

Update of the ESFRI Roadmap

Short analysis of marine MRIs in ESFRI

1. Rationale

In January 2016 ESFRI will publish an updated roadmap of ESFRI projects. This report outlines the current status of the European Strategy Forum on Research Infrastructures (ESFRI), focusing on Marine Research Infrastructures (MRIs). It is intended to inform discussions on ESFRI gap analysis.

2. ESFRI background

The **mission of ESFRI** is to support a coherent and strategy-led approach to policy-making on research infrastructures in Europe, and to facilitate multilateral initiatives leading to the better use and development of research infrastructures, at EU and international level. **The ESFRI Roadmap¹** identifies new Research Infrastructures (RI) of pan-European interest corresponding to the long term needs of the European research communities, covering all scientific areas, regardless of possible location. This was first published in 2006, with 35 projects (updated to 44 in 2008). In December 2010 a Strategy report and Roadmap update was published identifying 48 projects of new research infrastructures (or major upgrade on existing ones). 11 Research Infrastructures are already implemented and ESFRI has initiated a prioritization process and is working towards an updated ESFRI roadmap in 2015-2016.

3. 2014-2015 Prioritization and Roadmap update

In January 2016 ESFRI will publish an updated roadmap of ESFRI projects. A series of initiatives are taking place in 2014-2015 contributing to the Roadmap development:

- On 7 April 2014 ESFRI published a report outlining its **prioritization of support to ESFRI projects for implementation²**.
- The Conclusions of the prioritization report were adopted by the Council of the European Union on 26 May 2014³ (see Annex I).
- ESFRI has mandated **Strategy Working Groups (SWG)⁴** to carry out a **Landscape and gap analysis** during 2014.
- On 24 September 2014, ESFRI launched the 2015-2016 ESFRI Roadmap Update at a workshop in Trieste, Italy⁵. This opened a call for proposals (deadline March 2015) for RI/e-RI projects to enter the Roadmap in 2016 (see Annex II for further details).
- In Autumn 2014 Roadmap Drafting Groups will also be set up, generally from within the SWG.

A full time-table 2014-2016 is presented in Section 6 'Next steps'.

¹ http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-roadmap

² http://ec.europa.eu/research/infrastructures/pdf/ESFRI_projects_for_impl_7_april_2014.pdf

³ http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/intm/142794.pdf

⁴ http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-working-groups

⁵ <http://www.copori.eu/1392.php>

4. Horizon 2020 funding

The European Commission provides funding for the preparatory phase of ESFRI projects as well as for the implementation of common objectives within clusters of related projects. However, in Horizon 2020, the European Commission has dedicated topic **H2020 INFRADEV-3-2015**⁶ to support individual implementation and operation of ESFRI research infrastructures. This is designed to complement Member State (and Associate Countries) Structural funds to help meet the **Innovation Union target of 60% of ESFRI projects being in implementation by 2015**. Based on the ESFRI prioritization exercise, the EU will focus the support available for this topic on the 3 priority research infrastructures: ELIXIR, EPOS and the European Spallation Source. In addition, 9 other candidate projects are listed including EMSO (European Multidisciplinary Seafloor and Water Column Observatory).

5. MRI in ESFRI

In its 2014 prioritization, **ESFRI identified 15 projects (4 with clear MRI components) as having a high likelihood to meet the 2015 implementation goal** (see full list in Annex I).

ESFRI identified three priority projects for immediate action, EPOS, ELIXIR and European Spallation Source. These are as RIs that “...are pushing the boundaries of scientific excellence, are strategically relevant for Europe, and are ready for immediate action”. None of these have a clear marine component (see Table 1 below for further details).

ESFRI project	Thematic area	Status	Website
EPOS	European Plate Observing System. Solid Earth Monitoring: Earthquakes, Volcanoes, Surface Dynamics and Tectonics	Preparatory Phase 2010-2014 Not MRI but link with EMSO through seafloor observatory network?	http://www.epos-eu.org/
ELIXIR	Bioinformatics resource supporting life science research and its translation to medicine, agriculture, bioindustries and society.	Construction phase started in 2012. Implementation of 5 year programme 2014-2018. Not MRI, but link with LIFEWATCH, BBMRI, EMBRC?	http://www.elixir-europe.org/
European Spallation Source	neutron production for analytical purposes.	Construction phase. 2019: First production of neutrons. Not MRI but link with KM3Net?	http://europeanspallationsource.se/

Table 1: 3 ESFRI priority projects ready for immediate action (as identified by ESFRI)

In addition, ESFRI identified 4 ‘flagship’ MRIs prioritized by ESFRI for implementation by 2015 (see Table 2). This includes **EMSO** which was the only MRI identified for ‘implementation support’ in H2020 (INFRADEV-3-2015) (see Annex for full list of 9 projects). Three other MRIs, **Euro-Argo**, **ICOS**, **LIFEWATCH**

⁶ <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/63-infra-dev-3-2015.html>

were highlighted by ESFRI and the Environment SWG as having a high level of maturity (see Table 2). The potential to link and network the data from each of these distributed research infrastructures was highlighted to create integrated services for greater impact and support research that will greatly benefit society in the areas of environmental and climate science.

ESFRI project	Status	Further details
<p>Euro-Argo ERIC</p>  <p>European infrastructure contribution to Argo programme</p>	<p>Operational in 2014.</p> <p>(9 countries)</p>	<p>On 12th May 2014, Euro-Argo ERIC was officially awarded the Community legal framework for a European Research Infrastructure Consortium (ERIC). An official inauguration took place on 17 July 2014 in Brussels.</p> <p>http://www.euro-argo.eu/</p>
<p>ICOS</p>  <p>Integrated Carbon Observation System</p>	<p>2008-2013 Preparatory Project.</p> <p>ERIC in preparation.</p> <p>Dedicated Ocean Thematic Centre.</p>	<p>http://www.icos-infrastructure.eu/</p>
<p>LIFEWATCH</p>  <p>e-Science European Infrastructure for Biodiversity and Ecosystem research</p>	<p>2008-2011 Preparatory Project.</p> <p>ERIC in preparation.</p> <p>MARBEF and EUR-OCEANS were major drivers of marine component.</p>	<p>www.lifewatch.eu</p>
<p>EMSO</p>  <p>European Multidisciplinary Seafloor and Water Column Observatory</p>	<p>2008-2012 Preparatory Project.</p> <p>ERIC in preparation.</p> <p>Candidate project for funding support in H2020 INFRADEV-3.</p>	<p>http://www.emso-eu.org</p>

Table 2: Flagship Environment/MRI ESFRI projects (as identified by ESFRI ENV-SWG in March 2014, p16: http://ec.europa.eu/research/infrastructures/pdf/ESFRI_projects_for_impl_7_april_2014.pdf)

In addition, there are a number of other marine-related ESFRI projects listed in the 2010 Strategy Report and Roadmap (Table 3). These have received EC Preparatory Phase funding but have not prioritized by ESFRI as the implementation schedule is likely to be post-2016.

ESFRI Project	Status	Further details
SIOS: Upgrade of the Svalbard Integrated Arctic Earth Observing System	2010 Roadmap: Environmental Sciences Preparatory Phase Now also a Sustaining Arctic Observing Network (SAON)	www.sios-svalbard.org
EMBRC: European Marine Biological Resource Centre	2010 Roadmap: Biological and Medical Sciences On 31 January 2014 EMBRC completed its Preparatory Phase and moves to the implementation phase	http://www.embrc.eu/
KM3NeT: A km ³ Scale Mediterranean Neutrino Telescope and Deep-Sea Research Infrastructure.	2010 Roadmap: Physical Sciences and Engineering On 29 January 2013, a Collaboration was formed for the implementation of the first phase of the KM3NeT Research Infrastructure.	http://www.km3net.org

Table 3: 3 Marine ESFRI Projects from 2010 Roadmap not prioritized by ESFRI in 2014. (See 2020 Strategy Report and Roadmap, Quick View Roadmap, p22-23)

6. Strategy Working Groups

The SWGs are thematic in areas of Energy, Environment, Health and Food, Social and Cultural Innovation and Physical Sciences and Engineering. A SWG of particular relevance to Marine is the SWG on Environment (e.g. ICOS, LIFEWATCH, EMSO, SIOS). SWG Environment develops synergies between ESFRI research infrastructures in the field of Environmental Sciences and relevant Joint Programming Initiatives (JPI) and International Programs as GEO/GEOSS Life sciences (e.g. EMBRC) will be covered by the Health and Food SWG but some proposals may be reviewed by more than one SWG. KM3NeT will be assessed under Physical Sciences and Engineering (see Annex II and footnote 1 for further details).

7. Next steps

Publication of the new Roadmap is anticipated in January 2016, with a target size of about 25 active projects. A time-table of activities is listed in Table 4 below.

SWGs first meetings for Roadmap	Summer 2014
Proposals are transferred from ESFRI Executive Board to SWGs to be analyzed	Up to December 2014
ESFRI decides on final Drafting Group	November 2014
SWGs report to ESFRI EB and Forum at its regular meetings	On-going
ESFRI assessment of SWG draft reports	March-May 2015
ESFRI Drafting Group meetings	Ongoing 2015
First draft of the NEW ESFRI Roadmap	June 2015
Second draft of the NEW ESFRI Roadmap	August 2015
Final draft of the NEW ESFRI Roadmap + Finalization process	October 2015
Agreement of ESFRI	November 2015
Publication and press conference	January 2016

Table 4: Time-table for update to ESFRI Roadmap 2015-2016

See attached:

Annex I: Conclusions on the implementation of the roadmap for the ESFRI. Competitive Council Meeting, 26 May 2014.

Annex II: Information on MRIs under SWG Environment and SWG Health and Food presented at the ESFRI Workshop « Launch of the 2015-2016 ESFRI Roadmap Update », 24 September, 2014 in Trieste, Italy.



**COUNCIL OF
THE EUROPEAN UNION**



Conclusions on the implementation of the roadmap for the European Strategy Forum on Research Infrastructures

*COMPETITIVENESS Council meeting
Brussels, 26 May 2014*

The Council adopted the following conclusions:

"THE COUNCIL OF THE EUROPEAN UNION

RECALLING its Conclusions of 11 December 2012¹, endorsing the Commission Communication on 'A reinforced European research area partnership for excellence and growth'², and emphasising the need for renewing and adapting the mandate of the European Strategy Forum on Research Infrastructures (ESFRI) to adequately address the existing challenges and also to ensure the follow-up of implementation of already on-going ESFRI projects after a comprehensive assessment, as well as the prioritisation of the infrastructure projects listed in the ESFRI roadmap;

TAKING NOTE of the ESFRI report of 7 April 2014 entitled the prioritisation of support to ESFRI projects for implementation;

1. WELCOMES the contribution of ESFRI to the objectives of the European Research Area and to achieving the Innovation Union commitment on research infrastructures.
2. ACKNOWLEDGES the work done by ESFRI to identify priority projects which are mature enough to be under implementation 2015-2016 and whose timely implementation is considered essential to extend the frontiers of knowledge in the fields concerned.

¹ Doc. 17649/12

² Doc. 12848/12

P R E S S

3. NOTES that ESFRI has identified three projects from the ESFRI roadmap as priorities³ in that they are pushing the boundaries of scientific excellence, are strategically relevant for Europe, and are ready for immediate action (part 1 of the Annex).
4. NOTES that ESFRI has identified nine additional projects that could reach implementation phase by 2015-2016 (part 2 of the Annex).
5. NOTES that ESFRI has presented an analysis of the need to support some already implemented projects for sustainability and European coverage (part 3 of the Annex) , and a note on the potential for distributed infrastructures to deliver integrated services and hence greater scientific impact in biomedical research and in environmental research.
6. CONFIRMS the Member States' commitment to focus their available national resources on the respective prioritised projects they are financially participating in.
7. INVITES the Commission, under Horizon 2020, to complement the Member States' own financial commitments through a one-time financial contribution for the priority projects, and to financially support the other projects identified by ESFRI and listed in the Annex.
8. ENCOURAGES Member States to consider investing in the implementation and operation of ESFRI projects using also European Structural and Investment Funds (ESIF) by including research infrastructures in their Research and Innovation Strategies for Smart Specialisation and by using the possibility of financing operations outside the ESIF programme areas⁴; INVITES the Commission and the Member States' authorities to enhance synergies between ESIF and Horizon 2020.
9. RECOGNISES the importance and progress of those further ESFRI projects that are already under implementation, or well on the way towards it.
10. WELCOMES the plans of ESFRI to update its roadmap in 2015/2016; CALLS on ESFRI to continue the prioritisation of all the research infrastructure projects of the ESFRI roadmap, and INVITES the Member States to consider putting forward further projects for possible inclusion in this roadmap update.

³ The European Plate Observing System (EPOS), the European Life-Science Infrastructure for Biological Information (ELIXIR) and the European Spallation Source (ESS).

⁴ In accordance with Article 70(2) of Regulation (EU) No 1303/2013, OJ L 347 of 20.12.2013, p.320-469.

Prioritisation of Support to ESFRI Projects for Implementation

1. Three Priority Projects for implementation

- EPOS: European Plate Observing System
- ELIXIR: The European Life-Science Infrastructure for Biological Information
- ESS: The European Spallation Source

2. Implementation Support

- ECCSEL: European Carbon dioxide Capture and Storage Laboratory Infrastructure
- EISCAT-3D: The next generation incoherent scatter radar system
- EMSO: European Multidisciplinary Seafloor & Water column Observatory
- BBMRI: Biobanking and Biomolecular Resources Research Infrastructure
- ELI: Extreme Light Infrastructure
- CTA: Cherenkov Telescope Array
- SKA: Square Kilometre Array
- CLARIN: Common Language Resources and Technology Infrastructure
- DARIAH: Digital Research Infrastructure for the Arts and Humanities

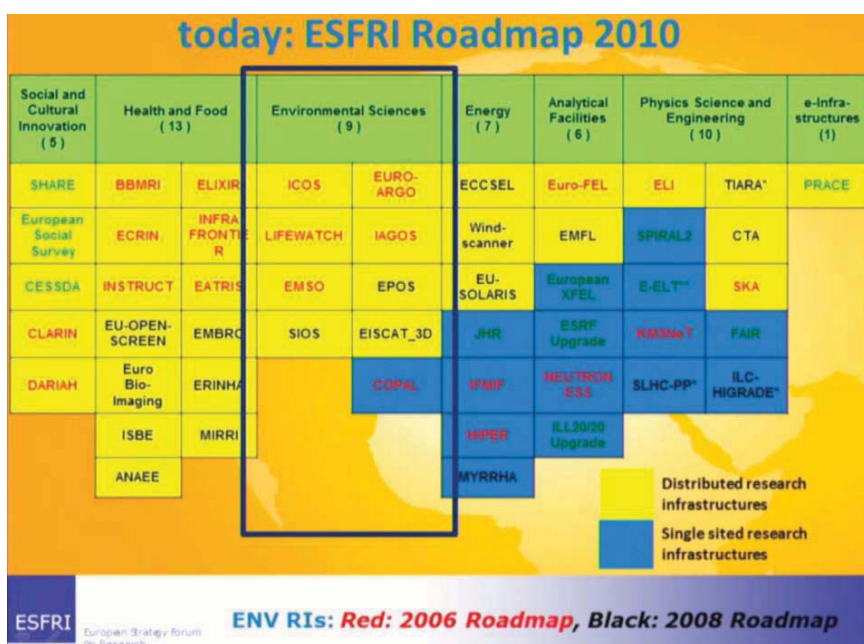
3. Support for Sustainability and European Coverage

- CESSDA: Council of European Social Science Data Archives
- SHARE: Survey on Health, Ageing and Retirement in Europe
- ESS ERIC: European Social Survey"

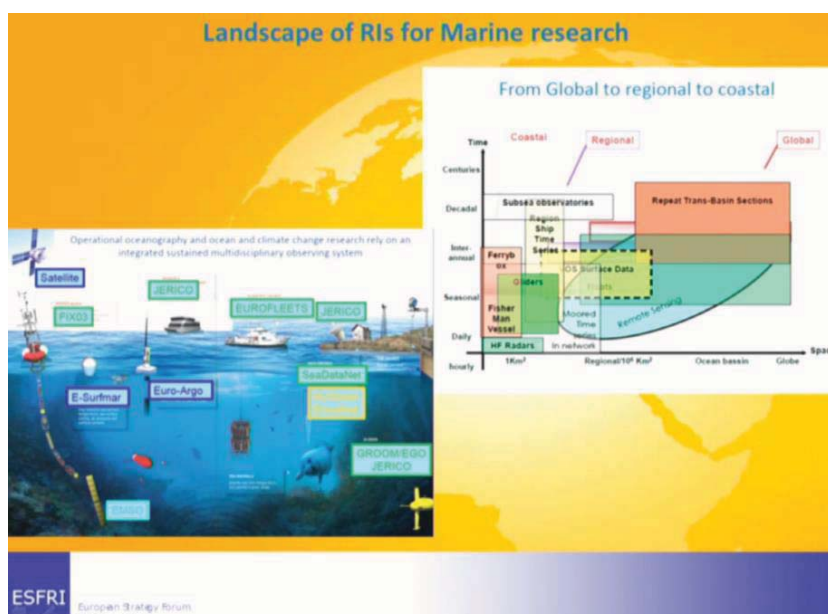
Annex II : Information on MRIs under SWG Environment and SWG Health and Food presented at the ESFRI Workshop « Launch of the 2015-2016 ESFRI Roadmap Update », 24 September, 2014 in Trieste, Italy.

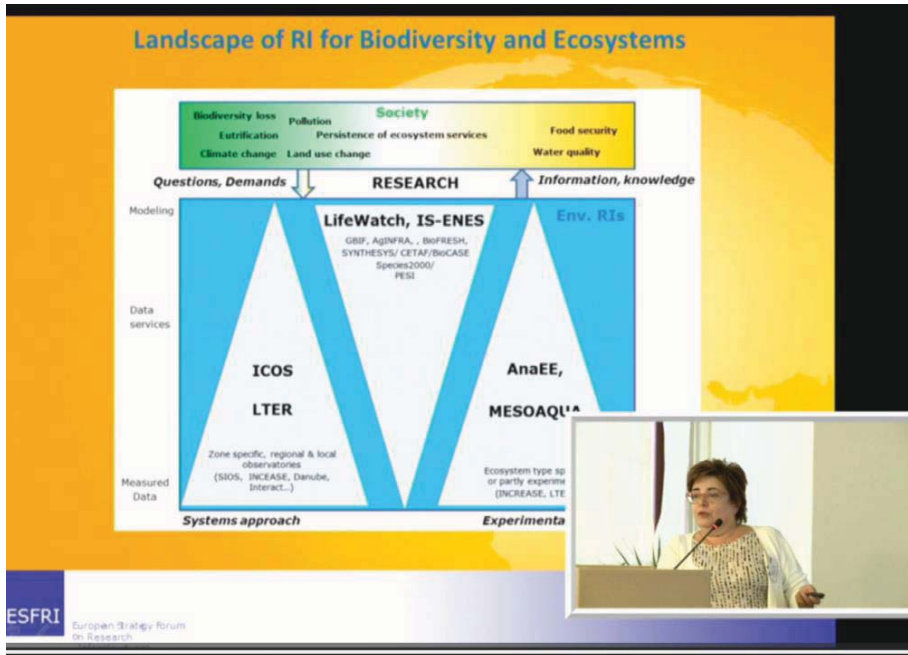
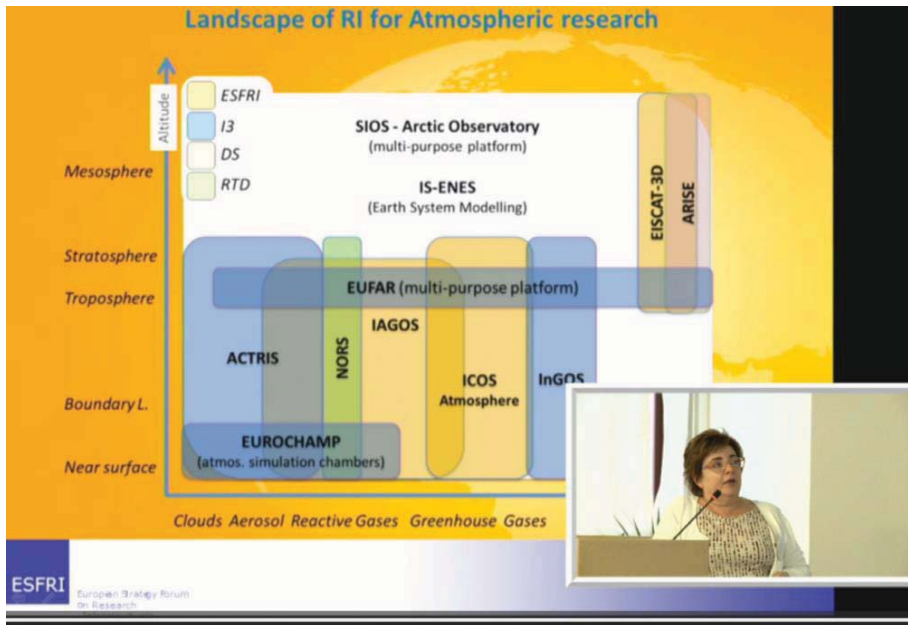
Please visit the website for more information : <http://www.copori.eu/1392.php>

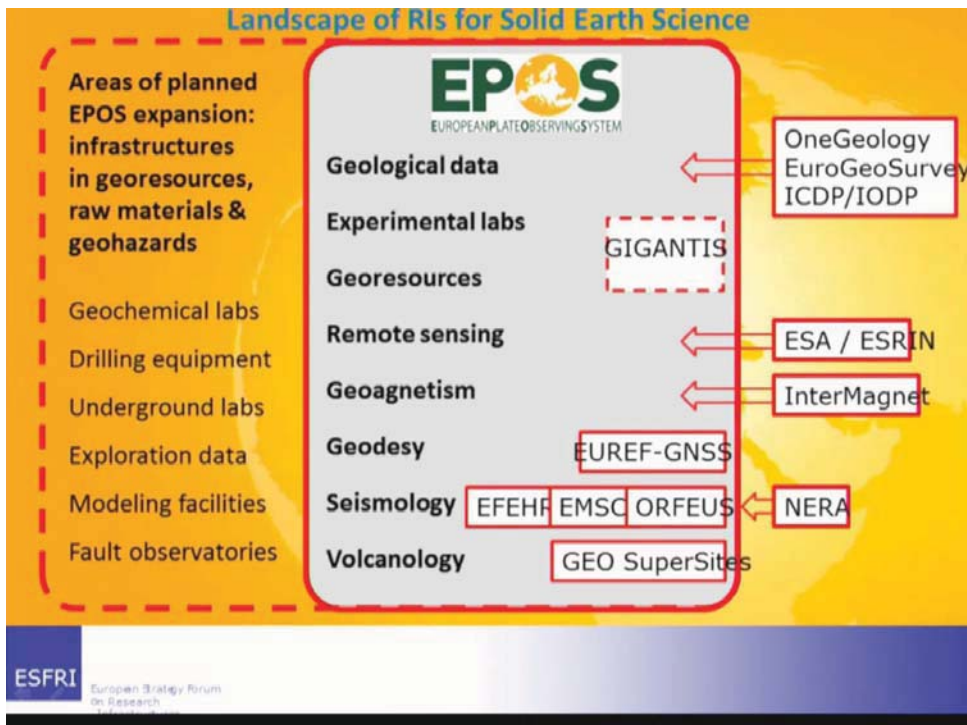
1. ESFRI Roadmap 2010 projects



2. SWG Environment Preliminary analysis of Landscape of RIs







3. Strategic Working Group : Environment

Chair : Gelsomina Pappalardo

Acknowledgments

ENV ESFRI RIs, EC, projects coordinators, scientific community

ESFRI ENV SWG members

Karolina Begusch-Pfefferkorn	– Austria
Gert Verret	– Belgium
Michael Marek	– Czech Republic
Niels Kroer	– Denmark
Kai Lindström	– Finland
Jean-Marie Flaud	– France
Andreas Volz	– Germany
Gerard Jennings	– Ireland
Marc de Jonge	–The Netherlands
Adrian Stanica	– Romania
Jesús Miguel Santamaría	– Spain
Magnus Friberg	–Sweden
Peter Haugan	– Norway
Domenico Giardini	– Switzerland
Bill Eason	– UK
Rui Figueira	– Portugal
Arvo Iital	– Estonia
Arjen van Rijn	– e-IRG
Gelsomina Pappalardo	– Chair of ENV SWG (Italy)

ESFRI European Strategy Forum on Research Infrastructures

4. Strategic Working Group : Health and Food

Chair : Gabriela Pastori

Life sciences e.g. EMBRC will be covered by the Health and Food SWG but some proposals may be reviewed by more than one SWG.



The slide features a yellow background with a faint world map. The title 'Health and Food SWG Members' is at the top in blue. Below it, member names and countries are listed in two columns. At the bottom, there are logos for SFRI and the Strategic Working Group Health & Food.

Health and Food SWG Members

UK - Gabriela PASTORI (chair, 16 th Sept)	NL - Edvard BEEM
FI - Marja-Liisa NIEMI (vice-chair)	NO - Astrid Lægreid
ES - Rafael DE ANDRES MEDINA (vice-chair)	RO - Christian GHEONEA
BE - Serge GOLDMAN	SI - Irena MLINARIČ RAŠČAN
CZ - Radislav SEDLÁČEK	SK - Michal NOVÁK
DE - Karin LOHMANN	TR - Murat OZGOREN
DK - Jørgen JESPERSEN	eIRG - Sergi GIRONA
FR - Eric GUITTET	EC - Margarida RIBEIRO, Petra GOYENS and Jürgen LUCAS
GR - George KOLLIAS	
IE - Mairead O'DRISCOLL	
IT - Adriana MAGGI	

SFRI European Strategy Forum on Research Infrastructures

Strategic Working Group
Health & Food