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Governing Integration: Insights from Integrating Implementation of European Water Policies

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Received: 26 December 2018; Accepted: 15 March 2019; Published: 22 March 2019



Abstract: Integrated water resource management (IWRM) is a well-established goal, but there is little evidence about processes of integration linked to water policies. To address this, in 2016–2018 we used a content analysis, a survey and interviews with key actors leading the creation of plans to implement Europe’s Water Framework Directive and the Floods Directive. We explored whether and how implementation of these policies is being coordinated and reflect on implications for integrated water governance. We found a strong emphasis on achieving integration via coordination. Our interviews brought particular attention to the resources and capacities needed to improve collaboration across teams, including but not limited to information-sharing. Our study gives insight into practical approaches that may support coordination and hence integration of different policy goals for water management: however further theoretically-informed study to track these and other processes is required, as work to connect policy integration with IWRM is still in its infancy.

Keywords: environmental policy; policy coherence; environmental governance; integrated catchment management

1. Introduction

Integrated water resources management (IWRM) is a long-standing goal for water management [1]. IWRM and related concepts, such as integrated catchment management or integrated river basin management, can be interpreted either as a technocratic tool to connect different sectors or as an approach reflecting social and ecological concerns [2]. Integration is also important for water-resource management in relation to policy and governance [3–6].

However, little academic attention has been given to the concept and process of integration of higher-level public policies in relation to water governance. This is surprising given the dominant influence of public policies on practices of environmental management [7]. As a result of persistent challenges and dissatisfaction with IWRM [8,9]), and the need to understand it as part of multi-level governance arrangements [10,11], it is timely to consider the role of policies in enabling integrated water governance.

We address this gap in the literature by exploring the implementation of two European policies concerned with water management: The Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC). The Water Framework Directive (WFD) [12] aims to protect and restore clean water across Europe and ensure its long-term and sustainable use. It references the need for action to mitigate the effects of droughts and floods as one of its five purposes. More recently, the Floods Directive (FD) [13] was adopted to reduce and manage risks to society caused by flooding. The FD explicitly specifies that it should be implemented in integration with the Water Framework Directive,

with the expectation that this will support integrated river basin management [14]. This is required as measures for flood management—such as engineered flood protection works that alter river banks and change natural flows—can potentially conflict with goals to improve water ecology, and vice versa. However, some interventions, especially “natural water retention measures” linked to river restoration, may benefit both flood management and water ecology [15]. This paper focusses on the governance arrangements for integrating or coordinating these policies; how water quality and quantity issues interact bio-physically and are shaped by management interventions are discussed elsewhere (e.g., Dixon, et al. [16]).

Over the last two decades, the WFD and FD are known to have spurred many changes in the organisation of and activities for water management across Europe [17,18], and so it is appropriate to examine whether, how, and how effectively integration is being achieved between these major water policies. Furthermore, evaluations of the delivery of WFD and FD are increasingly calling for their delivery to be integrated [19]. The objective of this study is to better understand progress in joined-up implementation of WFD and FD policy goals for flooding and water quality as an exploration of the process and practicalities of integration. We ask first, how is integration being enabled and achieved; and second, what are the implications for understanding integrated water governance?

We address this by studying references to integration of the WFD and FD within ongoing planning processes in selected cases of regions and member states across Europe. In this article, we first consider likely factors shaping policy integration before describing in more detail the WFD and FD and needs for integration in their governance. We then describe how we undertook content analysis, surveys and interviews to build our understanding of the process and practice of integration. We discuss the implications of our findings in terms of the research questions to provide a clearer picture of both the concept and the practice of integrated water governance.

1.1. The Concept of Integrated Water Governance

We begin by considering what is known or expected about policy integration based on existing studies and theory. We first consider the body of work on environmental governance, and then that on policy integration, as these have developed separately. We synthesise what their collected insights offer for understanding “integrated water governance”, using this term to emphasise a focus on policy that is distinct to the management focus of most IWRM.

1.1.1. Insights from Literature on Environmental Governance

Whether working at the global or local scale, water has been a rich field of governance research, policy and practice. This is due to its common pool character, the fact it flows across administrative borders, embodies downstream impacts from upstream choices and is essential to the livelihoods across economic sectors and social groups, all of which make decision-making complex and requires the input of multiple perspectives. Whereas management tends to be associated with the “how” of delivering specific actions, governance is often associated with the “who decides ‘what’ and ‘how’”. Attention to governance therefore builds understanding of the structures, procedures and processes that shape the conditions in which operational management decisions are made and actions implemented [20,21].

Definitions and interpretations of governance vary, whether in discussions specifically about water [22] or in the wider field of environmental governance [23], but always signals an interest in understanding, and potentially encouraging, the decision-making role of multiple actors beyond the state [24]. Therefore, at the heart of governance is the idea of coordination of multiple actors and creating an integrated approach to the governed object. Different authors vary in their attention to the role of the state and its policy structures, often linked to whether the empirical focus is on the supranational level, typically focusing on regulatory structures and their consequences (e.g., Young [25]), or local level, typically exploring the role of non-state actors and interests (e.g., Ostrom [26]). Adopting and achieving policy goals always involves constellations of state actors across levels organising to implement (and integrate) goals as part of networks [27]. This emphasises the

challenges of coordination across multiple (high-level) actors and cross-boundary scales [28], and the level to which integration of policy goals may be influenced by the shape, form and interactions of specific governance networks.

Meanwhile, local-level studies tend to emphasise the role of non-state actors, and when and how networks may self-organise to govern natural resources, informed by Ostrom and ideas of polycentricity [29]. Although the emphasis of local-level studies on non-directed collective action appears less relevant to settings where public policy is seen as a key driver, as is the case for many aspects of water management in Europe, they again reiterate the importance of networks, and understanding efforts for their coordination [30]. This literature additionally suggests that learning may be important, both as an enabler for and as a result of coordination across networks [31].

The governance literature demonstrates that nearly all processes are to varying extents polycentric and multi-level, working within between and amongst horizontal and hierarchical networks [32]. It is clear that fragmented systems often struggle to achieve their goals, but the extent to which centralised steering of networks is necessary or appropriate is contested. Where there is meaningful stakeholder participation polycentric systems may be favoured [33], but study of EU processes suggests that central state-led steering may be necessary for effective integration [28].

Decision-making about integration of policy goals and policy implementation is likely to involve networks of multiple actors and associated challenges of aligning objectives, sharing knowledge, managing relationships and addressing power imbalances [34]. Whilst much of the literature on IWRM stresses integration of topics, the governance literature stresses coordination between actors. This has implications for how integration might practically be achieved; for example, it might be more important that different individuals are able to liaise and meet, rather than necessarily subsuming them into an integrated organisation. These insights also highlight that even when there is a focus on policy, the interplay of formal and informal institutions can be critical to understanding how policy implementation actually plays out [33].

1.1.2. Insights from Literature on Environmental Policy Integration

A body of work on policy studies has developed separately from the literature on environmental governance but has relevance for understanding and evaluating the modes, motivation and practicalities of policy integration across various governance contexts. Particularly relevant is work on environmental policy integration (EPI). EPI focuses on the integration of environmental concerns into other more powerful non-environmental policy domains (e.g., transport), rather than disconnects or conflicts between different environmental goals or within one policy domain (e.g., water). However, many of the observed challenges and principles are likely to be applicable when understanding facilitators and barriers of integration of different water policies. Collier [35] points out that there are three potential levels of policy integration—policy formulation, policy measures or policy implementation—and suggests that it can be easier to integrate at the higher levels such as in national policy texts, rather than the more operational levels, such as the creation of RBMPs and FRMPs, where trade-offs become apparent and decision-making becomes more complex. For example, Hey [36] reported that integration of environmental concerns into transport policy was strong when setting the agenda for policy but weak in subsequent implementation activities at lower, operational levels. Thus, we may expect that even when policy goals and strategies set the ambition to integrate, as is the case for the FD and WFD, this is not necessarily or easily reflected in subsequent planning and action.

EPI is relatively well-established, both as a goal for policy-making and as an object of enquiry [37]; however, still relatively little is known about how to achieve policy integration in practice [38]. Useful insights come from those studies that focus on the conceptualisation and implementation of integration in everyday policy and political settings, the so-called “positive approach” to EPI, to understand “how contradictions are ‘dissolved’, redundancies reduced, synergies exploited” [39]. This focus on organisational process emphasises potential tools for connecting goals in different policies. Evidence

from Sweden [40] shows that once conditions allow EPI to become an established goal, specific activities such as quantified environmental objectives can aid its operationalisation. Some recommendations intended to facilitate environmental considerations across sectors are not directly transferrable to other contexts or the coordination of two environmental policies within the same sector, but linking policy goals could be reflected in the targets and responsibilities assigned to teams or organisations, in cross-sector representatives or working groups, integrated impact assessments and the procedures used to appraise individuals or teams. Similar to the literature on governance then, this suggests the need to understand the formal and informal processes by which individuals and teams work across and between organisations [41], potentially seeing the drive to improve integration as a form of institutional change for state organisations and the individuals within them [42].

Whilst the EPI literature focusses on integration of one policy objective into another policy, there are other policy literatures that stress coordination between policies rather than integration, such as literature on policy coherence, policy alignment or policy mixes. Therefore, from here onwards, the term integration in the context of integrated water governance encompasses a spectrum from a network of policy actors coordinating their actions to full integration of policy objectives, policy actors and policy processes into a new entity.

1.2. European Policies for Water Quality and Flooding

This section provides a brief overview of the Water Framework Directive (WFD) and Floods Directive (FD) as extensive discussion of the origins and requirements of both directives is already available elsewhere for both the WFD (e.g., Hering, et al. [43]) and the FD (e.g., Heintz, et al. [44]). European directives specify goals and certain procedural requirements but are transposed and separately implemented by different member states, or by their constituent regions where environmental policy is devolved. Therefore, whilst sharing a common framework and vision, there can be considerable heterogeneity in implementation due to the principle of subsidiarity and the need to take account of local context, history and conditions (a principle shared with IWRM).

The WFD (2000/60/EC) [12] aims to protect and restore clean water across Europe and ensure its long-term and sustainable use. The WFD is, in itself, a statement of coordination as it also incorporates pre-existing directives on bathing water, drinking water, nitrates pollution control and wastewater treatment, and takes account of further policy objectives such as Natura 2000 designations. Action to achieve the WFD objectives is organised around reaching or maintaining “good ecological status” of waterbodies within river basins; member states are required to assess the status of all waterbodies, and use this information to make management plans for each river basin. These River Basin Management Plans (RBMPs) encompass inland surface waters, transitional waters, coastal waters and groundwater, and are developed using a six-year cycle: characterising the status of water bodies; identifying needs for action; identifying measures; and reviewing the impact of implementing these measures. Member states need to ensure that all water bodies meet or exceed good ecological status by 2015, 2021 or 2027 (depending on derogations). Note, that at the time of the research (which spanned 2016–2018), the second cycle of RBMPs had been published and work was ongoing to implement measures before reporting on progress in 2019. The WFD is implemented by “competent authorities” (normally state agencies) who are responsible for implementing these planning cycles, but the WFD also stipulates a programme of information, consultation and active involvement of relevant stakeholders in line with the Aarhus Convention.

The main aim of the FD (2007/60/EC) [13] is “to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity”. Member states should take a long-term perspective, considering climate change, as well as sustainable land use practices. It applies to inland waters and all coastal waters, but not groundwater. Unlike the WFD, the FD does not act as an umbrella directive for other, older legislation but as mentioned above, it does have integration with the WFD as an explicit requirement. Similar to the WFD, it follows a planning cycle, with member states required to: assess and identify the river basins and associated coastal areas at risk of flooding,

produce flood risk maps for these zones and flood risk management plans focused on prevention, protection and preparedness. Consultation with stakeholders is also required [45]. Whilst there are clear objectives to reduce flooding and mitigate the impacts when flooding does occur, the FD does not set specific targets to achieve within the planning processes.

The planning cycles are aligned such that the second Flood Risk Management Plan (FRMP) and third River Basin Management Plan (RBMP) are both due in 2021; however, the FD does not have an “end date” like the WFD but stipulates an ongoing 6-year planning cycle. At the time of the research the competent authorities had finished their first FRMPs and were starting to prepare their next flood risk maps as well as implement flood risk mitigation measures. The FD is also implemented by competent authorities with responsibility for ensuring the planning cycle is implemented, but as with the WFD the process involves multiple stakeholders beyond the lead state agencies.

Expectations for Integration and Coordination of These Policies

There is a clear push towards integration of the two directives: they are explicitly designed to interact and share a common adaptive planning cycle and system of leadership by competent authorities working with a suite of stakeholders to deliver the policy objectives.

Integration or coordination of the policies is referenced in the original text of the FD. Point 17 in the Preamble to the Directive notes that planning under both the WFD and FD constitute elements of integrated river basin management, and so ought to be coordinated. Article 9 specifies that member states should “coordinate the application” of the WFD, principally by coordinating information-sharing, the production of flood risk management plans and river basin management plans, and also through coordination of the public participation procedures during preparation of those plans. Newig, Challies, Jager and Kochskämper [45] provide a detailed analysis of their respective requirements for public participation.

Integration seems to have become more important over time. At the time of the first WFD Implementation Report [46] to appraise progress, the Floods Directive did not yet exist and references to integration instead focused on linking the WFD with other policies such as the Common Agricultural Policy. In the second WFD Implementation Report [47], despite the existence of the FD since 2007, flooding was again not mentioned. However, integration between the FD and the WFD has since become a strong focus and the Implementation Reports now jointly report on progress for both directives [48]. An Europe-wide working group on Floods (“Working Group F”) is part of the Common Implementation Strategy of the Water Framework Directive [49] and has integration of the FD and WFD as one of its priorities. This working group hosts biannual meetings and workshops that are attended by representatives of the organisations responsible for delivery of the Floods Directive in each member state.

Working Group F have produced two reports [14,50] that describe reasons and expectations for how to achieve integration of the WFD and FD. These have been complemented by a later report describing expected links between the FD, WFD, Marine Strategy Framework Directive, and the Natura 2000 Directives [51]. These documents first reiterate the expectation of more integration in policy delivery, and second, provide a set of recommendations of how this could be achieved. Key recommendations for linking the WFD and FD are: sharing spatial management units; sharing competent authorities; linking reporting timetables; and coordinating assessment, mapping, planning, selection of measures, and monitoring. It is expected that doing so can offer efficiency savings by identifying cost-effective “win-win” measures, often natural water retention measures (NWRM) that slow the flow of water through landscapes [15], and so ultimately supporting integrated river basin management and efficient delivery of both policies.

There are important differences in the directives that may impede linkages. First, while the European Commission classes both directives as environmental, the WFD has a clear focus on ecological health, whilst the FD focuses primarily on avoiding damage to people and property; therefore, they have different objectives that may be assigned different priorities by society. Second, the WFD has

clear targets to meet and an expectation that the policy outcomes should be met by 2027. On the other hand, the FD is more procedural, specifying the planning processes but not setting any standards or requiring continuous improvement as per the WFD. Overall, there are both similarities and differences in how the policies are formulated, how and why measures are developed, and the ethos of policy implementation, with consequences for policy integration and governance approaches. The extent and ease of WFD-FD policy integration is therefore unclear.

Two empirical studies have indicated potential issues associated with integration of the WFD and FD; a comparison of public participation in the FD and WFD in Germany [45]; and methodological approaches used to appraise and select programmes of measures reflecting both policies, also in Germany [52]. The study by Newig, et al. [45] notes that during the early stages of FD implementation, the federal states leading FD implementation were very reluctant to coordinate it with the WFD, citing different objectives, actors involved and interests. Evers [52] reports that Germany relies on a “LAWA” scheme to prioritise synergistic measures, but integration is likely to be hindered by prior “parallel procedures” operating under each policy. She recommends a set of planning steps that capture and map information for both policy goals, and to catalogue measures in such a way that links between sectors are more easily identified. The likely scope of challenges is also echoed by a study of integrating the WFD with the Natura 2000 objectives for protection of endangered species and habitats in the Netherlands [53]. Here, similar to the WFD and FD, the policy goals seem broadly complementary and there is formal support for their coordination. However, integration is impeded by actors’ concern for how new policy objectives will affect their own existing goals, and by a strong focus on formal compliance with these goals, that can reduce possibilities for the discretion and flexibility needed to take account of other policy goals [53]. Taken together these studies hint at the importance of individual and organisation processes and priorities, as well as formal strategies or initiatives, but there is a need for more studies to understand how policy integration is being implemented in practice. Focusing on procedures will not account for the outputs and ultimate impacts of policy [54], but is a necessary first step to understanding integration of the WFD and FD in practice and to extend understanding of policy as part of the IWRM paradigm.

1.3. Research Gap Addressed by This Study

Integration is an important topic for both scholars and practitioners working on water management: however, there is a need for more attention to governance as part of IWRM, moving it beyond the management level. The literatures on governance and EPI together indicate the complexity of likely influences on integration (e.g., Pahl-Wostl [22]; Swartling, et al., [55]), and suggest a need to balance attention towards both formal procedures and policy requirements, as well as informal practices and an operational perspective. Such factors are likely to influence the integrated water governance context and both enable and constrain progress towards integration. However, there remains little empirical research illustrating the results of bringing water policies together, despite the focus on “integration” in the wider water literatures.

Recent work to integrate delivery of Europe’s WFD and FD provide an opportunity to address this gap. We have two research questions: how is integration being enabled and achieved; and second, what are the implications for understanding integrated water governance? We seek to answer these by learning from the ongoing experiences of those charged with policy delivery, using a mixed methods approach to scope the widest possible set of insights and to balance attention to formal procedures and less formal practices by which policy goals are being implemented and integrated. The various governance and EPI literatures do not provide one clear approach or framework suitable for understanding the coordination of the WFD and FD implementation processes, so we use an exploratory methodology.

2. Materials and Methods

This study uses a mixed qualitative methodology [56] to explore integration in processes of WFD and FD implementation by selected European member states. The study focusses on the implementation of integrating the RBMP and FRMP processes; as described above, these plans are the interface whereby the overall objectives of the policy are translated into policy measures by a range of stakeholders and as such steer the policy implementation processes in specific water bodies. It combines three main sources of data: a content analysis of nine sets of plans, a simple survey seeking written feedback on integration from those working to implement these policies across Europe, and a thematic analysis of semi-structured interviews with those charged with implementing the policies in six cases. This mixed methodology was informed by the pre-existing literature related to integration, feedback from Scottish Government and agency stakeholders [57] and existing European Commission documents on water policy integration [14,50]. In keeping with the insights from the literature above that highlight the importance of structures and practices, the content analysis and survey helped identify the formal structures and desired processes involved in integration, whereas the interviews provided richer insights focused more on practices and processes, including the informal “rules-in-use”. This is reflected in the predominance of interview data in our findings section.

2.1. Content Analysis of Selected Plans

In October 2016 we carried out a search of RBMPs and FRMPs, using Nvivo (version 12, QSR International, Melbourne, Australia) [58], for terms that could indicate cross-references between RBMPs and FRMPs. In the last decade, hundreds of RBMPs and FRMPs have been created by Europe’s member states. We could not review all these, so we instead selected sets of plans from nine cases: the Czech Republic, Flanders (Belgium), the Rhine, Spain, Sweden and the four devolved countries of the U.K. (England, Northern Ireland, Scotland and Wales). We treated the U.K. devolved regions as separate cases as RBMP and FD implementation is a devolved matter, and each U.K. jurisdiction has its own governmental arrangements, structures, and funding processes for water management. Table A1 in Appendix A summarizes the set of plans analysed for each case.

We searched for terms indicative of cross-references between the plans: within RBMPs, we searched for references (including stemmed words) to “flooding”, “Floods Directive” and “Flood Risk Management Plan”; within FRMPs we searched for references to “water quality”, “Water Framework Directive”, “River Basin Management Plan” and “Natural Flood Management” or “Natural Water Retention Measures”. Non-English plans were searched using translated equivalents checked by native speakers. We recorded the total portion of each plan that referred to the terms; the content of paragraphs containing the terms; and the location of the references, i.e., which section, footnotes, annexes. This process provided a strong comparative basis for the content of the plans that helped to structure the survey and interview questions, and allowed the interviews to focus on topics not accessible by document review.

2.2. Short Survey on Integration

In March 2017 we presented preliminary findings of the content analysis at the 21st meeting of the European Commission’s “Working Group F” of the WFD Common Implementation Strategy, which confirmed the initial findings and identified areas of ongoing challenges. At the meeting, and also afterwards by email, we distributed a short list of questions that asked members for feedback on integration and their plans. Table A2 in Appendix B lists the questions used in the survey. We received 19 answers from member states, or regions where implementation is devolved: Austria, Bulgaria, Croatia, Czech Republic, Denmark, England (U.K.), Finland, Hungary, Ireland, Italy, Latvia, Luxembourg, Netherlands, Northern Ireland (U.K.), Scotland, U.K. (as a whole), Wales (U.K.), and Wallonia (Belgium).

2.3. Semi-Structured Interviews

We sought interviews with individuals charged with supporting the development and implementation of the plans. We expected that there may be initiatives for integration that were not captured in the formal plans. We aimed to work in fewer cases where we could build in-depth understanding by speaking with individuals working at both the national level and the regional level.

We focused on six cases: Sweden, the four countries of the U.K. (England, Northern Ireland, Scotland, Wales), and the region of Flanders (Belgium). We selected these based on our earlier document analysis where we chose: (1) Sweden as having biogeographic similarities to Scotland (the government of which provided funding for this research); (2) Flanders as they are a devolved region whose legislative framework explicitly requires integrated planning [59]; and (3) the four devolved administrations of the U.K. (Scotland, Wales, England and Northern Ireland) since they have a similar institutional background. Table A3 in Appendix C summarises our understanding of the main organizations associated with WFD and FD implementation in each case.

We used a snowball process to ask existing contacts to suggest contacts working in other policy areas or at other levels. In total we conducted 24 interviews, with a total of 28 individuals (two interviews were with more than one person). Table A4 in Appendix C summarizes the final set of interviewees. The average length of interviews was one hour, and all interviews were carried out between January and June 2018. Our interviews were structured using a topic guide (see Table A5 in Appendix C) that reflected the key ideas identified in our review of pre-existing work on integration and questions that had arisen from our analysis of the plans. Interviews were audio-recorded and transcribed, with the exception of one where, at their request, we instead took detailed notes.

All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of the James Hutton Institute (Project identification code 97/2017). The data collected was processed, stored and managed in compliance with U.K. law and the EU General Data Protection Regulation.

2.4. Data Analysis

For the document analysis, for each case we summarised counts of cross-references and descriptions of content and its location within a word document, to identify integration discourses for further analysis. These integration points were then imported into Nvivo 12 [58] for qualitative analysis [60]. We “coded” the content of the document analysis, the written survey feedback and interview transcripts according to themes. A mixed inductive–deductive approach was taken: the initial set of themes were derived from the interview topic guide, but additional themes were proactively sought during review and coding of the transcripts. After the initial coding, we carried out a framework analysis to facilitate comparison and highlight main themes and patterns.

In the findings section we present the main themes and patterns. Quotes from the interviews are used as illustration, labelled using interviewee codes. Table A3 provides more information about interviewees, but to maintain confidentiality, provides only limited description of sources (e.g., we do not reveal both job role and organisation, if this would allow someone to be identified). The findings do not systematically describe every case but instead focus on highlighting common issues, the range of experiences, and the underlying connections between ideas.

3. Results

Integration was a relevant goal in all the cases we studied, though the evidence of progress was much more evident in the survey and interview data. All our interviewees confirmed that they perceived their country or region as making progress in integration, to varying extents, with Flanders rating itself the most positively. This meant that a variety of initiatives for integration were reported

and discussed, even though the content analysis indicated relatively little attention to integration as there were only brief cross-references between the FRMPs and RBMPs.

Table 1 summarises the mix of initiatives for integration across our dataset. The content analysis and survey placed more focus on formal structures and procedures, whereas the interviews gave more insights into procedural aspects and complexities. We do not further discuss the results in terms of different methods, to avoid repetition, but instead focus on the main themes.

Table 1. A summary of the formal and informal initiatives for integration reported in our data. “X” represents the presence of initiative in one or more cases analysed. The most important initiatives, and connections between these, are discussed in the main text.

Initiative to Enable Policy Integration	Content Analysis (160 Plans from 9 Cases)	Survey of Member State Representatives (19 Cases)	Interviews (28 Individuals from 6 Cases)
0\Policy Requirements and Procedures			
Altered plan structure	X	X	
Shared consultations	X	X	
Joint Impact Assessments	X	X	
Strategies for appraising measures in FRMPs/RBMPs	X	X	X
National mandate			X
Allocated resources			X
Practices to Coordinate and Collaborate			
Links during plan development		X	X
Physical co-location +/- or virtual teams			X
Using shared language or concepts			X
Knowledge sharing of datasets		X	X
Knowledge sharing about individuals, teams and policies			X
Connecting across levels			
Catchment-scale trials			X
Public engagement		X	X

We focus first on the formal procedures and locations of integration envisaged to facilitate integration. We then describe initiatives to promote practices of coordination and collaboration. We acknowledge that the divide between these types of initiatives is blurred, but suggest there is a difference between policy requirements and procedures which link with publicly documented steps in the planning process, and those operational practices which are rather less accessible, potentially more flexible, and associated with the activities of individuals within teams. Finally, we turn to the challenges of integration, as exposed in the survey and interview data, which highlights interconnections between different types of initiatives, and highlights ambiguous issues cited both as an enabler and challenge.

3.1. Policy Requirements and Procedures

The content analysis indicated only one case had amended its plan structure: Flanders had decided to produce one plan encompassing both the RBMP and FRMP. Plan content and the survey data indicated two main venues where the two planning processes were expected to link in several cases: the use of shared consultation processes and joint Strategic Environmental Assessments (SEAs) or Environmental Impact Assessments. Both are mandatory parts of the planning cycle: consultations with the public must be carried out on draft plans, and SEAs are conducted to ensure that information on the environmental effects of a plan is available whilst the plan is prepared and implemented.

Several survey responses mentioned techniques or strategies to select or appraise potential measures to ensure that measures in FRMPs do not negatively impact ecology, or vice versa. Similarly, several interviewees discussed the aim of prioritising NWRM measures, which could be assisted by

these strategies. By contrast, in the interview data, SEAs were not discussed, whilst consultations were often mentioned but not much dwelt on.

The interviews also noted the importance of formal mandates from the national-level. Some interviewees from Sweden and Northern Ireland felt this had been lacking, and so impeded progress. Related to this was the need, identified by all interviews, for resources specifically allocated to integration, to enable collaboration, e.g., between parallel teams, and to trial new ways of working.

3.2. Practices to Coordinate and Collaborate

The theme of collaboration and coordination was a strong theme in all our interview data, though only four survey responses noted initiatives related to this. Often, when we asked an open question about how to encourage integration, interviewees' responses immediately focused on how different departments or organisations could better work together. Every interviewee mentioned some practical technique or approach related to coordination or collaboration, either when describing existing initiatives in their case, challenges they had experienced, or their recommendations for future improvement. Initiatives to improve collaboration include different teams attending each other's planning meetings (e.g., Hungary), cross-checks or involvement in plan development (e.g., Northern Ireland, Scotland). Individuals could also be given additional assignments or team membership: they could be physically co-located with teams working on different policies, or assigned to virtual teams that were designated for specific cross-cutting issues. Our interviewees differed as to whether and how specific terminology and concepts can assist in these links: E1 mentioned that terms such as natural capital and ecosystem services risked being seen as "technocratic gobbledegook", whereas F4 felt these concepts had been helpful for appraising the costs and benefits of artificial versus more natural interventions in some experimental trials. N4 placed more emphasis on relationships, pointing out that investing in team-building and developing trust was necessary to underpin new collaborations.

Knowledge sharing was referred to as both an outcome and a requirement for collaborative teams. It was often introduced in terms of information about catchment condition and processes, which corresponds with the survey responses that highlighted initiatives for information sharing. Over half ($n = 10$) of survey responses also indicated initiatives for information sharing across planning teams; for example, in the Netherlands, the information used in RBMP and FRMP planning is held across the same institutes, and is also shared with the general public. This is a relatively visible aspect of information sharing, but the interviews also highlighted that it was important to share information about people themselves and their differing goals, as well as specific data sets: "you need to start with that [collaboration] and get people to know each other" (N4).

Discussions on collaboration often focused on connecting people in parallel groups or organisations working on water quantity and quality issues, but were also relevant to enabling connections across levels. Those working at the regional level felt that the support of national-level policymakers was essential to advance integration: not only providing official visions and statements of support, but also helping to initiate the process of integration. However, it was also felt that the drive to achieve an integrated vision should not solely be top-down: "you need to create one vision, for all the water managers" (F4). Furthermore, when we asked for examples related to integration, many interviewees highlighted catchment-level initiatives and pilots. There was an expectation that working at smaller scales and/or at lower levels of organisation may somehow be key to achieving integration. These are often styled as pilots, with an explicit plan to generate knowledge to connect back into national-level learning and planning.

The expectations of the general public were sometimes cited as challenges to integration, yet involving them in planning was also mentioned as enabling. Survey responses referred to shared consultations, whilst some interviewees talked about going beyond these to in-depth and/or interactive processes of engagement. The extent to which this should focus link with the catchment-scale focus was unclear in our data.

3.3. Challenges to Integration

The content analysis did not indicate anything about challenges to integration; however, seven survey responses and all of the interviews offered a mix of challenges experienced and anticipated. These data reiterated the importance of policy requirements and procedures, as well as more informal or organisational practices: it also indicated the connections between these and some issues identified both as enablers and challenges.

Challenges from the differing requirements of the policies were identified as problematic in the surveys, especially in the differing scales of work and procedural obligations. Some interviewees also identified the differing rationales of the WFD and FD as problematic, i.e., as eco-centric versus human-centric, with F4 accusing the FD of enabling a focus on “end of pipe” solutions in contrast to the WFD. The interview data gave insight into exactly why these issues matter, and highlighted interconnections between formal processes and requirements and the more informal processes relating to coordination and collaboration. For example, S1 stated that as the formal cycles for implementing and reporting these directives had not been perfectly aligned, there had been reduced opportunities for individuals and teams to make connections on related issues. Formal structures and procedures could assist or provide a focus for integration—but could equally squeeze the spaces and opportunities required for individuals and teams to coordinate across and between levels.

Another connection between the formal procedures and the more informal organisational practices is illustrated by the resources allocated to the planning processes. The absence of top-down allocation of specific resources for integration was often reported as problem in both the survey and interviews: trying to integrate two policy processes was seen as adding complexity to processes that were already complex, therefore requiring more attention and resources.

Discussion of challenges not only highlighted interconnections, but also identified several issues that were discussed both as enablers but also challenges: collaboration, public engagement and balancing work across levels. These “ambiguous” issues warrant further attention.

As discussed above, collaboration was often cited as key to integrating policy delivery: however, the interviews gave insight into the in-depth complexity of the practices employed to achieve this, with the difficulties of collaboration being seen as a key difficulty as well as key priority. Building collaborations requires not only resources but patience and skill: “[It] takes time and it takes effort and it takes compromise, you know, it’s a tricky thing to manage.” (E3). Similar references were made to information sharing to enable collaboration as different datasets are not easy to share or connect. These challenges do not just relate to formal datasets but also to understanding other points of view and relevant plans and “keeping that up to date” (N4).

Sharing information and collaborating is especially challenging when separate departments, organisations and consultants have work cultures that favour working in silos rather than collaboration. This tendency can be exacerbated when faced with budgetary constraints, especially as environmental protection is often seen a “Cinderella” issue (N3), i.e., a low priority issue that is ranked behind other policy goals. Therefore, developing a plan within one team can be seen as “quick and easy” (S4) versus trying to understand and incorporate other options and involve other actors. Furthermore, internal appraisal processes may reinforce less formal work cultures. For example, F3 described how middle managers must work with metrics for water quantity, and metrics for water quality, but there is no “metric for integration” to drive or evaluate performance in this regard. Thus, the individuals and departments planning for water management may continue to focus on either water quality or quantity.

Public engagement was cited both as an enabler and as a challenge. In the interviews, the public and politicians sometimes mentioned having expectations that were unhelpful for integration, mostly because they expected immediate, visible and familiar responses to flood events. This can drive adoption of schemes that can be installed relatively quickly, at the expense of long-term holistic approaches that include NWRM. Involving the public in decision-making about water management, was thought to help alter these expectations, but some also worried that it may exacerbate the problems

of processes being slow, complex and costly. Participatory processes also add in local priorities for a particular place or catchment, which can complicate (and potentially conflict with) top down policy goals and mandates.

The final ambiguous issue was the challenge of working across levels. Although the need to work and connect national to catchment levels was advocated (previous section), the appropriate balance of effort across levels, and in connecting levels, was unclear. Some interviewees worried there was an over-reliance on high-level visions to achieve change by themselves, without altering pre-existing structures, procedures or responsibilities. The responsibility for coordinating integration was often perceived to be unclear (“everybody is looking at each other” F2), despite the roles and responsibilities being formally specified under the policies. To many it seemed that the goal of integration, as a shared responsibility, has no clear ‘home’, ownership or driving actor.

4. Discussion

We return to our research questions, and ask first, how can integration be enabled? Our findings demonstrate several ways in which delivery of the WFD and FD is being integrated (Table 1). Looking across these diverse initiatives, it seems important to distinguish between formal procedures that are often associated with policy requirements and quite public, and practices that are less prescribed and typically concerned with processes for coordination or collaboration between teams and organisations. The latter initiatives, such as building cross-policy teams, are less visible outside of organisations, even though significant effort may be invested in them and the individuals involved see them as key to achieving integration.

Those seeking to enable integration of the WFD and FD, or similar policies, can usefully build on the type of experiences reported here with the caveat that all practices must be adapted to the particularities of specific social and policy contexts. When doing so, it is important to balance attention between the formal initiatives and more informal practices. In this study, what was publicly documented focused more on the former [14], so emphasising organisational practices may be an important future priority. This can be informed by ideas from the EPI literature about how to promote policy integration at the level of policy operationalisation [39].

The ambiguity around certain issues reported here, i.e., collaboration, public engagement and multi-level working, also cautions that integration is not straightforward. These were identified not only as enablers but also as challenges to achieving integration, in particular by increasing the cost and complexity of working. These challenges are recognised in the literature on stakeholder participation [61] and multi-level governance [62]. So, initiatives and approaches to achieving integration may be costly and complex, yet integration is often assumed to result in efficiency and win-win solutions [15]. The apparent paradox may be the result of different time perspective, perhaps costs in the short-term will be rewarded by long-term efficiency savings, but cannot be taken for granted. There is a clear need to critically appraise and evaluate these efforts using a mix of datasets, since different sources of data given prominence to different initiatives and issues. This paper makes a start at assessing how these insights could be used to help understand enabling integration by focussing on the planning cycle: further research is needed on how measures are implemented and this should include attention to the local governance processes as well as the outcomes of changes in management practices.

Our second question asks: what are the implications for integrated water governance? Integration seems a widely relevant concept, not only in the academic literature on IWRM, but also with policy and practitioners, so this concept warrants further consideration. Existing bodies of work on EPI and environmental governance (e.g., Pahl-Wostl [22]; Swartling et al., [55]) do provide useful insights as to how and where different goals for water management may be coordinated. However, at present, there is no clear framework specific to integration, either to guide its study or its implementation, and this should be redressed. Furthermore, this study indicates that collaboration within organisations, or across organisational sub-units can be a major factor shaping how objectives are achieved, so

this level of analysis should be given equal weight, perhaps envisaging collaboration as nested, multi-level and polycentric set of practices, requiring relational processes within as well as between organisations and across administrative levels. Of course, these different processes are not necessarily mutually supportive nor straightforward, so further empirical data is needed to track ongoing and unfolding processes of policy implementation, and to interrogate whether and how these connect with, complement or even conflict with initiatives for IWRM at the local and catchment scale. This also draws attention to wider debates about the extent to which state actors should lead and/or participate in steering governance processes [28,29].

Overall, transdisciplinary partnerships between academics, policymakers and practitioners are required to ensure all aspects of integration processes are documented, used to inform theoretically-informed reflection, and harnessed to achieve changes in water management.

5. Conclusions

The general conceptualisation of progress in integration amongst the member states in this study, and the drive to improve and build on processes of integration, indicates the relevance and appeal of integration as a concept. Governance is perhaps inherently an integrating concept—in that it is typically associated with multiple actors, objectives and processes—but we argue that focusing on the concept and aim of integration within governance, as per “integrated water governance”, brings attention to the expectations and practices specifically entailed by trying to achieve multiple objectives. These warrant further critical examination, balancing attention to the informal and formal, and recognising that networks are nested within and between organisations. Doing so will usefully complement the focus of many IWRM studies. We believe that integrated water governance, an approach that looks at structures, actors and practices, with attention to the power effects and emotional labour entailed in such networks, will be a vibrant and important topic of research for many years to come.

Author Contributions: Conceptualization: K.A.W., K.L.B. and A.J.-B.; methodology: K.A.W., K.L.B. and A.J.-B.; formal analysis: K.A.W., K.L.B., A.J.-B. and S.J.T.; investigation: A.J.-B. and S.J.T.; data curation: K.A.W., A.J.-B. and S.J.T.; writing—original draft preparation: K.A.W.; writing—review and editing: K.A.W., K.L.B. and S.J.T.; project administration: K.A.W. and K.L.B.; funding acquisition: K.A.W. and K.L.B.

Funding: The research supporting this was funded by the Rural & Environment Science & Analytical Services Division of the Scottish Government, as part of the 2016–2021 Strategic Research Programme.

Acknowledgments: We are very grateful for the time and insights provided by all the interviewees, and the feedback provided by all stakeholders who have contributed to this study, especially the members of Working Group F. We thank Rowan Ellis and three anonymous reviewers for useful comments on an earlier version of this manuscript.

Conflicts of Interest: The authors declare no conflict of interest. The funders specified an interest in policy integration but had no role in the design of the study; nor in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

Appendix A

Information about the cases and set of plans subject to content analysis.

Table A1. The set of 160 plans from 9 cases used in content analysis. The process of planning under the WFD predates that of the FD; therefore, two sets of RBMPs were available, and one set of FRMPs.

Case	Rationale for Selection	Plans Analyzed
Czech Republic	Experience of coordination across basins	3 × 1st cycle RBMPs 3 × 2nd cycle RBMPs 3 × FRMPs
England (U.K.)	Devolved administrations within the U.K. offer “natural experiment”	7 × 1st cycle RBMPs 7 × 1st cycle RBMPs 8 × FRMPs

Table A1. Cont.

Case	Rationale for Selection	Plans Analyzed
Flanders (Belgium)	Have formally integrated legislation and plans made	2 × 1st cycle RBMPs 2 × 2nd cycle RBMPs incorporating FRMPs
Northern Ireland (U.K.)	Devolved administrations within the U.K. offer “natural experiment”	3 × 1st cycle RBMPs 3 × 1st cycle RBMPs 3 × FRMPs
Rhine	Experience of coordination for transboundary management may assist in policy coordination	1 × 1st cycle RBMPs 1 × 2nd cycle RBMPs 1 × FRMPs
Scotland (U.K.)	Administration funding the research	2 × 1st cycle RBMPs 2 × 2nd cycle RBMPs 14 × FRMPs
Spain	Geographical contrast with the other cases	24 × 1st cycle RBMPs 18 × 2nd cycle RBMPs * 17 × FRMPs
Sweden	Geographic similarity to Scotland (who fund the research) plus personal recommendation	5 × 1st cycle RBMPs 5 × 2nd cycle RBMPs 17 × FRMPs
Wales (U.K.)	Devolved administrations within the U.K. offer “natural experiment”	3 × 1st cycle RBMPs 3 × 2nd cycle RBMPs 3 × FRMPs

* In Spain we analysed fewer 2nd cycle than 1st cycle RBMPs, since at the time of review they had not published 2nd cycle plans for the Canary Islands.

Appendix B

Table A2. Questions asked by email and in person to members of European Commission “Working Group F”.

1	Are there any examples of integration within your country’s processes of flood risk and river basin planning and management?
2	In your opinion, what are the main challenges or barriers to improving integration between the two planning processes?
3	We are seeking to collect key experiences and ideas from across Europe. If we wish to find out more about your country, may we contact you to talk to us about your experiences and ideas? Alternatively, who else would you recommend we speak to (please provide their name and contact details)?
4	Are units of management shared by RBMPs and FRMPs in your member state?
5	Do the same competent authorities lead the creation of your FRMPs and RBMPs?
6	Do the processes used to create your FRMPs and RBMPs have any connections or shared elements, i.e., information sharing, consultation processes?
7	Are your RBMPs and FRMPs reported separately, or in combined reports?
8	In your judgement, are there direct text cross-references between your RBMPs and FRMPs?

Appendix C

Further information about the semi-structured interview analysis. Table A3 lists the six cases and the main organisation associated with policy delivery in each case; Table A4 lists the individuals interviewed for each case, and lastly, Table A5 presents the topic guide used to guide the interviews.

Table A3. Summary of the 28 interviewees who discussed integration.

Case	Level	Interviewee ID	Policy Focus	Organization
England	National	E1	RBMP	Department for Environment, Food and Rural Affairs
	National	E2	FRMP	Department for Environment, Food and Rural Affairs
		E3	RBMP	Environment Agency
		E4	FRMP	Environment Agency
		E5	FRMP	Environment Agency
	Regional	E6	RBMP	Environment Agency
	Regional	E7	FRMP	Environment Agency
	Regional	E8	RBMP	Environment Agency
Flanders	Regional ¹	F1	FRMP	Flanders Department for Mobility and Infrastructure
	Cross-scale	F2	FRMP	Flanders Environment Agency
	Cross-scale	F3	RBMP	Flanders Environment Agency
	Regional	F4	RBMP	Flanders Environment Agency
Northern Ireland	National	N1	RBMP	Northern Ireland Department for Agriculture, Environment and Rural Affairs
	National	N2	FRMP	Northern Ireland Department for Infrastructure
		N3	FRMP	Northern Ireland Department for Infrastructure
	Regional	N4	FRMP & RBMP	An urban Local Authority
Scotland	National	S1	FRMP	Scottish Environment Protection Agency
	National	S2	RBMP	Scottish Environment Protection Agency
	Regional	S3	RBMP	Scottish Environment Protection Agency
	National	S4	FRMP	Scottish Environment Protection Agency
Sweden	National	Sw1	FRMP	Swedish Civil Contingencies Agency
	National	Sw2	RBMP	Swedish Agency for Marine and Water Management
	Cross-scale	Sw3	RBMP	A Swedish Water District Authority
	Regional	Sw4	RBMP & FRMP	A County Administrative Board
	Regional	Sw5	RBMP	A Swedish Water District Authority
Wales	National	W1	RBMP	Natural Resources Wales
	National	W2	FRMP	Natural Resources Wales
	Regional	W3	FRMP & RBMP	An urban Local Authority

¹ Belgium is a federal state, which has designated its three regions (Brussels Capital Region, Flemish Region and Walloon Region) as competent for the implementation of the WFD. Therefore, in this table, “regional” refers to the central or highest level for Flanders, whereas for the other cases it refers to a subsidiary level.

Table A4. The main organizations leading WFD and FD implementation in our nine interview cases, as derived from WFD implementation reports and our interviews. Where more than one organisation is listed as providing central coordination, the first is the “competent authority”. Published sources provide further reading on the formal governance structures in each case.

Case	Policy	Central Coordination	Regional Level Planning	Further Information
England (U.K.)	FRMP	Environment Agency; Department for Environment, Food and Rural Affairs (DEFRA)	Environment Agency (EA); local authorities	[63]
	RBMP	EA, DEFRA	EA	[64]
Flanders (Belgium)	Joint FRMP & RBMP	Committee on Integrated Water Policy (CIW); coordination for the Scheldt and Meuse, respectively assigned to the International Scheldt Commission and the International Meuse Commission	Basin management secretary and council for each sub-basin; Flanders Environment Agency; Provinces; municipalities for smaller water courses	[65]

Table A4. Cont.

Case	Policy	Central Coordination	Regional Level Planning	Further Information
Northern Ireland (U.K.)	FRMP	Department for Infrastructure—includes Rivers Agency; and Northern Ireland Water	Department for Infrastructure; local authorities responsible for land use planning	[66]
	RBMP	Department for Agriculture, Environment and Rural Affairs (DAERA)—includes Northern Ireland Environment Agency	DAERA	[67]
Scotland (U.K.)	FRMP	Scottish Environment Protection Agency (SEPA)	SEPA; lead local authorities	[68]
	RBMP	SEPA	SEPA	[69]
Sweden	FRMP	Swedish Civil Contingencies Agency	County Administrative Boards—five of which host a District Water Authority; Swedish Civil Contingencies Agency	[70]
	RBMP	Swedish Agency for Marine and Water Management (from second cycle)	County Administrative Boards—five of which host a District Water Authority	[71]
Wales (U.K.)	FRMP	Natural Resources Wales (NRW)	NRW; lead local flood authorities	[72]
	RBMP	First cycle RBMPs; EA: second cycle NRW for Western Wales RBMP; EA and NRW for the Dee and Severn RBMPs	EA; NRW	[73]

Table A5. Topic guide used as the basis for semi-structured interviews.

Section 1: Biographical issues, career history	Professional career to date Current role and responsibilities Extent of involvement and role in planning
Section 2: General views on integration, opportunities and challenges	In your view, to what extent is Floods Directive (FD)—Water Framework Directive (WFD) integration important? How could we judge what “good” integration looks like? What would this mean for water management practices and policy delivery? To you, does integration imply something different to coordination or alignment? On the scale [shown] where do you think your country sits in terms of WFD and FD integration? What are the challenges to integration? How do you deal with/have dealt with these challenges? Some of the people we have talked to have identified a range of challenges [list updated between interviews]. Have you encountered any of these challenges in your country? What are the main opportunities for improving FD-WFD integration? What would need to change in order to enable more integration? Are other priorities more important for helping to achieve FD and WFD goals?
Section 3: Why plans may or may not show signs of integration	What specific parts of the planning process may (or may not) allow connections? Is there evidence of integration in other plans or documents for water management (e.g., smaller-scale plans)? Are there examples or initiatives for integration that are not (yet) reflected in the formal plans? If so what, how did this occur?

Table A5. Cont.

Section 4: About the future	<p>In this section we would like to discuss what the next steps might be. In general, what are your priorities in implementing the current plans? What are your priorities for the next cycle of planning? Do you foresee any actions or changes to enable integration in future? If so what? Why?</p>
Debrief/next steps	<p>In this section we would like to discuss what the next steps might be. In general, what are your priorities in implementing the current plans? What are your priorities for the next cycle of planning? Do you foresee any actions or changes to enable integration in future? If so what? Why?</p>

References

- White, G.F. Reflections on the 50-year international search for integrated water management. *Water Policy* **1998**, *1*, 21–27. [[CrossRef](#)]
- Leong, C.; Mukhtarov, F. Global IWRM Ideas and Local Context: Studying Narratives in Rural Cambodia. *Water* **2018**, *10*, 1643. [[CrossRef](#)]
- Biswas, A.K. Integrated Water Resources Management: A Reassessment. *Water Int.* **2004**, *29*, 248–256. [[CrossRef](#)]
- Hering, J.G.; Ingold, K.M. Water Resources Management: What Should Be Integrated? *Science* **2012**, *336*, 1234–1235. [[CrossRef](#)] [[PubMed](#)]
- Lubell, M.; Lippert, L. Integrated regional water management: A study of collaboration or water politics-as-usual in California, USA. *Int. Rev. Adm. Sci.* **2011**, *77*, 76–100. [[CrossRef](#)]
- Margerum, R.D. Integrated Environmental Management: The Foundations for Successful Practice. *Environ. Manag.* **1999**, *24*, 151–166. [[CrossRef](#)]
- Jordan, A.; Wurzel, R.K.W.; Zito, A. The Rise of ‘New’ Policy Instruments in Comparative Perspective: Has Governance Eclipsed Government? *Political Stud.* **2005**, *53*, 477–496. [[CrossRef](#)]
- Giordano, M.; Shah, T. From IWRM back to integrated water resources management. *Int. J. Water Resour. Dev.* **2014**, *30*, 364–376. [[CrossRef](#)]
- Fritsch, O.; Benson, D. Integrating the Principles of Integrated Water Resources Management? River Basin Planning in England and Wales. *Int. J. Water Gov.* **2013**, *2013*, 265–284. [[CrossRef](#)]
- Lubell, M.; Edelenbos, J. Integrated water resources management: A comparative laboratory for water governance. *Int. J. Water Gov.* **2013**, *1*, 177–196. [[CrossRef](#)]
- Molle, F. River-basin planning and management: The social life of a concept. *Geoforum* **2009**, *40*, 484–494. [[CrossRef](#)]
- European Commission. Directive of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (2000/60/EC). *Off. J. Eur. Communities L* **2000**, *327*, 1–73.
- European Commission. Directive of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks (2007/60/EC). *Off. J. Eur. Communities L* **2007**, *288*, 27–34.
- European Commission. *Links between the Floods Directive (FD 2007/60/EC) and Water Framework Directive (WFD 2000/60/EC)*; Technical Report-2014-078; Office for Official Publications of the European Communities: Luxembourg, 2014.
- Collentine, D.; Futter, M.N. Realising the potential of natural water retention measures in catchment flood management: trade-offs and matching interests. *J. Flood Risk Manag.* **2018**, *11*, 76–84. [[CrossRef](#)]
- Dixon, S.J.; Sear, D.A.; Odoni, N.A.; Sykes, T.; Lane, S.N. The effects of river restoration on catchment scale flood risk and flood hydrology. *Earth Surf. Process. Landf.* **2016**, *41*, 997–1008. [[CrossRef](#)]
- Jager, N.; Challies, E.; Kochskämper, E.; Newig, J.; Benson, D.; Blackstock, K.; Collins, K.; Ernst, A.; Evers, M.; Feichtinger, J.; et al. Transforming European Water Governance? Participation and River Basin Management under the EU Water Framework Directive in 13 Member States. *Water* **2016**, *8*, 156. [[CrossRef](#)]

18. Wiering, M.; Kaufmann, M.; Mees, H.; Schellenberger, T.; Ganzevoort, W.; Hegger, D.L.T.; Larrue, C.; Matczak, P. Varieties of flood risk governance in Europe: How do countries respond to driving forces and what explains institutional change? *Glob. Environ. Chang.* **2017**, *44*, 15–26. [CrossRef]
19. Carvalho, L.; Mackay, E.B.; Cardoso, A.C.; Baattrup-Pedersen, A.; Birk, S.; Blackstock, K.L.; Borics, G.; Borja, A.; Feld, C.K.; Ferreira, M.T.; et al. Protecting and restoring Europe's waters: An analysis of the future development needs of the Water Framework Directive. *Sci. Total Environ.* **2018**, in press. [CrossRef]
20. Armitage, D.; Berkes, F.; Doubleday, N. *Adaptive Co-Management: Collaboration, Learning and Multi-Level Governance*; UBC Press (University of British Columbia): Vancouver, BC, Canada, 2007; p. 344.
21. Armitage, D.; de Loë, R.; Plummer, R. Environmental governance and its implications for conservation practice. *Conserv. Lett.* **2012**, *5*, 245–255. [CrossRef]
22. Pahl-Wostl, C. An Evolutionary Perspective on Water Governance: From Understanding to Transformation. *Water Resour. Manag.* **2017**, *31*, 2917–2932. [CrossRef]
23. Evans, J. *Environmental Governance*; Routledge: Abingdon, UK, 2012; p. 254.
24. Goodwin, M. Governance. In *International Encyclopedia of Human Geography*; Kitchin, R., Thrift, N., Eds.; Elsevier: Oxford, UK, 2009; pp. 593–599.
25. Young, O.R. Sugaring off: enduring insights from long-term research on environmental governance. *Int. Environ. Agreem.* **2013**, *13*, 87–105. [CrossRef]
26. Ostrom, E. *Governing the Commons: The Evolution of Institutions for Collective Action*; Cambridge University Press: Cambridge, UK, 1990.
27. Carlsson, L. Policy Networks as Collective Action. *Policy Stud. J.* **2000**, *28*, 502–520. [CrossRef]
28. Schout, A.; Jordan, A. Coordinated European Governance: Self-Organizing or Centrally Steered? *Public Adm.* **2005**, *83*, 201–220. [CrossRef]
29. Vaas, J.; Driessen, P.P.J.; Giezen, M.; van Laerhoven, F.; Wassen, M.J. Who's in charge here anyway? Polycentric governance configurations and the development of policy on invasive alien species in the semisovereign Caribbean. *Ecol. Soc.* **2017**, *22*. [CrossRef]
30. Torfing, J.; Sørensen, E. The European debate on governance networks: Towards a new and viable paradigm? *Policy Soc.* **2014**, *33*, 329–344. [CrossRef]
31. Schusler, T.M.; Decker, D.J.; Pfeffer, M.J. Social learning for collaborative natural resource management. *Soc. Nat. Resour.* **2003**, *16*, 309–326. [CrossRef]
32. Gupta, J.; Pahl-Wostl, C. Global Water Governance in the Context of Global and Multilevel Governance: Its Need, Form, and Challenges. *Ecol. Soc.* **2013**, *18*. [CrossRef]
33. Pahl-Wostl, C.; Kranz, N. Water governance in times of change. *Environ. Sci. Policy* **2010**, *13*, 567–570. [CrossRef]
34. Newig, J.; Günther, D.; Pahl-Wostl, C. Synapses in the network: learning in governance networks in the context of environmental management. *Ecol. Soc.* **2010**, *15*. Available online: <http://www.ecologyandsociety.org/vol15/iss4/art24/> (accessed on 19 March 2019). [CrossRef]
35. Collier, U. *Energy and Environment in the European Union: The Challenge of Integration*; Avebury: Aldershot, UK, 1994.
36. Hey, C. Why does environmental policy integration fail? The case of environmental taxation for heavy goods vehicles. In *Environmental Policy Integration: Greening Sectoral Policies in Europe*; Lenschow, A., Ed.; Earthscan: London, UK, 2002; pp. 127–152.
37. Persson, Å.; Runhaar, H.; Karlsson-Vinkhuyzen, S.; Mullally, G.; Russel, D.; Widmer, A. Editorial: Environmental Policy Integration: Taking stock of policy practice in different contexts. *Environ. Sci. Policy* **2018**, *85*, 113–115. [CrossRef]
38. Runhaar, H. Tools for integrating environmental objectives into policy and practice: What works where? *Environ. Impact Assess. Rev.* **2016**, *59*, 1–9. [CrossRef]
39. Persson, Å. Different perspectives on EPI. In *Environmental Policy Integration in Practice: Shaping Institutions for Learning*; Nilsson, M.A., Eckerberg, K., Eds.; Earthscan: London, UK, 2009; pp. 25–48.
40. Nilsson, M.; Eckerberg, K.; Finnveden, G. Discussion: What enabled EPI in practice? In *Environmental Policy Integration in Practice*; Nilsson, M., Eckerberg, K., Eds.; Earthscan: London, UK, 2009; pp. 137–161.
41. Peters, B.G. Managing Horizontal Government: The Politics of Coordination. *Public Adm.* **1998**, *76*, 295–311. [CrossRef]

42. Beunen, R.; Patterson, J.J. Analysing institutional change in environmental governance: Exploring the concept of 'institutional work'. *J. Environ. Plan. Manag.* **2016**, *1*–18. [CrossRef]
43. Hering, D.; Borja, A.; Carstensen, J.; Carvalho, L.; Elliott, M.; Feld, C.K.; Heiskanen, A.-S.; Johnson, R.K.; Moe, J.; Pont, D.; et al. The European Water Framework Directive at the age of 10: A critical review of the achievements with recommendations for the future. *Sci. Total Environ.* **2010**, *408*, 4007–4019. [CrossRef] [PubMed]
44. Heintz, M.; Hagemeyer-Klose, M.; Wagner, K. Towards a risk governance culture in flood policy—Findings from the implementation of the “floods directive” in Germany. *Water* **2012**, *4*, 135–156. [CrossRef]
45. Newig, J.; Challies, E.; Jager, N.; Kochskämper, E. What Role for Public Participation in Implementing the EU Floods Directive? A Comparison With the Water Framework Directive, Early Evidence from Germany and a Research Agenda. *Environ. Policy Gov.* **2014**, *24*, 275–288. [CrossRef]
46. European Commission. *Towards Sustainable Water Management in the European Union: First Stage in the Implementation of the Water Framework Directive 2000/60/EC*; [COM(2007) 128 Final] [SEC(2007) 363]; European Commission: Brussels, Belgium, 2007; p. 79. Available online: http://ec.europa.eu/environment/archives/water/implrep2007/pdf/sec_2007_0362_en.pdf (accessed on 18 December 2018).
47. European Commission. *Report from the Commission to the European Parliament and the Council on the Implementation of the Water Framework Directive (2000/60/EC) River Basin Management Plans*; (Text with EEA Relevance) COM(2012) 670 Final; Commission of the European Communities: Brussels, Belgium, 14 November 2012. Available online: http://ec.europa.eu/environment/water/water-framework/pdf/3rd_report/CWD-2012-379_EN-Vol1.pdf (accessed on 18 December 2018).
48. European Commission. *The Water Framework Directive and the Floods Directive: Actions towards the 'Good Status' of EU Water and to Reduce Flood Risks*; COM(2015) 120 Final; European Commission: Brussels, Belgium, 2015. Available online: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015DC0120&from=EN> (accessed on 18 December 2018).
49. Directorate-General for Environment (European Commission). *Website: Implementing the EU Water Framework Directive & the Floods Directive*; European Commission: Brussels, Belgium, 2017. Available online: http://ec.europa.eu/environment/water/water-framework/objectives/implementation_en.htm (accessed on 19 July 2018).
50. Working Group F. *Report on the Working Group F Workshop on Linking Floods Directive and Water Framework Directive, 8th–9th October, Villa Celimontana, Palazzetto Mattei, Rome*; Working Group F: Ispra, Italy, 2014. Available online: https://circabc.europa.eu/sd/a/aeb25e2a-2194-4122-b269-dd9dd82fbb70/WG%20F_October2014_WRKSHP_REPORT_18%20Dec.pdf (accessed on 19 March 2019).
51. Directorate-General for Environment (European Commission). *A Starter'S Guide. Overview on the Main Provisions of the Water Framework Directive, the Marine Strategy Framework Directive, the Birds and Habitats Directives, and the Floods Directive: Similarities and Differences*; Directorate-General for Environment (European Commission): Brussels, Belgium, 2016; ISBN 978-92-79-64406-1. Available online: <https://publications.europa.eu/en/publication-detail/-/publication/cce60733-c81e-11e6-a6db-01aa75ed71a1/language-en> (accessed on 18 December 2018).
52. Evers, M. Integrative river basin management: Challenges and methodologies within the German planning system. *Environ. Earth Sci.* **2016**, *75*, 1085. [CrossRef]
53. Beunen, R.; van der Knaap, W.G.M.; Biesbroek, G.R. Implementation and integration of EU environmental directives. Experiences from The Netherlands. *Environ. Policy Gov.* **2009**, *19*, 57–69. [CrossRef]
54. Lenschow, A. Conclusion: what are the bottlenecks and where are the opportunities for greening the EU? In *Environmental Policy Integration: Greening Sectoral Policies in Europe*; Lenschow, A., Ed.; Earthscan: London, UK, 2002; pp. 219–233.
55. Swartling, Å.G.; Nilsson, M.A.; Engström, R.; Hagberg, L. Theory and methodology for EPI analysis. In *Environmental Policy Integration in Practice*; Nilsson, M.A., Eckerberg, K., Eds.; Earthscan: London, UK, 2009; pp. 49–66.
56. Creswell, J.W. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*; Sage: London, UK, 2005; p. 296.

57. Waylen, K.A.; Blackstock, K.L. *Insights from International Experiences of Integration: Briefing on Current State of Understanding and a Future Research Approach*; Research Briefing; James Hutton Institute: Aberdeen, Scotland, 2016. Available online: http://www.hutton.ac.uk/sites/default/files/files/projects/RD124_D1_1_BriefingOnInternationalIntegration.pdf (accessed on 19 July 2018).
58. QSR International. *NVivo Qualitative Data Analysis Software*; Version 12; QSR International: Melbourne, Australia, 2018.
59. Verbeke, S.; Devroede, N. Flood risk management in Flanders: from flood risk objectives to appropriate measures through state assessment. *La Houille Blanche* **2017**, *4*, 20–25. [CrossRef]
60. Qualitative Research. *Theory, Method and Practice*, 2nd ed.; Silverman, D., Ed.; Sage Publications: London, UK, 2004; p. 378.
61. Mostert, E. The challenge of public participation. *Water Policy* **2003**, *5*, 179–197. [CrossRef]
62. Newig, J.; Fritsch, O. Environmental governance: participatory, multi-level—And effective? *Environ. Policy Gov.* **2009**, *19*, 197–214. [CrossRef]
63. UK Government. Flood and Coastal Erosion: Risk Management Authorities. Available online: <https://www.gov.uk/government/collections/flood-and-coastal-erosion-risk-management-authorities> (accessed on 17 December 2018).
64. UK Government. River Basin Management Plans: 2015. Available online: <https://www.gov.uk/government/collections/river-basin-management-plans-2015> (accessed on 17 December 2018).
65. Coördinatiecommissie Integraal Waterbeleid. Integrated Water Policy in Flanders. Available online: <http://www.integraalwaterbeleid.be/en> (accessed on 17 December 2018).
66. Department for Infrastructure. Flood Risk Management Plans. Available online: <https://www.infrastructure-ni.gov.uk/articles/flood-risk-management-plans> (accessed on 17 December 2018).
67. Department for Agriculture Environment and Rural Affairs. River Basin Management. Available online: <https://www.daera-ni.gov.uk/topics/water/river-basin-management> (accessed on 17 December 2018).
68. Scottish Environment Protection Agency. Flood Risk Management Strategies. Available online: <http://apps.sepa.org.uk/FRMStrategies/> (accessed on 17 December 2018).
69. Scottish Environment Protection Agency. River Basin Management Planning. Available online: <https://www.sepa.org.uk/environment/water/river-basin-management-planning/> (accessed on 17 December 2018).
70. Myndigheten för samhällsskydd och beredskap. Översvämningdirektivet. Available online: <https://www.msb.se/sv/Forebyggande/Naturolyckor/Oversvamnning/Oversvamningsdirektivet/> (accessed on 19 March 2019).
71. Swedish Agency for Marine and Water Management. Water Management in Sweden. Available online: <https://www.havochvatten.se/en/swam/eu--international/international-cooperation/watercog/swedens-water-management.html> (accessed on 17 December 2018).
72. Natural Resources Wales. Flood Risk Management Plans. Available online: <https://naturalresources.wales/evidence-and-data/research-and-reports/reports-evidence-and-data-on-flooding/flood-risk-management-plans/?lang=en> (accessed on 17 December 2018).
73. Natural Resources Wales. Improving Water Quality. Available online: <https://naturalresources.wales/guidance-and-advice/environmental-topics/water-management-and-quality/water-quality/improving-water-quality/?lang=en> (accessed on 17 December 2018).

