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	UB, Universitat de Barcelona, Spain
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BIOFRESH

Biodiversity of Freshwater Ecosystems: Status, Trends, Pressures, and Conservation Priorities

Project no. 226874

Large scale collaborative project

WP8.1: Report of the communication and dissemination strategy

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INTRODUCTION

This document sets out the dissemination and communication strategy for the BioFresh project[1]. The aim is to provide a clear and concise description of the way in which the process of communicating the results and information produced by the project to different audiences is to be achieved. It is presented in 3 main sections; the dissemination strategy, the dissemination plan, and the methods to be used to monitor the extent to which the dissemination process has been successful. The document provides a formal presentation of the BioFresh approach to the problem of dissemination and forms deliverable D8.1 of the project.

The first part of the document describes the Communication and Dissemination ***Strategy*** which details the objectives and aspirations of the Biofresh communication programme. Since these objectives specify what we hope to achieve, they will remain unchanged during the course of the project. The second section deals with the Communication and Dissemination ***Plan***. Here the methods and approaches to be used to implement the objectives of the strategy are described. Unlike the strategy, however, the plan is not fixed because during the course of the project new ideas or opportunities will inevitably emerge, which may be adopted. For this reason the plan will be reviewed annually and where significant changes have been made a revised version will be produced. The communication and dissemination plan will thus form a 'working' component of the overall strategy, subject to revision at regular intervals. The third and final section of the document will specify the various means by which the success of the strategy is to be measured. Success will be measured using a number of yardsticks; these will include indicators such as the number of peer reviewed papers, web site hits, newspaper articles, radio broadcasts and so on.

This document has drawn on a number of sources including EU guidelines and past EU projects; a list of all sources consulted is given in Appendix I.

COMMUNICATION AND DISSEMINATION STRATEGY

Objectives

The primary aim of this document is to describe the means by which information and research results will be transmitted to a wide range of audiences to: a) raise the profile of freshwater (FW) biodiversity, b) highlight the problems currently being faced and, c) help promote existing and new policies that may lead to long term solutions.

To fulfil these aims the BioFresh consortium will operate as three different types of community aspiring to different roles:

- In its most specialised sense the BioFresh consortium is an '*epistemic community',* a network of knowledge-based experts with an authoritative claim to policy-relevant knowledge within the domain of their expertise. Through the project this community will derive a common set of beliefs on the value of freshwater biodiversity. By constructing, validating, sharing and analysing scientific knowledge together BioFresh partners will create an authoritative claim to scientific excellence and policy relevance. As an *epistemic community* the key goals are to a) promote awareness of our existence, and b) to indentify policy making bodies relevant to

[1] The document has been prepared by team members of Work Package 8 (WP8) with input from other partner organisations. WP8 '*Capacity building, awareness raising, and outreach'* is responsible for all dissemination and communications activities in BioFresh

freshwater biodiversity and then provide them with authoritative and relevant scientific information in an appropriate and timely manner. This is likely to be in the form of policy presentations and briefs supported by scientific papers and reports and will be the primary responsibility of EU-JRC and Ecologic.

- At a broader level Biofresh can be viewed as an '*advocacy coalition'*, a scientific partnership that seeks to extend its impact on freshwater biodiversity policy. The coalition represents a set of individuals in a variety of positions sharing values and policy aspirations and who together promote coordinated actions. As an *advocacy coalition* the first goal is to identify organisations (e.g. governmental, NGOs, and businesses) whose policy objective encompass or could encompass fresh-water biodiversity (such identification has started with the selection of stakeholders). The next goal is to align freshwater biodiversity with their agendas.

- Finally, at the highest level of all the project community including partners and stakeholders will seek to facilitate the emergence of a broader fresh-water biodiversity *'issue network'* (Figure 2). This network will comprise a loose association of groups having a common interest in freshwater biodiversity. By including a wider range of interests this approach offers greater access to the policy process. Currently conflicting interests in policy design (e.g. the Common Agricultural Policy or CAP, the Water Framework Directice or WFD, biodiversity targets) means ineffective instruments are applied to achieve results. Different policy areas are often not communicating with each other. Through the issue network BioFresh will aim to divulge the findings of its research to the wider policy community; in this way policy in other areas can be better informed of freshwater biodiversity issues. As a facilitator of an *issue network* the overarching goal is to create the conditions whereby a diverse range of actors will begin to engage with freshwater biodiversity as an environmental policy issue. Part of this is to ensure that the concepts, jargon and scientific tools are understandable to non-experts; part of it is creating an awareness of freshwater biodiversity and framing its value and interest in ways that resonate with wider culture; and a final part is to target groups within society that already have forms of association and the capacity for mobilisation (e.g. aquarists, river cruise boats, farmers unions, hydro-power companies).

These three community levels are diagrammatically shown in Figure 1.

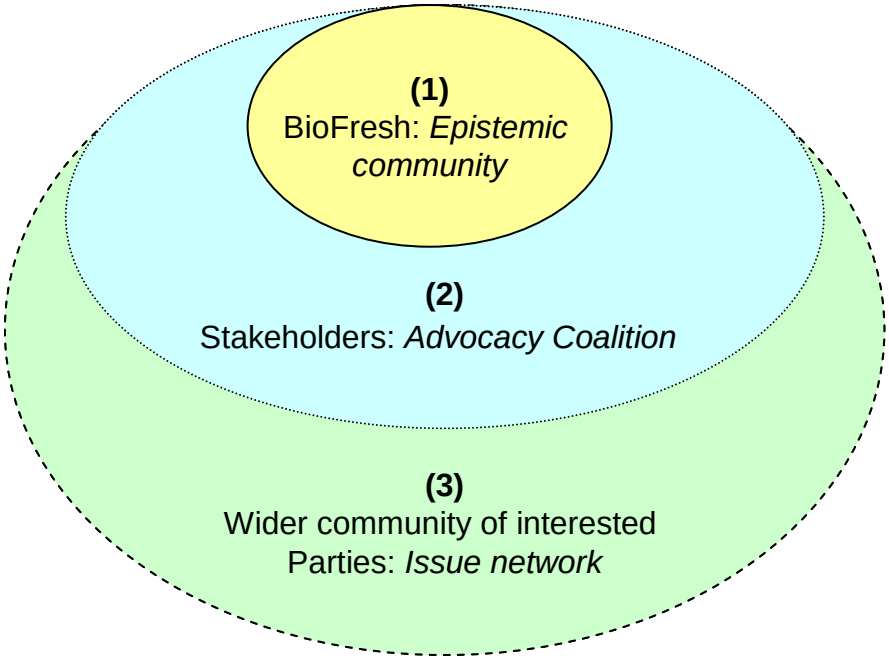


Figure 1: The three levels of community addressed by BioFresh

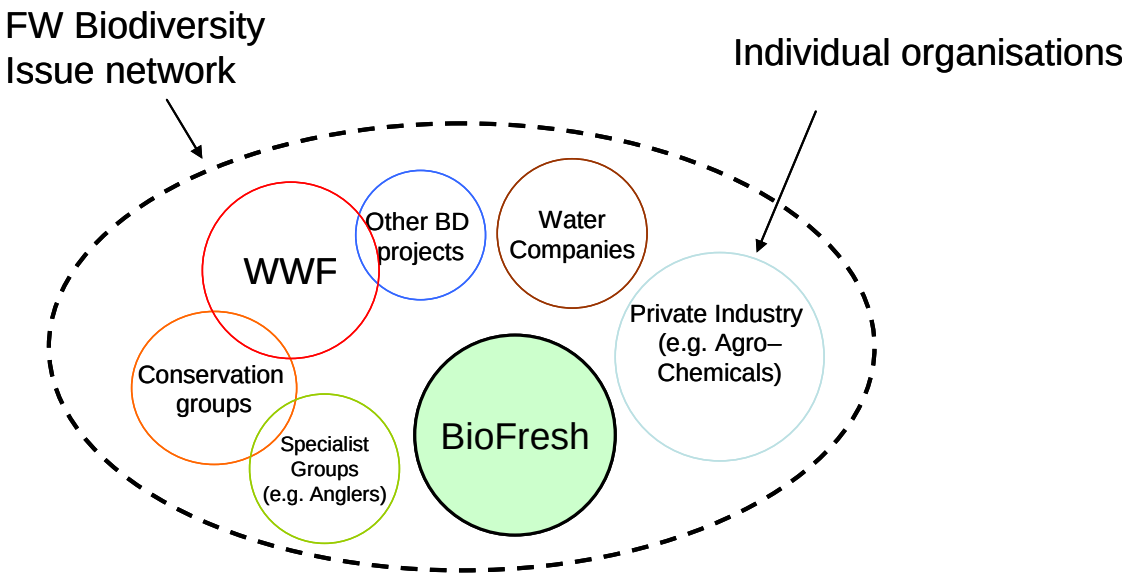


Figure 2: Freshwater Biodiversity 'Issue Network'

Acting within the three roles described above BioFresh will aim to achieve following specific communication and dissemination objectives:

1. Establish an authoritative and cutting edge profile for the Biofresh collaboration within the biodiversity and fresh-water scientific community

The consortium will highlight the existence, relevance and excellence of the scientific outputs of the BioFresh network. The existence of the BioFresh data base, and the results of associated research, needs to be communicated to as wide a range of relevant academic and research organisations as possible. Target groups will include university departments and national research organisations (e.g. CEH, UK, PEER). Other ways to reach this particular audience will be through the production of peer-reviewed papers, appearances at international conferences, attracting traffic to the project database, as well as dissemination using the more popular media (TV, radio, newspapers and magazines).

2. Establish an interface between Biofresh and key policy sub-systems of relevant EU and Inter-governmental organisations and treaties

Target organisations will include those organisations a) involved in biodiversity conservation, namely the DG-Environment Nature and Biodiversity Unit, DG-Agriculture and Rural development, the proposed EU Expert Group on Biodiversity and Water, CBB, RAMSAR and CITES, the UN Intergovernmental science-policy platform on biodiversity and ecosystem services - IPBES and b) governmental organisations covering broader environmental policy areas for whom freshwater biodiversity is an important component, specifically the DG-Environment Water Unit, European Environment Agency, World Water Forum etc. Central to this component of the strategy will be the identification, mapping and characterisation of policy sub-systems and inter-governmental science platforms that help 'conduit' science into broader policy.

3. Promote the engagement of a wider range of policy actors in freshwater biodiversity policy through aligning freshwater biodiversity issues with their policy goals and agendas

The primary target organisations will be those who are active and influential in freshwater biodiversity policy, notably trans-national conservation NGOs such as The Nature Conservancy (TNC) and World Wildlife Fund (WWF). Then there are also influential policy actors for whom 'frame bridging' between the freshwater biodiversity issue frame and their own would be relatively straight forward. This latter category might include other environment and development NGOs but also commercial actors. The first part of the strategy will to identify and characterise this actors and analyse their framing of policy issues. Communication techniques will include policy briefs and joint presentations, press releases and presentations at conferences and policy forums.

4. Stimulate interest of scientists in the study, conservation and governance of freshwater biodiversity

Stimulate and enable the interest and participation of other scientists and water-related professionals in the conservation, science and governance of freshwater biodiversity. The communication strategy will involve three elements i) a blog featuring short comments on recent papers and policy issues and features from invited contributors and inviting readers comments ii) open access to the BioFresh data base , maps and other related information, supported by on-line user guides, iii) a scientific conference and iv) training courses for scientists.

5. Stimulate the interest of fresh-water related business and interest groups in FW biodiversity conservation and governance

Our key target groups here will be the 'edutainment' and tourism enterprises (e.g. aquaria, museums river cruise operators) and fresh-water related hobbyist groups (e.g. fly-fishermen, cichlid breeders,. The rationale is that they have the potential to become an active constituency. The strategy will identify and characterise these groups and produce a suite of targeted communication tools. Initially these will include: a) tailored articles in the specialists magazines profiling freshwater biodiversity and the

BioFresh agenda; b) a 'jargon buster' and FAQ area of the web-site and c) 'freshwater curiosity' feature on the web-site, to which these organisations can contribute and from where they can be linked. However, the more ambitious goal is to identify high profile individual 'heroes' among each fraternity and encourage them to contribute YouTube video interviews that can be converted into short web-based advocacy videos that simultaneously raise the issue among their specific hobbyist community and demonstrate the diversity of voices calling for action.

6. Promote a general public awareness and interest in freshwater biodiversity

This last objective will aim to widen the above through two communication techniques that are relatively easy to deliver. The first is to issue press releases to coincide with relevant conservation issues and events. This will be undertaken by the IUCN press department as an 'add on' to their regular work. The second is to have a 'fresh-water curiosities' feature on the web-site. This will be designed to respond to casual internet searches for (e.g.) weird animals and incorporate information on where to see the animals and a user response questionnaire.

7. Create an issue network for freshwater biodiversity

Contribute to the creation of bridges between freshwater biodiversity science and other bodies to create a freshwater biodiversity issue network concerned with better freshwater biodiversity governance. We need to identify other organisations with an interest in the freshwater biodiversity field and to encourage the development of a network that can collaborate, where appropriate, and provide mutual support where needed. This type of *issue network* can be used to promote the introduction of policies to support the conservation of freshwater ecosystems and highlight the importance of freshwater biodiversity in the environment. To ensure the network has genuine validity every effort will be made to incorporate a wide range of organisations from academia, the private sector, NGOs, local and national government organisations and so on.

8. Identification of actors with an interest in shaping the formulation and outcomes of freshwater biodiversity policy

As a starting point for the identification of the main actors, the public participation process that has opened as a consequence of the implementation of Article 14 of the WFD might be used. An example of the stakeholder groups involved in Scotland is given as an example in Appendix II.

Internal communication

To ensure the results and information generated by BioFresh are successfully transmitted externally to our various audiences, it will be essential to ensure that effective internal lines of communication are established within the project. A well planned system of interaction between all participants of the project and the WP8 team responsible for dissemination activities will be required. Any new information, results, or communication activity will need to be rapidly passed to the WP8 team so that these can be logged and any necessary action taken. Without such a system none of the objectives of the communication strategy can realistically be achieved.

The importance of keeping the communication and dissemination team fully informed of all relevant results and information will be stressed to all partners. Multiple lines of communication will be set up to enable rapid transmission of information; this will include a combination of the usual channels such as emails, Skype meetings, and telephone conversations. However, in addition it is planned that information will also be logged directly onto the partner section of the Web site and to Google docs set up to record partner activities. During the course of the project experience will reveal which channels of communication are the most effective; priority can then be given to these approaches.

Definition of Instruments and Media

A broad range of communication tools will be exploited to deliver the dissemination strategy. Each technique has its strengths and weaknesses and each is suited to different types of audience. The tools, summarised in Table 1, can be grouped into a number of broad categories:

Scientific publications: These take the form of peer reviewed papers, guidelines, reports; proceedings of conferences and other documents. They will strive to raise the profile of freshwater biodiversity in the academic and scientific community, particularly those directly involved with biodiversity and closely related fields such as water resources. Dissemination to the academic community will also be via conferences, seminars, workshops, training events and meetings with other organisations and networks.

Policy related documents: The results of the project will be translated into advice to policy making bodies in the form of either policy briefs or reports on policy related matters. These documents will be produced specifically in response to requests and will be in a form that can be readily understood by non-experts.

Publicity: To update the scientific and wider communities about specific events or to highlight significant results, a series a publicity documents in the form of brochures, posters and flyers will be produced during the course of the project. Other channels will include press releases, newspaper articles, TV and Radio items, and popular magazines. A regular Newsletter reporting project progress is also planned; the frequency of such a document has yet to be agreed.

Web Site / E-media: The project Web site will represent the single most important dissemination tool. Apart from the data portal, which will provide a valuable resource for scientific and other communities, there will be a publicly accessible area where information about the project and the issues of freshwater biodiversity in general can be disseminated. This public area will present freshwater biodiversity issues and project results in an interesting, informative and comprehensible manner. Maximum use will be made of a wide range of the new media such as Twitter, RS feeds, YouTube videos, blogs, message boards, social networks and any other type of communication system that may emerge during the course of the project.

Networks: BioFresh will endeavour to establish a community of organisations having a common interest in the field of freshwater biodiversity including those from the private sector, NGOs, government as well as academic and research institutions. The creation of such an *issue network* will provide a powerful means to promote the results of BioFresh.

Technique	Objectives					
	1	2	3	4	5	6
Scientific publications	✓	✓✓	✓✓✓	✓✓✓	✓	✓✓
Policy related documents	✓✓✓	✓✓	✓✓	✓	✓	✓✓
Publicity	✓✓	✓✓	✓✓	✓✓	✓✓✓	✓
Web Based / E-media	✓✓	✓✓	✓✓✓	✓	✓✓	✓✓
Networks	✓✓✓	✓✓	✓✓	✓✓	✓	✓✓✓
Internal project communication	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓

Objectives

1	Raise the profile of FW biodiversity among policy makers in the field
2	Extend influence of FW biodiversity issues to broader communities
3	Ensure widespread publicity for existence of BioFresh data base
4	Stimulate interest of scientists in the conservation and governance of FW biodiversity
5	Stimulate interest of citizens in FW biodiversity conservation and governance
6	Create an issue network for FW biodiversity

Table 1: Techniques and Objectives

✓✓✓ = key approach

✓✓ = important approach

✓ = supporting approach

Target audiences

To reconcile the communication goals of BioFresh with those of the funding body (EU) and to raise the profile of freshwater biodiversity as widely as possible at all levels, a broad range of recipients need to be addressed. In general terms three categories of audience will be targeted by the project:

- The scientific and academic community
- Policy making organisations
- Citizen and non-expert groups with an interest in freshwater biodiversity

Each type of audience will be accessed using a range of communication tools, the type of tool varying depending upon the audience.

Scientific and Academic Community
BioFresh will target this group to publicise the availability and potential of the project data base, to highlight results of research, and raise the profile of freshwater biodiversity in the scientific community. In recent years the important role of freshwater biodiversity has been under represented in the scientific literature, something that BioFresh aims to redress. Falling into this category are organisations such as Universities, public and private research bodies, consultants, and other organisations with an interest in the science of biodiversity.

Policy making organisations
A major target audience will be those organisations and institutes responsible for policy formulation. These may be government offices, NGOs, private organisations, conservation groups or any other body responsible for the formulation of policy. Such organisations require up to date information, results of the latest research, and general guidance in order to frame the most appropriate policy. Advice can be given in the form of policy briefs or through the influence of 'freshwater biodiversity issue networks' that can press for the implementation of suitable policies.

Citizen and non-expert groups
One of the main concerns of the EU is to ensure that the results and impacts of research projects funded by the Community are effectively disseminated to the general public in a form that can be readily understood and appreciated. After all, this is the only realistic means by which the man in the street can be assured that taxes are being put to good use. Included in the definition of public is a wide range of organisations that have a real and vested interest in the maintenance of freshwater biodiversity such as angling groups, canal and river users, bird-watchers, and so on.

Audiences can also be viewed in terms of their degree of interest in the freshwater biodiversity issue and their influence in terms of policy formulation. Figure 3 illustrates the different types of audience. They can be considered as four groups ranging from high interest - high influence, to low interest - low influence. The high interest - high influence groups include the high profile NGOs such as WWF and Greenpeace as well as government bodies like DG-Environment in the EU. From the point of view of having an influence on policy these are clearly the groups to target since they wield considerable power and are able to push through ideas into practice. However, this does not mean that Biofresh should concentrate on this group to the exclusion of the others. The low influence - low interest groups, although seemingly of little importance, still need to be informed of the work of projects such as Biofresh, not only to maintain a high profile but also help raise interest levels in these organisations and individuals.

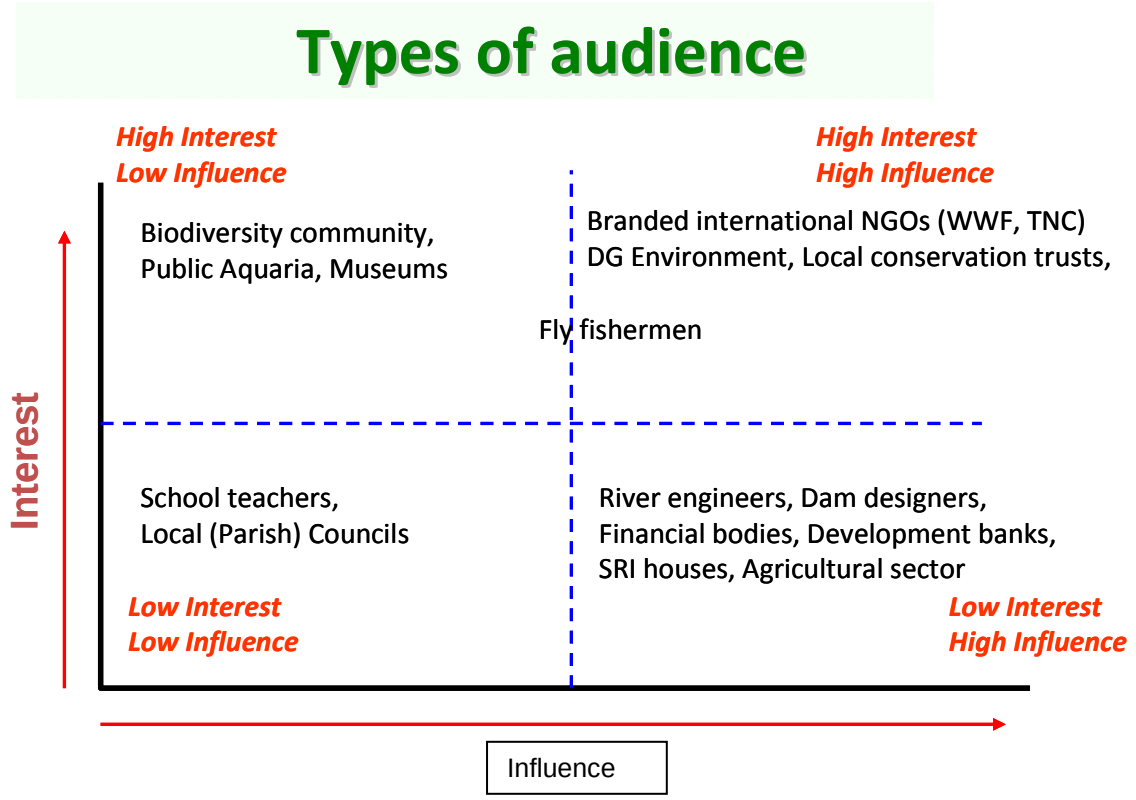


Figure 3: Types of audience in terms of their interest and profile

Establishing links to other organisations, groups, projects

A priority dissemination activity will be to establish close links with other groups and projects that have a direct or indirect interest in the field of freshwater biodiversity. The resulting network will comprise bodies drawn from a wide range of communities including academic and research institutes, private industry, local and national NGOs, conservation trusts, and special interest organisations (e.g. anglers). This group of diverse organisations sharing a common interest in the freshwater biodiversity field will constitute an *'issue network'*[2] that can be used to promote policies designed to protect the welfare of this under represented field. The concept is illustrated in Figure 2.

It is important to stress that issue networks seek to support public and not private interests by seeking to benefit a wide ranging constituency that supports their side of the issue. In this sense they are not narrowly focused lobbyists pushing for the benefit of a small constituency.

Evaluation of dissemination progress

Dissemination and communication activities will be ongoing throughout the course of BioFresh. Activities will be many and varied and at some stage involve most of the partners in the consortium. In order to keep track of progress there is a pressing need to ensure that all activities are closely monitored, logged and ultimately evaluated to assess the impact of the dissemination strategy. Without

[2] An **issue network is** an alliance of various interest groups and individuals who unite in order to promote a single issue in government policy

evaluating the impact of the various dissemination activities it will not be possible to assess how successful or otherwise the strategy has been.

The first step toward establishing a credible monitoring and evaluation system will be to establish effective channels of internal project communication such that information about any communication or dissemination activity is speedily logged. This means that if a partner publishes a peer reviewed paper, takes part in a radio interview, or is involved with any other dissemination activity then details should be speedily be made available to the WP8 team. To ensure that this happens will require the set up of a system of internal communication that is simple, effective and supported by all partners. At this stage the plan is to endeavour to have all activities logged on the Web site where the WP8 team can easily track and monitor progress. Before the Web site is fully established tracking will be done using the Google docs facility, which will enable all partners to easily download their contributions into one document, accessible to all.

Throughout the project progress of the dissemination strategy a wide range of metrics will be monitored. These metric or measures of success will include items such as the number of peer reviewed publications, TV and radio interviews, web site hits, press releases, brochures and so forth. Wherever possible the measures of success will be quantitative and capable of evaluation both during and at the end of the project. Some of the measures to be used are listed in Table 1.

Table 1: Examples of measures of success

No.	DESCRIPTION	TYPE
T	Technical	
T1	State of Art monitoring (No of papers; books etc)	Quantitative
T2	Number of technical reports and scientific papers	Quantitative
T3	Number of Conference presentations	Quantitative
T4	Collaboration of BioFresh with other research activities (meetings, workshops etc)	Quantitative
T5	Size of data base (number of records)	Quantitative
T6	Number of brochures	Quantitative
T7	Number of newsletters	Quantitative
T8	Number of TV and radio broadcasts	Quantitative
U	User Communities	
U1	Number of stakeholders trained	Quantitative
U2	Hours of training given	Quantitative
U3	Training documents produced	Documentation
U4	Number of Web Site hits	Quantitative
U5	Number of mailing contacts	Quantitative

Key Messages

The project will adopt 'vision-based' messaging, rather than the 'fear and anxiety' approach that has been followed by such issues as climate change, an approach that has lead to 'climate fatigue' among policy makers and public alike. A vision based strategy does not totally negate messages about the threats to, and decline of freshwater biodiversity but rather focuses on the actions that can be taken to improve the current situation using the knowledge, will and dynamism of existing communities.

The communication and dissemination strategy is charged with delivering a number of key messages to the scientific and wider community. These are:

1. *The necessity for a single FW biodiversity data base:* Currently FW biodiversity data is scattered throughout a large number of locally maintained data bases. The result is that it is often difficult to obtain sufficient information to define, for example, the global distribution of species. To overcome this problem a single, centralised, easily accessible data base is needed to allow this type of analysis and provide the information required to better inform policy.
2. *The need for analysis at the Global, European and Regional scales to meet the threat facing freshwater biodiversity:* Information from a single centralised data base will allow scientists and planners to complement, integrate, and analyse quantitative data to discover, evaluate and examine patterns that will shed new light on how freshwater biodiversity responds to global, European, and local environmental pressures.
3. *Better conservation policies:* An integrated data base will make it possible to develop effective regional plans for conservation. In this way aquatic systems can be offered better protection and the services they provide can be used more effectively to deliver social and environmental goals.
4. *Improved assessment of impact of various stressors:* The data base can be used by scientists to examine how various stressors interact to impact freshwater biodiversity. This work will help

to shed light on how future climate and socioeconomic pressures will give rise to global, continental and local responses in freshwater biodiversity.

5. *Facilitate incorporation of freshwater biodiversity into policy directives:* Until now, it has not always been easy to incorporate understanding of freshwater biodiversity explicitly into environmental agreements (e.g. EU WFD) or in related policy instruments (e.g. Habitats Directive). By providing easy access to data and an appropriate and coherent scientific foundation BioFresh will help improve the introduction of freshwater biodiversity issues into policy directives. With this information, policy makers will be in a position to take decisions based on the best available evidence
6. *To raise awareness of the importance of freshwater biodiversity:* The products and findings of the project will be used to make a wider community more aware of the importance and beauty of freshwater biodiversity which on too many occasions tends to be taken for granted. Science policy has a relatively poor understanding of how to conserve and manage freshwater biodiversity. To improve this situation we need the help and engagement of interested people and organisations everywhere.

Visual identity

Project logo and colours

A distinctive BioFresh project logo has been designed to help promote a readily recognizable image, an essential element of any successful communication and dissemination activity. The logo, shown in Figure 4, was selected by the consortium from a short list of contributions made by individual partners. Though blue and green were selected as the primary colours there is the option to vary these depending upon the circumstances of presentation; there is also a black and white option. The logo depicts a range of aquatic flora and fauna shown in silhouette against a symbol of the globe, thus conveying the message that BioFresh is concerned with the promotion and scientific analysis of fresh water biodiversity at all scales up to and including the global dimension.

Figure 4 The BioFresh Logo

Templates

A “Slide presentation template” (in MS PowerPoint format), has been designed that incorporates the logo as a faded out background in pastel blue and green and as a small image in the upper left hand corner. All internal and external presentations of BioFresh work are expected to use this template.

COMMUNICATION AND DISSEMINATION PLAN

The communication and dissemination plan is a description of the methods and techniques that will be used by BioFresh to implement the strategy described in the previous section. Unlike the strategy, which will not change during the course of the project, the plan can be modified in the light of any new ideas or opportunities that may arise and as such will be reviewed and if necessary updated annually.

Our description of the plan is presented under three main heading; activities for the promotion of (a) information and awareness raising (b) understanding and (c) participation.

Activities for Information provision and Awareness Raising

The most obvious aim of the dissemination and communication strategy is to raise awareness and provide information to as wide an audience as possible. To achieve this objective a range of methods will be adopted.

Web site

Central to the BioFresh dissemination and communication plan will be the project Web site. The web-site will fulfill two functions a) as an internal project management and communication tool (backroom) and b) as a science dissemination and advocacy medium (frontend).

As an *internal project management tool* the Web site will be crucial. A partner-only, password protected section of the site will be set up for internal management purposes. All annual and progress reports and all deliverable documents will be prepared, collated and edited within this section. In addition partners will be able to upload dissemination and communication outputs which will be logged and recorded as part of the project dissemination monitoring and measuring procedure. This partner-only section of the site will also be used to organize meetings, log minutes of meeting, advertise external events of interest, and to host any other day to day house keeping activities that are required for the smooth running of the project.

As a *science and dissemination tool*, the Web site will also be of fundamental importance to BioFresh. In this role the site will fulfill three objectives:

1) To promote wider engagement in policy formulation through the communication of the policy evidence base and to provoke discussion and debate in a clear and accessible manner
2) To keep existing policy and scientific networks informed of new developments and promote up-take of new evidence, tools and techniques
3) To frame and give form and meaning to new policy issues (or reinvigorate old issues)

The data base portal will supply the raw data necessary for policy formulation while a publicly accessible section will provide a forum for the presentation of information and promotion of debate on freshwater biodiversity issues. To enable this process to take place a number of communication tools are available for use. These include:

Blogs

Blogs provide a potentially powerful dissemination tool that can be used to promote the BioFresh message and freshwater biodiversity issues in general. The blog can take various forms and be delivered in a number of ways. There are three main options, any of which could be employed by BioFresh. The three options are:

Option 1: This is where the blog is written by a committed scientist or policy advocate selected from within the project. The project would need to select an individual who is capable and willing to maintain the blog on a regular basis at least throughout the course of the project. It is important that whoever takes on the commitment is able to sustain a reasonably regular output and that it is not allowed to stagnate. Good examples of this type of blog are those run by Dan Laffoley

http://www.globalcanopy.org/main.php?m=120&sm=169&t=1 and Charlie Parker http://blog.protectplanetocean.org/

Option 2: An alternative approach is for BioFresh to appoint an editor who is responsible for commissioning contributions for the blog from contributors either within or outside the project. In this way a wider range of expertise and views can be accessed than would be possible if it were kept in house. Two good examples of this type of approach are the 21st Century Tiger Blog http://www.21stcenturytiger.org/index.php?pg=1226056828 and Conservation Magazine run by the Society for Conservation Biology http://journalwatch.conservationmagazine.org/.

Option 3: A third option is to contract a freelance journalist to write the blogs on behalf of the project. The advantage here is that a professional high quality presentation is guaranteed, but of course at a cost. A good example is provided by the Nature magazine blog, http://blog.nature.org/.

Each of these options has advantages and drawbacks which are identified in the accompanying SWOT analysis. Whichever option is adopted will depend on a number of factors including the ability to find 'in house' bloggers, financial considerations and the way in which project participants wish to formulate the blog. It also of course possible to combine all three approaches.

Table 2: Blogs: SWOT analysis

	Strengths	Weakness	Opportunities	Threats
Recognised Individual	The blog will have consistency of style and intellectual input Clear demarcation of responsibility for the blog No time wasted looking for contributions	It will reflect the opinion of one individual which may not be representative of the larger community Depends heavily on the individual to provide a regular input	Chance to develop ongoing themes Possibility to challenge opinions from blog to blog A chance to build a strong coherent message to the outside world	Opinions may alienate other participants The blog may become a vehicle to peddle pet likes or dislikes May become too predictable
Guest Contributors	Will provide a regular influx of new ideas and opinions on a range of topic Can ensure that the guest is an authority in the field and thus raise the profile of the blog	Problem of finding a suitable person for each blog Lack of consistency in style and content. Will be at the mercy of external contributors	A good chance to extend the influence of Biofresh beyond the member partners Possible to involve contributors who are influential in policy making	Danger of sending out mixed messages May lose control over content so that it doesn't accurately represent the BioFresh community
Journalist	Guaranteed regular input of consistent high quality Journalist have the skills to promote a message	Could be expensive in the long term Input from within the project could be limited	Access to a large network of dissemination sources via the journalist Chance to develop a professionally produced cutting edge blog	Becomes a vehicle for the journalist rather than the project partners Lines of communication to journalist become weak

Short YouTube videos

Short information videos hosted on YouTube will be produced and placed on the web site. YouTube videos offer a powerful multi-media format that is easy to disseminate via web-links or download to personal devices. Production of videos is straightforward using readily available software and equipment. Inclusion of YouTube videos will increase the chances of the website being recognized by

search engines such as Google; they also will rank higher in search pages (Search Engine Optimisation or SEO)

An excellent example of a video that aims to widen engagement in a policy issues through a clear and concise introduction is the 'introduction to REDD Basics' http://www.theredddesk.org/redd_basics. Videos can also be vehicles for scientific information. The video featuring Dr Mark New, giving his thoughts on the 4 degrees and beyond conference illustrates this: http://www.youtube.com/watch?v=MkN9vUb_jRU.

Podcasts

Podcasts offer the opportunity to broadcast on BioFresh and Freshwater biodiversity issues in general on a regular basis. They take the form of relatively easy to produce digital audio or video downloadable files that are distributed on the Internet using syndication feeds, or free use websites, and hosted or authored by a podcaster. Any podcasts produced by the project will be embedded in the Web site. As in the case of blogs, podcasts can be produced in-house by a BioFresh partner, using invited external experts, or by employing an experienced broadcaster. The subject of the podcasts, the manner of production and the individuals responsible will need to be agreed by the consortium. A good example of a podcast to emulate is one on the topic of Climate Change and the Fate of the Amazon; http://www.eci.ox.ac.uk/news/playlist/amazon/malhi.m3u.

Online Debates

A possible option is to host an on-line debate on the Web site. This feature would involve two leading scientists and/or policy-makers debating issues of biodiversity. The debate would include a series of exchanges between the two speakers, a concluding summary by a moderator, and as an option a vote to determine the winning speaker and the publication of the result. Such a debate could be organized toward the end of the conference to help highlight the role of BioFresh in advancing the cause and raising the profile of FW biodiversity. The online debate on "The nuclear option is the only green option" is an excellent example of this type of activity. It can be accessed on:
http://www.ox.ac.uk/oxford_debates/past_debates/trinity_2008_the_nuclear_option/index.html.

Webinar

A further option is to host a Webinar (Web based seminar) on the Web site. A seminar provides an interactive element whereby comments on issues can be discussed among many participants rather than it being a one way process. The process involves the speaker designing the presentation and uploading the data to an online service or preparing the software that will be used to give the presentation. The audience for a webinar logs on the website that hosts the presentation at a set time. The presenters give the seminar. The audience logs onto the hosting site at the presentation time to view a live presentation. A webinar blends the interactive technologies of teleconferencing, the web and presentation software to produce an interactive multimedia seminar. Again the consortium needs to decide and agree on the topic and timing of such an activity.

A webinar about carbon prices took place on the 18th of March 2010; it was advertised on
http://www.carbon- financeonline.com/index.cfm?section=subscribe&action=view&id=35

Twitter

This increasingly popular media format provides an efficient means to transmit up to the minute news and information to a large world-wide audience. Twitter users can follow other Twitter users' posts (i.e. following) and/or their own posts could be followed by other Twitter users (i.e. followers). But as in the case of the blog, Twitter needs to be updated regularly to be really effective. For this reason it will be

essential for the project to enlist a partner who is willing and able to operate and maintain a Twitter feed. Considerable thought will also need to be given to the content and audience of such a feed.

An example of a successful Twitter feed can be used can be found on the protectplanetocean.org website:
http://www.protectplanetocean.org/resources/PPOR.html.

Tag clouds

Tag clouds are a stylized way of visually representing occurrences of words and can be used to inform visitors to the Web site about the most popular topics within the page. In this way issues of topical interest will be automatically flagged. Many sites now use this technique; for one example see http://www.theredddesk.org/resources.

RSS news feeds

News items posted on the BioFresh Web site will be made available in the form of an RSS (Really Simple Syndication) feed. This is an increasingly common way for interested individuals and organisations to keep in touch with what is happening in the project and the field of FW biodiversity in general.

Links to other projects

Links to other EU projects or organisations with an interest or connection to Freshwater Biodiversity issues will be posted onto the Web site. A mutual arrangement with these other sites will expand the catchment of a potential audience and will ensure increased traffic to the site.

Special features on the public Web site

To try and attract more interest from the wider public a number of features will be posted on the public section of the Web site. This will include a 'cabinet of curiosities' in which exotic and unusual freshwater aquatic animals and plants will be highlighted each month. Selections could come from within the BioFresh consortium or widened to include contributions from external individuals. Other, perhaps interactive, features to heighten the interest of the general public will also be investigated.

Events

Biofresh will take advantage of planned national and international events such as conferences, seminars and workshops, to publicize the results of research. A preliminary list of known events is given in Appendix II; these are events that may be organized for example by other projects, various associations with a freshwater biodiversity link, the EU and so forth. In addition to these external opportunities Biofresh will organize its own meetings (workshops, conferences and seminars) as and when deemed necessary.

Press Releases

Press releases provide a good way to advertise major achievements to a wide audience in a short time scale. Members of BioFresh will be encouraged to use this technique whenever a suitable news item is available. Partners will be expected to follow the guidelines given by the EU for the production of press releases (European-Commission, 2004). In all cases press releases will be written in English and placed on the Web site, but to maximize their impact partners may decide to translate to other languages.

Emails

During the course of the project partners will need to contact a wide range of organisations and individuals requesting information, advice, collaboration, or simply to advertise the existence of Biofresh. An 'official' brief description of the project and its objectives should be available to attach to initial contacts along with details of the Web site and perhaps any relevant flyers. To save time a mailing list for each type of audience can be composed and used by all participants. Again this information can be lodged on the Web site.

Printed Publicity Material

Although perhaps less important than it used to be, the printed word will still constitute an important element of the BioFresh communication plan. Printed material will take several forms and be aimed toward a range of audiences (Table 3).

Posters; brochures; flyers: During the initial stages of the project efforts will be concentrated on producing promotional material in the form of posters, brochures and flyers. An early BioFresh flyer is shown in Appendix III. This type of material is intended to raise awareness of the project and its objectives among an audience that includes: policy makers, NGOs, specialist organisations with an interest in Freshwater Biodiversity, and conservation groups as well of course as the general scientific community. These materials will be regularly updated as the data base begins to take form and results become available. Every publication will be in English but each partner will have the option of producing a copy in their own language should be necessary. This material will be for general distribution at meetings, conferences, seminars etc; all of it will be available in a digital format on the Web site.

Peer reviewed publications: All participants will be encouraged to publish the results of their work in scientific journals. Such publications lend credibility to BioFresh and inform the scientific community of the project results.

Newspaper and magazine articles: Articles in the more popular press are intended to reach a wider, non-expert audience including the public and those having a specialized interest in Freshwater Biodiversity (e.g. anglers; birdwatchers; canal users etc). Articles in the popular press can be used to raise important issues and flag potential problems in
the Freshwater Biodiversity field. Since the public receive most of their scientific information through newspapers, TV and radio, this is a particularly effective means to convey messages to this audience.

Table 3: Printed publicity material

Policy briefs: Ultimately the results of Biofresh will be used to form the basis of policy briefs to international policy making bodies such as the EU. In this way the project can aspire to influence the management of aquatic ecosystems in a way that ensures their long term health.

External sources

In addition to the resources of the Biofresh consortium there are a host of external resources the project can exploit to help implement the communication and dissemination strategy. Many of these operate under the aegis of the EU. They range from various activities of the Research Commission itself, through other Commission activities such as CORDIS Wire, and AthenaWeb, to specialist web sites covering science and media.

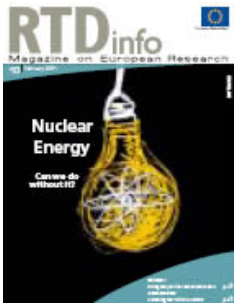
Purpose	Target Group(s)	Method
Presentation of scientific project results	Science community	Peer reviewed papers
Raise awareness of the project	Policy makers; special interest groups; NGOs; conservation groups	Brochures; flyers; Newsletter; Newspaper and magazine articles
Promote findings of project	Public, Policy makers, NGOs, special interest groups, conservation groups, private industry (agriculture)	Policy briefs, newspaper and magazine articles, reports

The Research DG itself is heavily involved in communicating the results of EU-funded research to the media and the general public through the Information and Communication Unit. Commission activities fall into four main categories:

- Media mailing list
  Nearly 3 000 journalists – from television and radio to newspapers, magazines and scientific journals – receive targeted information on developments and results considered to be of interest to their various audiences. Press releases related to FP6 projects are prepared in close co-operation with project participants. Once finalised, they are sent to the mailing list (i.e. to journalists all over the world).

- Thematic press briefings
  In addition to sending information to the media, the Information and Communications Unit invites journalists to frequent thematic press briefings – often 'on location' rather than in Brussels – where the scientists actually involved in the research present their results to the media. Such events typically generate dozens of TV and radio programme items, as well as newspaper and magazine articles across Europe. If the subject is suitable, a video news release can even be prepared for TV station use.

- RTD info magazine
  A free magazine entitled *RTD info* reaches the research community more directly. This has a circulation of over 80 000 copies – and a readership of almost ten times that. It includes specially written articles on selected projects and their results. In addition, it publicises events organised in connection with EU-funded projects. *RTD info* is published in printed and electronic formats (via the Research website on Europa) in English, French and German; and in Spanish in electronic format only.



- Research website
  Reaching the broadest of all possible audiences, the Research website on EUROPA – the European Union's web portal – runs to some 18 000 pages covering all aspects of EU-funded research. Over the first eight months of 2003, the site averaged 1.25 million hits per month – more than twice the hits for the same period in 2002.
  The EUROPA Research website aims to present the best of European research. Information on – and links to – research activities across the EU is accessible to the general public, the research community, policy-makers and the media.

Apart from the DG itself there are several other sites that offer the opportunity for BioFresh to exploit. These include:

CORDIS Wire: CORDIS – the European Commission's information service on European research and innovation activities – offers a service known as *CORDIS Wire*, to which project press releases may be submitted. Accepted releases are posted on the site for downloading by journalists and other interested readers.

Athena Web: This offers a professional science information portal for the European research and audiovisual communities. The project, launched by the European Commission in 2004 is intended to increase use of the huge amount of existing scientific video material that is difficult to locate, access and is therefore under-exploited. The intention is to develop a single portal where all interested actors could deposit/access scientific films and videos in all formats.

Alpha Galileo: A website that describes itself as 'the world's leading resource for European research news'. Run by the not-for profit AlphaGalileo Foundation on a mix of government grants, commercial sponsorship and advertising, the service offers a fast and effective way to communicate with journalists around the world. It provides instant access to news, images, background information and a database of experts.

ECSITE network: The European Collaborative for Science, Industry and Technology Exhibitions) is a European network of museums, science centers and other organisations involved in science communication to a wide public. Covering over 35 countries, it promotes the exchange of experience and novel ideas. ECSITE develops transnational projects for raising the public's awareness of science, funded by EC and other sources.

EurActiv.com web portal: EurActiv is an independent and multilingual EU policy portal that targets mainly the community of EU actors: EU institutions, industry and unions, non-governmental organisations (NGOs), media, countries, regions and cities. The Science & Research section of

EurActiv offers news, more in-depth coverage through LinksDossiers, interviews with key decision-makers and external analyses for the main EU research topics.

Research TV: This resource produces ten-minute video news releases distributed to over 2 000 broadcasters worldwide. Each story is tailor made for TV news, timed to fit standard slots and highlight newsworthy issues such as groundbreaking research or new discoveries.

Ascribe (USA): A US-based company that distributes the news of non-profit and public sector organisations (universities, medical centres, foundations) directly into newsroom computers and desktops of major media organisations via Associated Press. AScribe Newswire also feeds the news to major news retrieval database services, on-line publications, developers of websites and intranets.

Activities to promote Understanding and Collaboration

Apart from raising awareness and the provision of information another major role of the BioFresh dissemination team will be to facilitate technical collaboration, foster linkages, build strategic partnerships and enhance dialogue and knowledge with other communities having a direct or indirect interest in the issues of freshwater biodiversity. In this way an informal network of groups (an issue network) can be established and used to inform policy in the field. The inclusion of organisations from a wide range of communities (science; private industry; conservation; NGOs etc) will promote an informed debate and encourage the emergence of a consensus viewpoint. To help identify those organisations and networks to which BioFresh can link we will use the Issue Crawler software. The software can be used to identify different types of network.

1. Networks of Biodiversity data platforms: Existing data platforms are known to have a strong web presence. Issue crawler can be used to identify these networks. With this information the major organisations identified can be contacted and requests made to include BioFresh within the network links. Re-mapping of the network at intervals will identify the impact made by the project in the network.
2. Mapping freshwater biodiversity issue networks on the web: A search will be made to locate i) dedicated freshwater biodiversity policy units and ii) others which have FW biodiversity embedded as one of a number of interests. Again BioFresh can request to be linked into the network, and once again the impact can subsequently be mapped.
3. Mapping interest networks: Here the aim will be to identify groups and organisations with a stake in freshwater biodiversity and who might wish to engage with policy (e.g. trout fishermen, public aquaria, river cruise companies etc).

Activities to promote participation

Training: A more indirect channel of communication and dissemination is through the training programme planned by BioFresh. Training of stakeholders at different administrative levels and NGOs, and across sectors will be provided on: (1) freshwater biodiversity databases, and (2) the BioFresh freshwater biodiversity models and tools developed and assembled in WP 1-6. A provisional programme of four 1-day courses, two on each subject, has been planned.

In addition, a forum and communication platform for PhD students and Post Doctorates will be established within the project. Two two-day training courses for young scientists and Post Doctorates working on the statistical exploration of BioFresh databases will be organised in the second and third year. Invitations to this course will be distributed to a wide range of academic institutions and related FP projects. The lecturer(s) will for the most part be BioFresh partners. The use of tools and models

developed in BioFresh will have the potential to contribute to the sustainability of the project after its lifetime (lead: CKFF; ICLARM, UOXF.AC, RBINS; FVB.IGB; IUCN; UFZ).

However, it should be stressed that this training programme is flexible and amendments are possible depending on the results of ongoing consultation with stakeholders during the course of the project.

MEASUREMENTS OF SUCCESS

Communication is not an exact science and success is difficult to measure as it is intangible in many ways. However, it is important to set some measures for success in order to know if BioFresh is achieving its aims. Metrics will be collected for the project from each partner each month and will be recorded in the annual project reports. A summary of the measures to be monitored are shown in Table 4.

Table 4: Metrics for Biofresh

Description	Data to collect
Posters, brochures, folders, flyers	Number of posters, brochures, folders and flyers produced; Date; Language
Press releases, media coverage and radio and TV interviews	• Number of press releases issued; Subject of the press release; Date • Number of media inserts; date; Title; Author Name of newspaper, journal, magazine • Name of radio or television channel Interview date; Person interviewed;
Newsletters	Number of newsletters advertising Biofresh; Date Number of pages; Distribution numbers; Number of subscribers
E-mailing	Number of requests for information; number of answers sent in response
Project web site	Number of visits; Visit duration; Top visitors Most active countries; Most popular pages Number of downloads (flyer, brochure, etc.) Statistics trend following new dissemination activities; Number of requests for further information
RSS	News feed RSS subscription
Link exchange	Number of web sites linking to the D4Science site
Events	-Name, date and location of event; Type of event / scope; Organizer; Number and type of attendees (academics, user communities, decision makers...) -What was presented (presentation, poster...) -What was distributed (flyer...) -Contacts made at events (detailed included in

	a central 'contacts' database). -Feedback received from participants -Photos/videos of the event -Number of papers produced that were submitted to a scientific conferences -Number of papers accepted
Publications	Number of publications submitted to a scientific journal; Name of Journal; Details of issue number and date
Results from Issue Crawler	Impact of BioFresh within the scientific and wider community networks (increased number of links; web site hits)

APPENDICES

APPENDIX I: Sources of Information

PROJECT NAME	SUBJECT	FUNDING PROGRAMME	URL	Date of Doc
D4Science	Grid Enabled Technology	7th Framework	www.d4Science.eu	2008
Baltic Tangent	Transport Infrastructure	BSR INTERREG IIIB NP	www.baltictangent.org	2006
DEGREE	Link Earth science to GRID communities	EU- Information Society Technologies	www.eu-degree.eu	2007
EROCIPS	Coastal pollution from shipping	INTERREG IIIB and Department of Communities and Local Government	www.erocips.org	2007
EVITA	Vehicle safety	7th Framework	www. evita-project.org	2008
ICOPER	Improved standards in digital education	*EU - e*Content*plus* programme	www.icoper.org	2009
CCT-AGRI	Information and Communication Technology and Robotics	7th Framework	www.ict-agri.eu	2009
NIMSEC	Efficiency of Energy Resources	Intelligent Energy Europe	www.nimsec.info	2009
SNOWMAN	Sustainable management of soil and groundwater	6th Framework	www.snowman-era.net	2007
INFOBIOMED	Structuring European Biomedical Informatics	EU- Information Society Technologies	www.infobiomed.org	2005
DataMiningGrid		6th Framework 2002-2006	www.dataminninggrid.org	2006

GridPP	Grid Technologies	UK Particle Physics	www.gridpp.ac.uk	2003
Health-e-Child	Paediatric diseases	EU- Information Society Technologies	www.health-e-child.org	2007
EGEE-II	Computing Support Infrastructure	EU-Information Society and Media	www.eu-egee.org/	2006
Diligent	Test-bed for knowledge e-Infrastructure	EU- Information Society Technologies	http://diligent.ercim.org/	2005
LifeWatch	A new e-Science and Technology Infrastructure for Biodiversity Research	LifeWatch is partially funded by the EU 7th Framework Programme	http://www.lifewatch.eu	2010

APPENDIX I: Sources of Information (continued)

OTHER DOCUMENTS	SUBJECT	URL	Date of Doc
EC guide to good communication	EU document to outline best practice for C & D	http://publications.europa.eu/	2004
Environmental Communication	EU document of best practice for C&D in the field of the Environment	http://publications.europa.eu/	2009

APPENDIX II

WFD Scotland – Stakeholder groups members list

MEMBERS	NSF*	RSG**	EASG**
Aberdeen City Council		x	
Aberdeenshire Council			x
Alcan Smelting and Power UK	x	x	
Argyll & Bute Council		x (C)	
Association of Salmon Fishery Boards	x	x	
Association of Scottish Shellfish Growers	x	x	x
BEAR Scotland		x	
British Hydropower Association			x
British Soft Drinks Association	x	x	
British Trout Association		x	
British Waterways	x	x	x
Cairngorms National Park		x(C)	
CBI Scotland	x	x	
Chemical Industries Association	x	x	x
Clean Coast Scotland	x		
Confederation of Paper Industries	x	x	x
Convention of Scottish Local Authorities (CoSLA)	x	x	x
Dundee City Council		x	
Fairhurst Consultants		x(C)	
Federation of Scottish Aquaculture Producers	x	x	x
Federation of Small Businesses	x	x(C)	
Fisheries (Electricity) Committee		x	
Forestry Commission Scotland			x
Fraser of Allander Institute			x
Glasgow and Clyde Valley Structure Plan Joint Committee			x
Glasgow City Council		x(C)	
Halcrow Fairhurst Consultants		x(C)	
Homes for Scotland		x(C)	
Loch Lomond and The Trossachs National Park	x		x
Malt Distillers Association of Scotland		x	x
Moray Council		x(C)	
National Farmers Union Scotland (NFUS)	x	x	x
Network Rail		x	
North Ayrshire Council		x(C)	
Royal Society for the Protection of Birds (RSPB)		x	x
RTPI		x(C)	
Salmon and Trout Association of Scotland (joint representation with Scottish Anglers National Association)	x	x(C)	
Scottish Agriculture College (SAC)			x
Scottish and Southern Energy PLC	x	x	x
Scottish Coal		x(C)	x
Scottish Coastal Forum	x		
Scottish Council Development and Industry (SCDI)			x
Scottish Enterprise			x
Scottish Environment LINK	x	x	
Scottish Environmental Protection Agency (SEPA)	x	x	x
Scottish Executive	x	x	x
Scottish Fishermen's Federation	x	x(C)	
Scottish Landowners Federation	x		
Scottish Natural Heritage (SNH)	x	x	x
Scottish Power		x(C)	x
Scottish Tanning Industries			x
Scottish Textiles Industry Group	x	x	
Scottish Water	x	x	x
Shetland Salmon Farmers Association		x(C)	
South Lanarkshire Council		x(C)	
SRPBA		x	
Tay District Salmon Fishery Board		x	
The Caravan Club		x	
The Scotch Whisky Association (joint representation with the Malt Distillers Association)	x	x	
Tourism and Environment Forum	x		
Tullis Russell		x(C)	
Water Industry Commissioner			x
West Dunbartonshire Council		x(C)	

APPENDIX III: Example of initial BioFresh Flyer

Freshwater Biodiversity: Essential for the livelihood of billions – Freshwater Biodiversity provides pivotal ecosystem services and provides a living for billions of people.

Freshwater Biodiversity: Our Heritage – Biodiversity is an important heritage in many cultures and valued similarly to historic monuments.

Freshwater Biodiversity: Simply fascinating – A unique world under the water´s surface.

***BioFresh*: Global Cooperation in Freshwater Biodiversity Research**

***BioFresh* integrates research competencies of European and global partners.**

- Forschungsverbund Berlin, e. V. - Leibniz-Institute of Freshwater Ecoloy and Inland Fisheries, Germany
- Royal Belgian Institute of Natural Sciences, Belgium
- Universität für Bodenkultur Wien, Austria
- WorldFish Center (formerly ICLARM), Malaysia
- Institute de Recherche pour le Développement, France
- Universität Duisburg-Essen, Germany
- The International Union for Conservation of Nature (IUCN) Switzerland
- Oxford University, UK
- Universitat de Barcelona, Spain
- Helmholtz Zentrum für Umweltforschung, Germany
- University College London, UK
- Swiss Federal Institute of Aquatic Science and Technology, Switzerland
- Université Claude Bernard - Lyon 1, France
- Université Paul Sabatier - Toulouse 3, France
- Ecologic GmbH, Institut für Internationale und Europäische Umweltpolitik, Germany
- Commission of the European Communities - Directorate General Joint Research Centre, Italy
- University of Debrecen, Hungary
- Naturhistoriska riksmuseet, Sweden
- Center za kartografijo favne in flore, Slovenia

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BioFresh

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European Union FP7 Collaborative Project (large-scale integrating project)