastal Land Loss*

Although a strong connection to the coastal region of Louisiana was clear among all interviewees, the question of what associations the interviewees had with land loss and whether they could name the processes of land loss showed that there were very different points of contact and levels of knowledge about land loss. Eight of the interviewees, all of whom lived in Baton Rouge or New Orleans, stated that they had heard nothing or not much about coastal land loss: “No, I don’t know anything about it [land loss] actually.” (I10). The knowledge and points of contact of most interviewees, spread across all interview locations, were superficial, lacking in detail, and b-modally constructed, often limited to the statement that the coast was disappearing into the sea: “I think we’re losing our coast. [...] The water keeps washing away our coast. [...] And that’s what we’re fighting with right now. Saving our coast.” (E26). However, some of the interviewees stated that land loss was a very present topic for them that they were frequently confronted with as they had a professional connection (c-modal landscape interpretation) or personal experience with it (a-modal landscape interpretation).

When asked whether they could name the reasons for the loss of land, most respondents stated that they were not sure. In this context, the interviewees attached great importance to c-modal special knowledge, which was reflected in the fact that many of the interviewees referred to experts and classified themselves as uninformed and incompetent: “You’d have to ask a professional” (I18). The assumptions made by the interviewees were correct in all cases, even if they were superficial and incomplete, and covered a broad spectrum of the natural and anthropogenic processes investigated. The greatest discrepancies in the assessment and interpretation of the processes taking place were evident in relation to the effects of climate change and the oil and gas industry. While one interviewee believed that land loss “has something to do with climate change as well as continue hurricanes basically eroding” (I16), another interviewee denied man-made climate change and emphasized that he was “not a big believer in the effects of man’s effects on global climate change” and did not believe “that has anything to do with” (I21). The influence of the oil and gas industry was also assessed ambivalently, depending on the prioritization of ecological or monetary aspects (see in more detail, [177]).

It is also clear from the interviewees’ statements that for the majority of respondents, land loss was not a topic that was talked about much in everyday life. It becomes particularly apparent from the interviewees from New Orleans and Baton Rouge that “there are so many other things that are going on in life” (I22) and immediate problems such as crime tend to be part of daily conversations with family, friends, and acquaintances. This was different for respondents who reported their own experiences and personal experiences or the stories of family, friends, or other people close to them. Land loss played a role in everyday life, especially for those sections of the population who lived on fishing, enjoyed fishing or hunting privately, or had a property on the water as they were in the areas affected by land loss on a daily basis and able to perceive and experience the landscape changes through constant confrontation. One interviewee stated, “You can ask a five-year-old child about the vanishing coastline, and they’ll say: ‘We know about it and this is what’s happening. And my daddy can’t make as much money on the shrimping industry’” (E12).

### *8.3. Personal Experiences and Perceptions of Landscape Change*

The differences in knowledge of and points of contact with land loss outlined in the previous section resulted in different assessments of how affected the respondents themselves were. More than half of the respondents did not see coastal erosion as a threat to their own homes and livelihoods. On the one hand, these respondents had very little knowledge about land loss or expressed mistrust that the land loss processes really (will) take place on such a scale and, on the other hand, some of them felt too far away from the vanishing coastline in terms of time and space.

Even if the majority of respondents did not consider themselves to be affected by land loss, many still recognized a threat to other parts of the population, communities, and

individuals in Louisiana: “I would say it doesn’t play a role in our daily lives but certainly in the lives of those people that have settled on the coast, who make their living from fishing and going offshore, supporting the oil and gas industry. We’ve watched the Gulf of Mexico get closer to the city each and every year” (I18). Some interviewees cited the aforementioned Grand Isle as a prominent example of visible land loss and communities threatened by coastal erosion. Other interviewees also recognized a threat to their own homes and livelihoods, although they mainly referred to the directly noticeable consequences of extreme weather events, such as storm damage to their own homes or infrastructure and flooding, and only rarely mentioned the long-term changes to the landscape, such as the loss of their own land and vegetation damage due to saltwater intrusion.

The interviews conducted also show that the assessment of one’s own impact was strongly dependent on landscape 1a, the respondents’ own experiences with environmental change. Some of the interviewees reported that they themselves or family or acquaintances had witnessed changes to wetlands and coastal communities that they attributed to coastal land loss. The interviewees talked about their favorite fishing spots that no longer exist, disappeared landmarks on the water, marshland that had turned into open sea, and trees that had died due to saltwater intrusion, reflecting the poor state of the ecosystem. However, the interviewees also emphasized that these changes were only noticeable to those who had lived in the coastal region for decades, if not generations, implying that, in their view, awareness could only develop with time and experience. In addition, these interviewees showed that the physical changes also influenced their own identity and emotional attachment to their homeland. For them, part of their “livelihoods” (I02), “heritage” (I18), “tradition” (E12), family history, and memories disappeared along with the land. Accordingly, the loss of land also had a strong emotional impact on the locals of the coastal region, but only for those whose individual experience was characterized by personal, a-modal experiences.

Despite the emotional strain, or precisely because of the close emotional ties, leaving home and moving away voluntarily was not an option for any of the interviewees. The deeply rooted family structures and communities were a decisive argument for the interviewees to maintain their living environment. In addition, in some cases, economic factors forced the coastal population to stay as moving was associated with high costs, and their lifestyle and professional qualifications were adapted to the marsh areas. One interviewee explained, “I have a best friend who is a fisherman and shrimper, and you couldn’t move him somewhere else. He doesn’t have another skill. So he has to stay here. And so that’s why we don’t move. And besides, all our family is here. We ain’t going nowhere” (E12). Another argumentation pattern of the interviewees was the normalization of their own vulnerability. The potential risk of erosion and extreme weather events are seen by many as “part of life” (E09) and as predictable events with sufficient preparation time, which is a clear advantage in contrast to other natural hazards such as earthquakes. Nevertheless, at the same time, other interviewees from New Orleans and Baton Rouge expressed a lack of understanding as to why coastal residents do not move away despite repeated destruction from hurricanes and progressive erosion. In doing so, these interviewees ignored the close emotional and identity-forming ties to their hometown and devalued the a-modally constructed relationship to the coastal region through their b-modal construction.

#### *8.4. Measures to Save the Coastal Region and Strategies for Action*

Land loss was consistently viewed as negative by the interviewees, and a majority of respondents expressed a desire to do something about it, although responsibilities were allocated differently and the measures and action strategies for protecting and restoring wetlands were prioritized and evaluated very differently. Some placed great expectations on scientists and engineers (c-mode) in the hope that they would stop coastal erosion by building better and higher dykes or artificially installed grass banks to trap sediment. More often, however, politicians were seen as responsible for the protection and restoration of wetlands and the corresponding measures. However, there was also criticism that political



actors were shirking responsibility, not using or wasting funds, and not working on long-term goals and projects. The mistrust of political actors was reinforced by the accusation that politicians work too closely with the oil and gas industry and place economic interests above ecological ones: “Louisiana is very invested in oil and gas. I feel like that’s not so much of a concern for that industry, the preservation of wetlands. So they have maybe a little too much sway in the government” (I16). Accordingly, the oil and gas industry was also accused of not caring about protecting the landscape and disregarding environmental protection regulations.

Those surveyed also stated that they took the initiative themselves. For example, to secure their own land and private property, they installed erosion protection materials or rock fills or planted special grasses. In addition, some of the interviewees reported that they had helped with community activities (often in a school context), such as planting trees and grasses or collecting garbage along the bayous, or that they had often heard about them. The collection of Christmas trees, which act as sediment traps in areas particularly affected by erosion, was also frequently mentioned. Even if the effect of the community projects was small, as some of the interviewees noted, it was clear from the interviews that they were very important for raising awareness, educating the population, and creating a sense of community.

Although the respondents pointed to a wide range of measures to protect and restore the coast, only a few believed that erosion could be prevented by these measures. The majority saw themselves as exposed to land loss and were of the opinion that the measures taken so far had not had the desired effect, politicians were not sufficiently interested in the issue, and time was running out. For many respondents, this created a feeling of inevitability and inability to act, which resulted in a pessimistic basic attitude: “God, I have no hope that we’ll ever fix [it]. [...] I really don’t think we’re going to fix these problems. I think it’s just going to keep getting worse and worse” (I13).

## 9. Reflexion of Empirical Findings and Discussion

Against the background of the theoretical foundation of this article, especially through the neopragmatic meta-theoretical framing and the corresponding theory and method triangulation, the diversity of interpretations of coastal land loss in southern Louisiana becomes particularly clear. The comments and interviews analyzed reveal differences in the construction and interpretation of coastal land loss, particularly with regard to the reference to landscape theory and the source of information. The various subsystems according to Luhmann [45,46] are brought into resonance by landscape processes and reveal different perspectives on them. The economic system is affected by, for example, the loss of marshland covering pipelines of the oil and gas industry as well as insurance covering hurricane damages. The political subsystem on the other hand is utilizing coastal land loss in election campaigns, while the legal subsystem is, among other things, establishing building codes in the coastal area. The mass media system also influences the construction of reality and leads to different opinions regarding the current challenges on the Louisiana coast. The diverse constructions of reality correspond to individual combinations of one’s own experience in the a-mode and the interpretations and world views conveyed by the media and society in the b-mode (cf. [55–57]). These become particularly clear depending on whether there is a personal experience of the effects of the loss of the coast and the passage of hurricanes because the constructions can be differentiated into internal and external views of the topic. As Burley [178] and Lambert et al. [175] also found in their studies, the part of the coastal population that has a personal connection to the wetlands and feels affected by the loss of land has an a-modal constructed internal view based on first-person experiences of the issue (cf. [55–57]). Lambert concluded that “familiarity with and knowledge about coastal land loss was most often related to either indirect experiences through social connections or direct, personal experience” [175] (p. 7). Burley also pointed out that the affected people have a physical closeness as well as a “cognitive closeness” to land loss [178] (p. 106). While the studies by Burley [178] and Lambert et al. [175] primarily

interviewed people with an internal view, the triangulation of methods and data in this study also allowed the external view to be included to investigate possible differences in the construction of coastal land loss. The empirical findings show that those who have had no personal contact with the effects of coastal land loss and who have not yet experienced a hurricane base their interpretations of it on socially and media-communicated content of the b-mode (cf. [55–57]). The integration of knowledge in the c-mode is only occasionally evident, particularly in the media discussion (cf. [55–57]).

While the construction of coastal land loss in Louisiana was largely shaped by the interviewees' personal experiences from an internal perspective—which was not least due to the close proximity of the interview locations to the examined space 1, the Louisiana coast—it becomes evident in some of the comments in the analyzed media discussion that there were no personal experiences. However, despite the strong connection of the interviewees and some of the commenters to the coastal region and their personal experiences, there were still differing views. In particular, the question of whether it was permissible to settle so close to the coast and whether destroyed houses should be rebuilt or not were the subjects of heated debate. From an internal perspective, there was often understanding and, due to similar interpretations in the a-mode, great sympathy for those affected—especially as some of the residents of South Louisiana who were not yet directly affected were aware that they too would most likely be more severely affected by the effects of coastal land loss in a few decades' time. A lack of understanding and clear statements against the reconstruction of the external view were sometimes expressed in morally condemning and sometimes even personally offensive statements (cf. also [113]). It is noticeable here that interviewees living in urban regions in particular and—as far as can be seen in the comments—commenters considered themselves less vulnerable than directly affected coastal residents of the marshes and Barrier Islands due to the assumed safety of urban infrastructure and the sometimes greater geographical distance. It is also evident that the loss or uninhabitability of a property (Landscape 1) in particular, as a direct consequence of coastal land loss, represented a loss of economic capital for those affected and in, some cases, posed extreme challenges with regard to resettlement, sometimes even making it impossible and thus adding to the emotional burden of the loss of the home (landscape 1a) (cf. [175,178]). More so, the only options for protection were investing in higher building standards, especially rising buildings high above the ground or other adaptations to homes, as well as insurance covering hurricane damages. Both options require the investment of economic capital (in the sense of Bourdieu [48]), with the latter having extremely high insurance rates and, as past hurricane events have shown [179,180], the risk of insurance companies not being able to reimburse policyholders due to bankruptcy in the immediate aftermath of hurricanes. Adapted ways of building and knowledge of the best ways of protecting homes as well as the soil and other physical objects from being swept away by floods and rising sea levels also indicate a high resilience of affected people, thus referring to a high social capital in the sense of Bourdieu [47]. In this context, the interviewees referred in particular to social integration and local social cohesion, with affected people helping each other if needed. Interestingly, though, while the interviewees referred to the high social cohesion of the locals, many of the social media comments showed solidarity with those affected; yet, others—often morally charged and derogatory accusations with a lack of empathy—indicated that social cohesion was higher on a local level than on the national or even international levels. Regarding cultural capital in the sense of Bourdieu [47], the interviewees emphasized the importance of the proximity of the coastal inhabitant to the Gulf of Mexico as crabbing, fishing, and oyster farming, among others, not only represent the economic basis of life for many but also form an important part of the local culture. Subsequently moving away from their coastal communities would result in the loss of cultural and social capital as well as economic capital, as the monetary value of coastal land is decreasing.

Furthermore, only very few interviewees and commenters made a connection between increased coastal erosion and anthropogenic climate change; the conclusion that more

sustainable lifestyles and a more sustainable approach to the environment could also help to mitigate the effects of climate change was not drawn. Instead, the reasons for the loss of coastal land were often sought in 'Mother Nature', God, or even the people affected themselves (as they could have moved somewhere else, according to some statements).

These empirical findings stated above show the importance of the theory and data triangulation of the meta-theoretical basis of neopragmatism used in this article because without a combination of different data corpora from personal conversations and media discussions, these differences between the internal and external views regarding the construction of coastal erosion could not have been detected to this extent, and only in this way could the complexity of the facts be analyzed and presented. The results of the qualitative analysis of the media discussion in the comment column of the YouTube video on the effects of Hurricane Ida (2021) on Grand Isle also show parallels with a similar study with regard to the categories identified [113], which also analyzed the media discussion of a comment column below another YouTube video on the effects of Hurricane Ida on Grand Isle. Here, too, there were differences in the construction of coastal land loss by those affected and those not affected, which erupted in a partly morally charged discussion about who was to blame for the destruction on Grand Isle (see in more detail [113]). As the analyses were carried out independently of each other and with two different databases, the results of the two studies reinforce each other and are, therefore, even more valid and representative. The frequent mention of Grand Isle by the interviewees as being particularly affected by coastal land loss also confirms the choice of YouTube videos dealing with Grand Isle and their comments.

The results of the present study confirm those of similar studies in which (media) discussions about changes in landscape 1 and their implications are morally charged and become identity and value conflicts (see, e.g., [42,55,91,113,181]). Referring to the productive potential of conflicts according to Dahrendorf (c.f. [49–51]), there are not just two but many parties to the conflict, with not just one but many different, yet connected aspects at the center of the conflicts, resulting in highly complex relations and structures. All of the conflicts were characterized by a mutual lack of understanding between several parties to the conflict—between those affected who did not want to leave their homes and those not affected who demanded resettlement and assumed that nobody wanted to live in the eroded landscape 1 of the coast and between those who saw coastal erosion as a threat and those who did not. Others considered protective measures and 'saving' the coast to be important but were opposed to the state or the oil and gas industry, which, in their opinion, did not take enough or even any counteractive measures. The legitimacy of the needs and views of the opposing party was usually not recognized; yet, according to Dahrendorf (c.f. [50]), parties have to recognize the legitimacy of the positions of the others to be able to settle the conflict productively. Moreover, there was no intervening party, to which Dahrendorf (c.f. [50]) ascribes great potential of settling conflicts productively, as the state—which is usually attributed to this position according to Dahrendorf [50] (p. 44)—is partially involved in the conflict itself. This raises the question of whether these are actually productive conflicts in Dahrendorf's sense or if the conflicts require stronger regulation.

## 10. Conclusions—Morally Charged Internal and External Views

The aim of this article was a fourfold one. First, on the level of the research object, we identified different patterns of categorization, evaluation, and interpretation of landscape processes and their relations in the context of coastal land loss in Louisiana, USA. Secondly, on the level of landscape-theoretical research, we aimed to understand the different landscape-related constructions, especially regarding individual experiences and social constructions of landscape. The third aim of this article was on a meta-theoretical level, testing the suitability of the applied triangulation of theories, methods, data, etc., of the neopragmatic approach. Finally, we contributed to the understanding of perception interpretation and the evaluation of landscape processes that are partly caused by climate change in this coastal land loss in Louisiana.

The empirical findings of this article have once more confirmed that coastal land loss in Louisiana remains a highly complex and interconnected issue that is constructed and interpreted in very diverse ways by people affected as well as others. The theoretical foundations and empirical results presented in the previous sections give rise to a diverse and complex field of research that can be broadly considered using the neopragmatic approach. The empirical investigations of qualitative interviews and media discussions reveal very different interpretations and constructions of coastal land loss in Louisiana, which led to morally charged discussions about the reasons for and effects of coastal erosion. Depending on the personal experience of the effects of coastal land loss, internal and external views clash, which are not least strongly influenced by the media. With regard to the initial objectives of this article, patterns of interpretation, categorization, and evaluation of the landscape processes on the Louisiana coast could be identified at the level of the research object, and their interrelationships were examined, which were described in detail in Sections 7 and 8. At the level of landscape theory research, the differentiation of landscape-related constructions could be considered and analyzed through various theoretical frameworks:

1. The internal and external perspectives were relevant to the perception of transformation processes and had an impact on the understanding of other people's decisions.
2. There were various lines of conflict between different conflict partners and parties, which had hardly any productive potential in the sense of Dahrendorf [49–51] due to the lack of regulation.
3. The various subsystems according to Luhmann [45,46] were brought into resonance by landscape processes and revealed different perspectives on them. The mass media system also influenced the construction of reality and led to different opinions regarding the current challenges on the Louisiana coast.
4. Economic capital according to Bourdieu [47,48] was particularly relevant in the discussion about coastal land loss processes. Existing economic deficits impacted those affected and the land loss processes also led to economic differences. Social capital, especially social structures in the aftermath of hurricanes, was emphasized, as well as cultural capital.
5. The loss of coastline in Louisiana was constructed in the context of all three landscapes and in all three modes, thus revealing different perspectives.

Finally, on a meta-theoretical level, it can also be stated that the combination of methods, theories, researchers, etc., in accordance with the neopragmatic meta-theoretical framework can achieve advantages in researching complex issues. Framing questions through individual theoretical or methodological approaches cannot do sufficient justice to complex relationships, facts, and constructions. Overall, this article was able to test the suitability of a further neopragmatic combination of theories. In conclusion, it should be noted that sustainable lifestyles and actions were hardly addressed in the media discussion and interviews conducted, although sustainable action in the coastal region can have positive social, economic, and, in particular, ecological effects, including in regard to coastal protection and the sustainability of mitigation strategies and protective measures. However, it remains to be seen to what extent the areas already affected by erosion can be 'saved'.

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