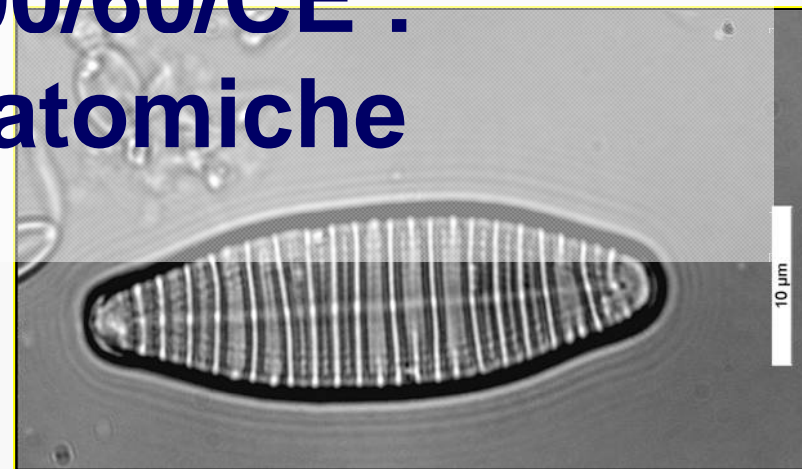




Attività di implementazione della Direttiva 2000/60/CE : comunità diatomiche



Stefania Marcheggiani, Camilla Puccinelli

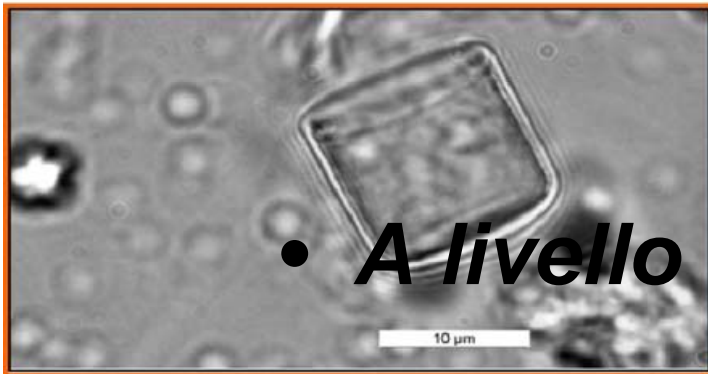
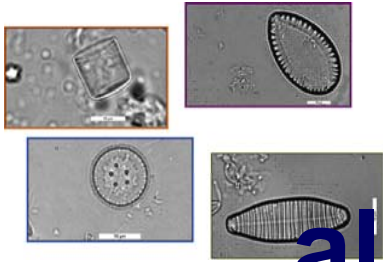
e

Laura Mancini

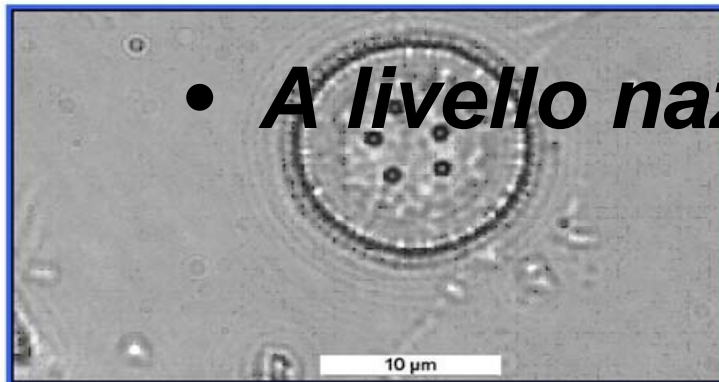
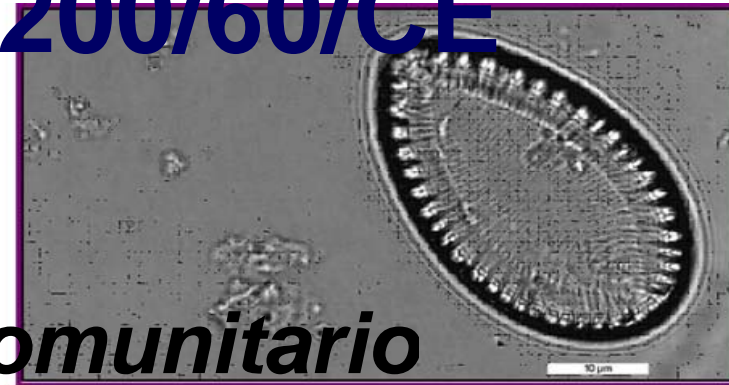
Istituto Superiore di Sanità – Dip. Ambiente e Connessa Prevenzione Primaria – Rep. Qualità Ambientale ed Ittiocoltura

Viterbo 11- 15 ottobre 2010

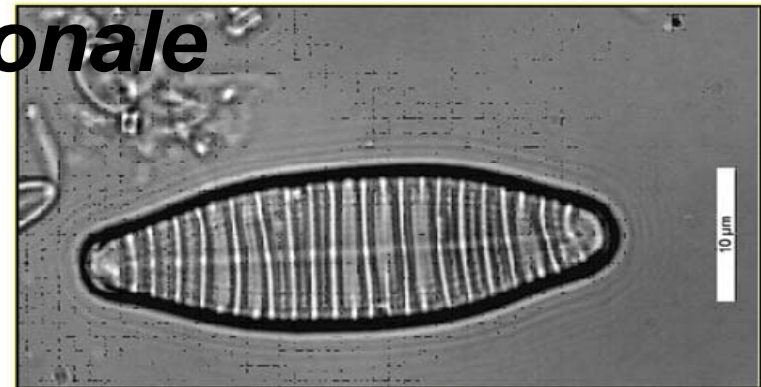
Partecipazione all'implementazione della direttiva 200/60/CE

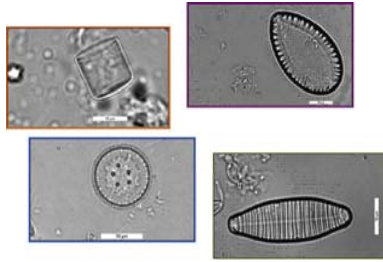


- *A livello comunitario*



- *A livello nazionale*





A livello comunitario

Intercalibrazione

Comparabilità dei risultati della classificazione dei sistemi di monitoraggio utilizzati da ciascun stato membro per gli elementi di qualità biologica.

[Van de Bund W. Water Framework Directive intercalibration technical report. Part 1: Rivers. Draft. Joint Research Community, Scientific and Technical Reports. Office for Official Publications of the European Communities, Luxembourg 2008.](http://circa.europa.eu/Public/irc/jrc/jrc_eewai/library?l=/intercalibration/intercalibration_2/techreport_combinedpdf/ EN 1.0 &a=d;)

Dal 2006-2008:

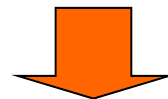
Suddivisione in Gruppi Geografici di Intercalibrazione (GIG): aree geografiche con le stesse tipologie fluviali. Definizione di quest' ultime.

Confronto tra i dati sulle comunità diatomee (lista di specie e abbondanze)

Confronto tra i diversi metodi adottati dai Paesi Membri

Obiettivo

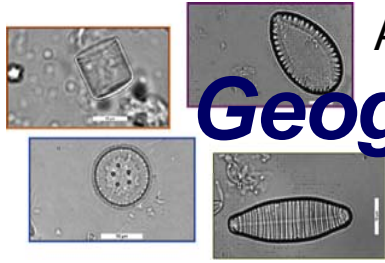
Definizione dei limiti tra:



**Limiti delle Classi di Qualità
dello Stato Ecologico**

stato «elevato» e «buono»

stato «buono» e «sufficiente»



A livello comunitario

Geographical Intercalibration Groups ***GIGs***

The Central/Baltic Geographical Intercalibration

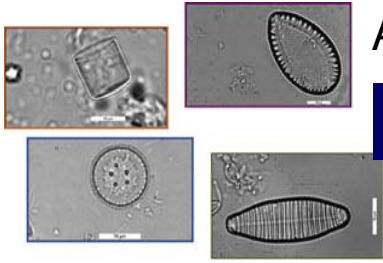
Austria, Belgium, Czech Republic, Denmark, Estonia, France,
Germany, Ireland, **Italy**, Latvia, Lithuania, Netherlands, Poland,
Slovenia, Slovakia, Spain, Sweden, Luxemburg, United Kingdom

The Alpine geographical Intercalibration Group

Germany, Austria, France, **Italy**, Slovenia, and Spain – not only including the Alps, but also other mountain regions like the Pyrenees.

The Mediterranean Geographical Intercalibration Group

Greece, **Italy**, Spain, Portugal, France, Malta, Slovenia and Cyprus.



A livello comunitario

I fase Intercalibrazione (2005-2008)

2007 - Sono stati inviati tre documenti ai GIGs, che descrivano le situazioni a livello nazionale

ANNEX 1. Notes on phytoplankton intercalibration of Italian rivers (Alpine GIG)

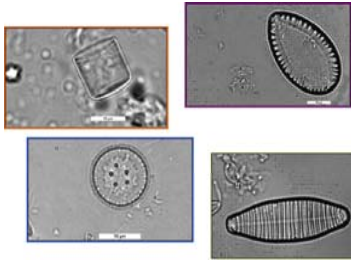
Ofenböck G, Wagner F Phytoplankton Intercalibration- Rivers Alpine Geographical Intercalibration Group Final Report JRC 2007, 11 pp

ANNEX 1. Notes on phytoplankton intercalibration of Italian rivers (Central Baltic GIG)

Kelly M, C Bennett, M Coste, Delmas F, Denys L, Ector L, Fauville C, Ferreol M, Golub M, Kahlert M, Lucey J, Ni Chathain B, Pardo I, Pfister P, Picinska-Faltynowicz J, Schranz C, Schaumburg J, Tison J, van Dam H, Vilbaste S. Central/Baltic GIG Phytoplankton Intercalibration Exercise - Draft final report. Bowburn Consultancy, Durham, 2007, 63 pp.

ANNEX 1. Notes on phytoplankton intercalibration of Italian rivers (Mediterranean GIG)

MED GIG WFD Intercalibration Technical Report Mediterranean GIG-Rivers Phytoplankton JRC 2007, 20 pp



A livello comunitario

Stato dell'arte

- **Protocollo di campionamento**
- **Metodo nazionale**

• **La realizzazione** dei metodi per il campionamento e l'analisi degli elementi biologici di qualità delle acque dolci superficiali è stata coordinata dall'Agenzia per la Protezione dell'Ambiente e per i servizi Tecnici (APAT) in stretta collaborazione con il Ministero dell'Ambiente e della Tutela del Territorio e del Mare (MATTM).

• **L'elaborazione** dei diversi protocolli è frutto della collaborazione di gruppi di lavoro, specifici per ogni elemento biologico.

• **L'impostazione**, il coordinamento e la stesura finale dei diversi protocolli sono stati curati dal Servizio Metrologia Ambientale del Dipartimento Stato dell'Ambiente e Metrologia Ambientale in collaborazione con il Dipartimento Acque dell'APAT.



PROTOCOLLO DI CAMPIONAMENTO E ANALISI DELLE DIATOMEE BENTONICHE DEI CORSI D'ACQUA

Componenti del Gruppo di lavoro:

MATTM - Ministero dell'Ambiente e della Tutela del Territorio e del Mare

Sollazzo Caterina

Aste Fiorella

Scanu Gabriela

APAT – Agenzia per la protezione dell'Ambiente e per i servizi Tecnici

Belli Maria

Balzamo Stefania

Bernabei Serena

Cadoni Fabio

Martone Cristina

ISS – Istituto Superiore di Sanità, Dip. Ambiente e Connessa Prevenzione Primaria

Mancini Laura

Puccinelli Camilla

Valentina Della Bella

ARPA Piemonte

Griselli Bona Piera

Fogliati Pier Luigi

Univ. di Torino – Dip. Di Biologia Animale e dell'Uomo

Bona Francesca

ARPA Toscana

Cavalieri Susanna

Istituto Agrario di San Michele all'Adige - Fondazione Edmund Mach (IASMA)

Beltrami Maria Elena

Cappelletti Cristina

Ciutti Francesca

Univ. degli Studi di Camerino – Dip. Scienze Ambientali

Dell'Uomo Antonio

Torrisi Maria Cristina

APPA Trento

Monauni Catia

Pozzi Sabrina

MACROINVERTEBRATI:

www.apat.gov.it/site/_files/Pubblicazioni/Metodi_bio_acque/fiumi_macroinvertebrati.pdf

DIATOMEE:

www.apat.gov.it/site/_files/Pubblicazioni/Metodi_bio_acque/fiumi_diatomee.pdf

MACROFITE:

www.apat.gov.it/site/_files/Pubblicazioni/Metodi_bio_acque/laghi_macrofite.pdf

PESCI:

www.apat.gov.it/site/_files/Pubblicazioni/Metodi_bio_acque/fiumi_fauna.pdf

Il fase Intercalibrazione (2009-2011)

1.3. Meetings

List the meetings of the group:

June 2008 – INAG, Lisbon, Portugal – 1st MedGIG general meeting
January 2009 – Cemagref, Bordeaux, France - 1st MedGIG Phytobenthos meeting
October 2009 – Water Development Department, Nikosia, Cyprus – 2nd MedGIG general meeting
March 2010 – INAG, Lisbon, Portugal – 3rd MedGIG general meeting.
March 2010 – INAG, Lisbon, Portugal – 2nd MedGIG Phytobenthos meeting.
September 2010 – Ljubljana, Slovenia – 4th MedGIG general meeting.
September 2010 – Slovenia – 3rd MedGIG Phytobenthos meeting.

Metodo Nazionale

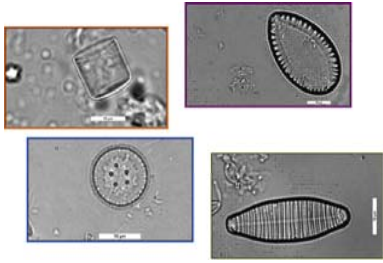
Limiti tra le classi

Metodo per la valutazione dello stato ecologico delle acque correnti: comunità diatomiche

A cura di
Laura Mancini (a) e Caterina Sollazzo (b)

(a) Dipartimento di Ambiente e Connessa Prevenzione Primaria,
Istituto Superiore di Sanità, Roma
b) Direzione per la Qualità della Vita, Ministero dell'Ambiente
e della Tutela del Territorio e del Mare, Roma

ISSN 1123-3117
Rapporti ISTISAN
09/19

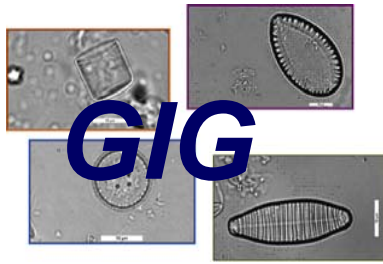


A livello comunitario

Attività in corso

Partecipazione alla II Fase Intercalibrazione

- *G/G* Mediterraneo
- *G/G* Centrale
- *G/G* Alpino



A livello comunitario

GIG

Mediterraneo



EUROPEAN COMMISSION
DIRECTORATE GENERAL JRC
JOINT RESEARCH CENTRE
Institute of Environment and Sustainability



WFD Intercalibration Phase 2: Milestone 3 report

Water category/GIG/BQE/ horizontal activity:	Rivers/Med/Phytobenthos
Information provided by:	Salomé Almeida

1. Organisation

1.1. Responsibilities

Indicate how the work is organised, indicating the lead country/person and the list of involved experts of every country:

Portugal, through the National Water Institute (INAG), is leading the 2nd IC exercise in the MedGIG. Maria Teresa Ferreira is coordinating the IC exercise and reports to the River Steering Group and ECOSTAT. Each BQE has a Portuguese leader. The BQE leaders contact and meet with the MS participating in the exercise and do report writing. At least one general meeting of Mediterranean GIG representatives, BQE experts and BQE coordinators is organized per year BQE leaders meet with MS experts for each BQE and discuss ongoing issues and how to proceed with IC work

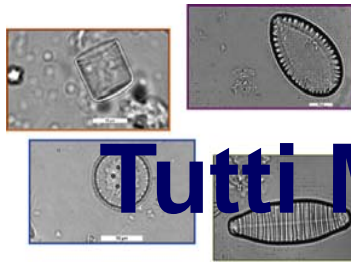
Phytobenthos experts

- Salomé Almeida – Portugal, leader.
- Gerald Dörflinger – Cyprus.
- Laura Mancini, Camilla Puccineli – Italy.
- François Delmas, Juliette Rosebery – France.
- Gorazd Urbanic – Slovenia.
- Sergi Sabater, Elisabet Tomes – Spain.

1.2. Participation

Indicate which countries are participating in your group. Are there any difficulties with the participation of specific Member States? If yes, please specify:

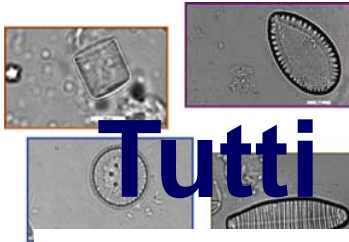
CY - Cyprus
FR - France
IT - Italy
PT - Portugal
SI - Slovenia
SP - Spain
The countries formerly mentioned have been actively participating in meetings and supplying data for the common intercalibration database for phytobenthos (diatoms).



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Tutti MS hanno metodo nazionale

Member State	Method	Status
Cyprus	IPS (Coste in Cemagref, 1982)	1 - Finalized agreed national method
France	IBD 2006 (Coste et al, <i>Ecol. Ind.</i> 2009) (AFNOR NF-T-90-354, December 2009)	1 - Finalized agreed national method
Italy	ICMi (Intercalibration Common Metric) Index (Mancini & Sollazzo, 2009)	1 - Finalized agreed national method
Portugal	IPS (Coste in Cemagref, 1982) for R-M1 and R-M2 CEE (Descy et Coste, 1990) for R-M5	1 - Finalized agreed national method
Slovenia	Slovenian Ecological Status assessment system for rivers using phytobenthos based on the Saprobic index (Rott et al. 1997) and the Trophic index (Rott et al. 1999)	1 - Finalized agreed national method
Spain	IPS (Coste in Cemagref, 1982)	1 - Finalized agreed national method



A livello comunitario

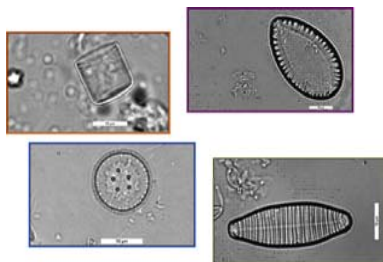
Tutti metodi sono conformi

List the WFD compliance criteria and describe the WFD compliance checking process and results (the table below lists the criteria from the IC guidance, please add more criteria if needed)

Compliance criteria	Compliance checking conclusions
1. Ecological status is classified by one of five classes (high, good, moderate, poor and bad).	CY - yes FR - yes IT - yes PT - yes SI - yes SP - yes
2. High, good and moderate ecological status are set in line with the WFD's normative definitions (Boundary setting procedure)	CY - yes FR - yes IT - yes PT - yes SI - yes SP - yes All MS followed the REFCOND guidance (2005).
3. All relevant parameters indicative of the biological quality element are covered (see Table 1 in the IC Guidance). A combination rule to combine parameter assessment into BQE assessment has to be defined. If parameters are missing, Member States need to demonstrate that the method is sufficiently indicative of the status of the QE as a whole.	CY - yes (abundance and taxonomic composition) FR - yes (abundance and taxonomic composition) IT - yes (abundance and taxonomic composition) PT - yes (abundance and taxonomic composition) SI - yes (abundance and taxonomic composition) SP - yes (abundance and taxonomic composition) No combination rule was approved yet.
4. Assessment is adapted to intercalibration common types that are defined in line with the typological requirements of the WFD Annex II and approved by WG ECOSTAT	CY - yes FR - yes IT - yes PT - yes

- Campionamento su comunità epilitiche
- Si arriva a livello specie
- Si individua l'abbondanza su 400 individui
- Pressioni : carico nutrienti ed organico
- Metodi sono adattati alle tipologie comuni di intercalibrazione

	SI - yes SP - yes Established common typology has been adjusted.
5. The water body is assessed against type-specific near-natural reference conditions	CY - yes FR - yes IT - yes PT - yes SI - yes SP - yes
6. Assessment results are expressed as EQRs	CY - yes FR - yes IT - yes PT - yes SI - yes SP - yes
7. Sampling procedure allows for representative information about water body quality/ ecological status in space and time	CY - sampling twice a year (spring and autumn) and repeated the year after but only in spring FR - sampling once a year (low flow conditions) IT - sampling 4 times a year (spring, summer, autumn and winter) PT - sampling once a year (spring) SI - sampling once a year (low flow conditions) SP - sampling three times a year (spring, summer and autumn)
8. All data relevant for assessing the biological parameters specified in the WFD's normative definitions are covered by the sampling procedure	CY - yes FR - yes IT - yes PT - yes SI - yes SP - yes Diatom communities were used as proxies for phyto-benthos. Other phyto-benthos groups were not sampled (CY, FR, IT, PT, SP) or not included in assessment methods (SI).
9. Selected taxonomic level achieves adequate confidence and precision in classification	CY - yes (species level) FR - yes (species level) IT - yes (species level) PT - yes (species level) SI - yes (species level)



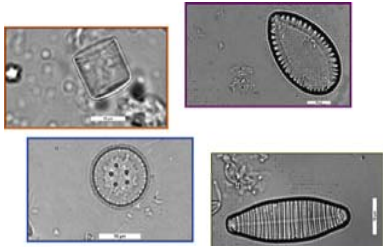
A livello comunitario

Tipologie

4.1. Typology

Describe common intercalibration water body types and list the MS sharing each type

Common IC type	Type characteristics	MS sharing IC common type
R-M1	catchment <100 km ² ; mixed geology (except non-siliceous); highly seasonal	FR, IT, PT, SI, SP
R-M2	catchment 100-1000 km ² ; mixed geology (except non-siliceous); highly seasonal	FR, IT, PT, SI, SP
R-M3	catchment 1000-10000 km ² ; mixed geology (except siliceous); highly seasonal	FR (very few), PT, SP
R-M4	non-siliceous streams; highly seasonal	CY, FR, IT, SI, SP
R-M5	temporary rivers	CY, IT, PT, SI, SP



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Fattibilità

What is the outcome of the feasibility evaluation in terms of typology? Are all assessment methods appropriate for the intercalibration water body types, or subtypes?

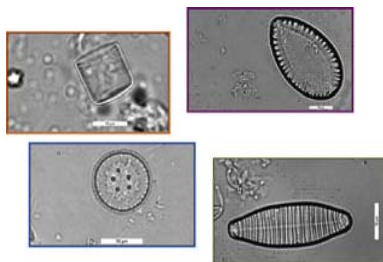
Method	Appropriate for IC types	Remarks
IPS	Yes	
IBD	Yes	
ICMi	Yes	

CEE	Yes	
Trophic Index formula	Yes	
Saprobic Index formula	Yes	

Conclusion

Is the Intercalibration feasible in terms of typology ?

1 – feasible. Methods can be implemented for common types.

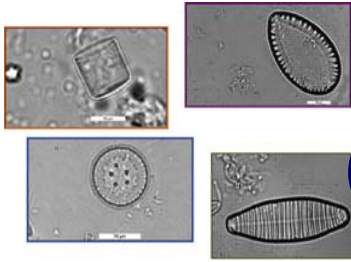


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Pressioni

Describe the pressures addressed by the MS assessment methods

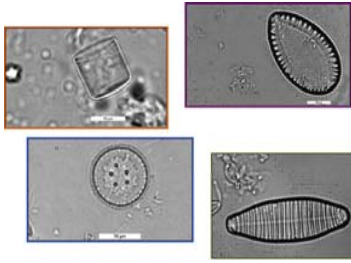
Method	Pressure	Remarks
IPS (CY, PT, SP)	Nutrients, organic matter, acidification, salinity	
IBD (FR)	Eutrophication, general degradation, pollution by organic matter, acidification	
CEE (South PT)	Acidification, eutrophication, flow modification, organic content	
ICM (IT)	Eutrophication, general degradation, pollution by organic matter	
Slovenian Ecological Status assessment system for rivers using phytobenthos	Eutrophication and pollution by organic matter	
<p>Conclusion Is the Intercalibration feasible in terms of pressures addressed by the methods? 1- feasible. Methods assess a common group of pressures: mainly nutrients, organic matter.</p>		



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Concetto di valutazione

Method	Assessment concept	Remarks
IPS	Indicator species based - diatom index	Epilithic communities
IBD	Indicator species based - diatom index	Epilithic communities
CEE	Indicator species based - diatom index	Epilithic communities
ICMi	Indicator species based - diatom index	Epilithic communities
Slovenian Ecological Status assessment system for rivers using phytobenthos	Indicator species based - diatom index	Multi-habitat sampling
Conclusion Is the Intercalibration feasible in terms of assessment concepts? feasible – 1		



A livello comunitario

Raccolta del dataset IC

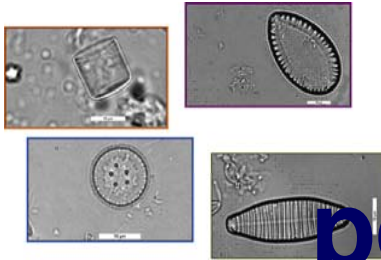
Make the following table for each IC common type

Member State	Number of sites		
	Biological data	Physico- chemical data	Pressure data
Cyprus	60	60	60
France	193	193	193
Italy	84	84	84
Portugal	120	120	120
Slovenia	39	39	39
Spain	653	653	653

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Criteri di accettabilità per il controllo di qualità del dato, descrizione del processo di controllo dei dati e risultati

Data acceptance criteria	Data acceptance checking
Data requirements (obligatory and optional)	All MS participating in the 2 nd phase of IC (CY, FR, IT, PT, SI, SP) delivered biological data, physico-chemical data and pressure data.
The sampling and analytical methodology	CY – Cyprus – yes FR – France - yes IT – Italy - yes PT – Portugal - yes SI – Slovenia – yes SP – Spain – yes
Level of taxonomic precision required and taxalists with codes	All Ms delivered taxa lists with similar taxonomic precision (species level) and with codes
The minimum number of sites / samples per intercalibration type	Minimum of 15 sites per IC type
Sufficient covering of all relevant quality classes per type	Disturbed sites were not analysed yet but MS were asked to supply data to the common data base covering a variety of quality classes.
Other aspects where applicable	



A livello comunitario

ICMi metrica scelta per confrontare i risultati (RQE degli Stati Membri)

CIS 2009. GUIDANCE DOCUMENT ON THE INTERCALIBRATION PROCESS 2008-2011. 2009

IMPLEMENTATION STRATEGY
FOR THE WATER FRAMEWORK DIRECTIVE
(2000/60/EC)

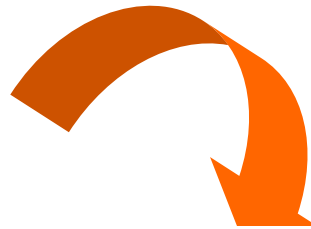
7.1. Please describe the choice of the appropriate intercalibration opti



IC Option 2 - Different data acquisition and numerical evaluation YI

Guidance Document No. 14

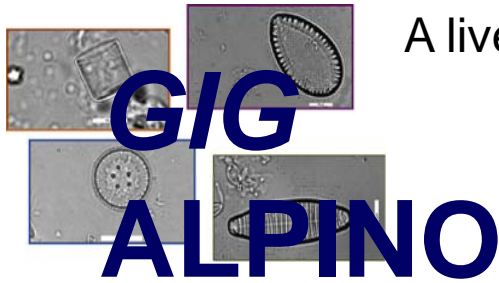
GUIDANCE DOCUMENT ON THE
INTERCALIBRATION PROCESS 2008-2011



7.2. IC common metrics

Explanation for the choice of the IC option:

Option 2 for intercalibration has been chosen because we have different data acquisition and each MS has a different assessment method. So the best option is to use an Intercalibration Common Metric (ICM).



A livello comunitario

Phytobenthos Intercalibration - Rivers
Alpine Geographical Intercalibration Group

Final Report

Gisela.Ofenböck@lebensministerium.at; Franz.Wagner@baw.at

The intercalibration of the boundary values for the Phytobenthos method in the Alpine River GIG was done following the procedure of the Central Baltic GIG (see Kelly et al. 2006) and the results show that a further modification is not necessary. Thus, maximum consistency with the approach in the other Geographical Intercalibration Groups is guaranteed.

1. National Assessment Systems

Ofenböck G, Wagner F Phytobenthos Intercalibration- Rivers Alpine Geographical Intercalibration Group Final Report Update Italy. JRC 2010, 7pp

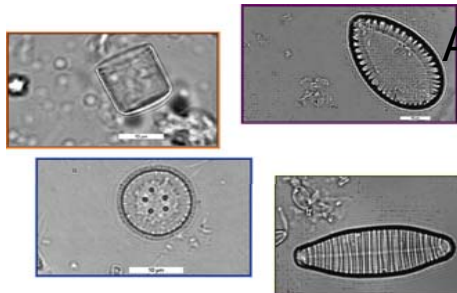
APPA Trento

Fondazione E. Much (IASMA San Michele all'Adige)

CNR IRSA Brugherio Milano e APPA Bolzano

Arpa Lombardia

MS	National metric
Austria	Multimetric method consisting of 3 modules/metrics: <ul style="list-style-type: none"> • trophic status module (based on TI: Rott et al. 1999) • saprobic status module (based on SI: Rott et al. 1997) • reference species module (portion of defined reference and bioregion-specific species in total abundance and species number) worst-case-approach
France	IBD (national routine index: AFNOR, 2000)
Germany	Diatom Module: WFD Diatom Index = Average of the sum of abundances of type specific reference species (following Schaumburg et al. 2005) and Trophic Index (Rott et al., 1999) or (in one special case) Saprobic Index (Rott et al., 1997). Additional metrics are available for cases of acidification or salinisation. Non Diatom Module: WFD Reference species Index depends on type specific taxa and abundances (following Schaumburg et al. 2005) Macrophyte Module: WFD Reference species Index depends on type specific taxa and abundances (following Schaumburg et al. 2005). Additional metrics are available for cases of mass growth stands of special taxa. Ecological status is calculated and classified from the average of the three module scores. If a module is absent, status class can be calculated with two modules or, exceptionally, with a single module. For this reason every module is classified separately and can be considered separately for intercalibration purposes. The national classification system needs all modules of the benthic flora occurring in a monitoring section of a water body.
Italy	Multimetric method (identical with ICM) consisting of 2 modules/metrics: <ul style="list-style-type: none"> • IPS (indice de polluossensibilité (Cemagref 1982) • Trophic index (Rott et al. 1997)
Slovenia	Multimetric method consisting of 2 modules/metrics: <ul style="list-style-type: none"> • Saprobic index (Zelinka & Marvan 1961) • Trophic index (Rott et al. 1997) Setting of boundary value: Median of ref. samples worst case approach



A livello comunitario

5. Regression between national methods and ICM

Figure 1 and Table 1 show the results of the regression:

Table 1: Data from Regression in Figure 1

	number of sites	number of reference sites	R ² of national method vs ICM	lowest EQR value in data set
Type R-A1				
Austria	157	18	0.96	0.39
France	117	66	0.56	0.43
Germany	46	9	0.90	0.20
Italy	38	4	1.00	0.53
Slovenia	11	4	0.68	0.60
Type R-A2				
Austria	111	17	0.92	0.27
France	52	26	0.82	0.43
Spain	40	6	0.81	0.66
Italy	19	2	1.00	0.74

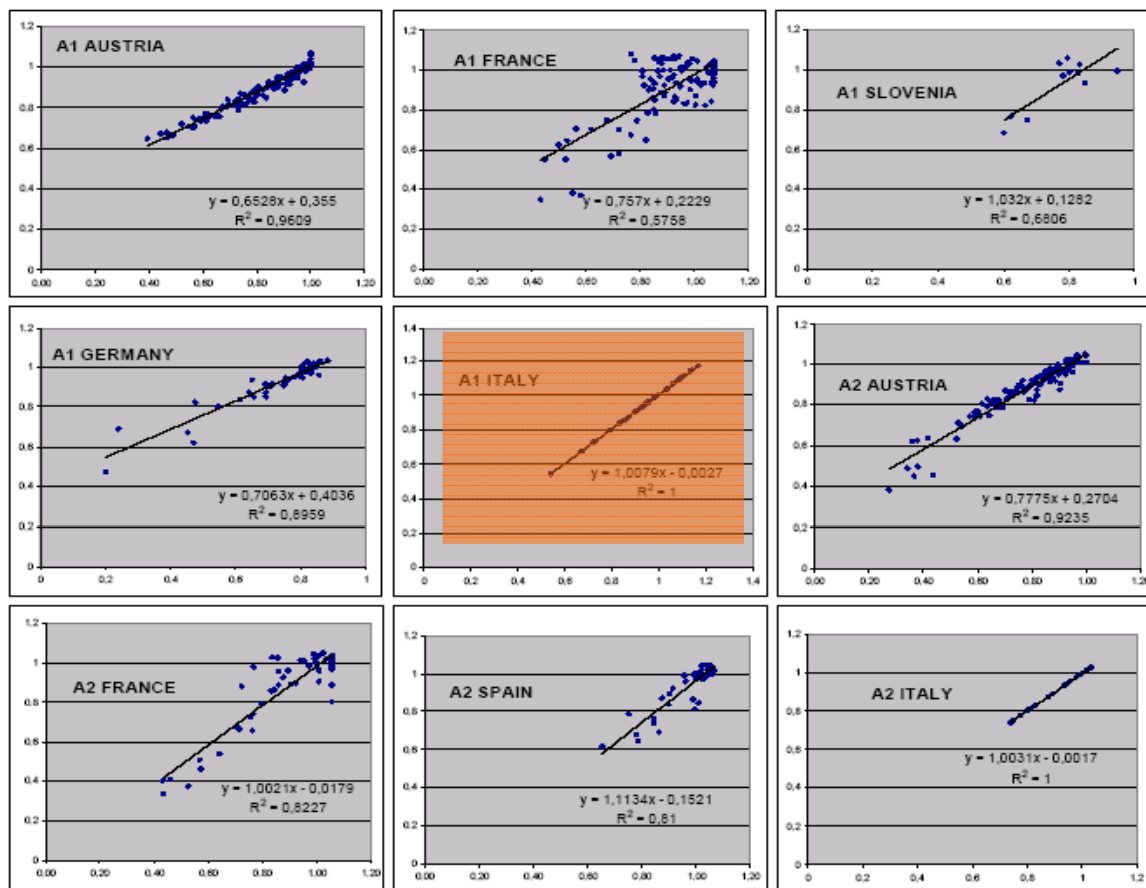
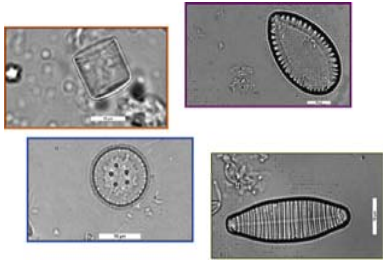


Figure 1: Regression: x-axis = national method and y-axis = ICM.

Italy is using the ICM as national assessment method, thus R² equals to 1. As the reference value calculated in the intercalibration process was slightly different compared to the national reference values the slope differs slightly from 1 and intercept differs slightly from 0. (Excel was used to calculate the reference values as median of the reference sites). However, the boundary values are identical at both scales, for the national assessment method and for the ICM-method.



A livello comunitario

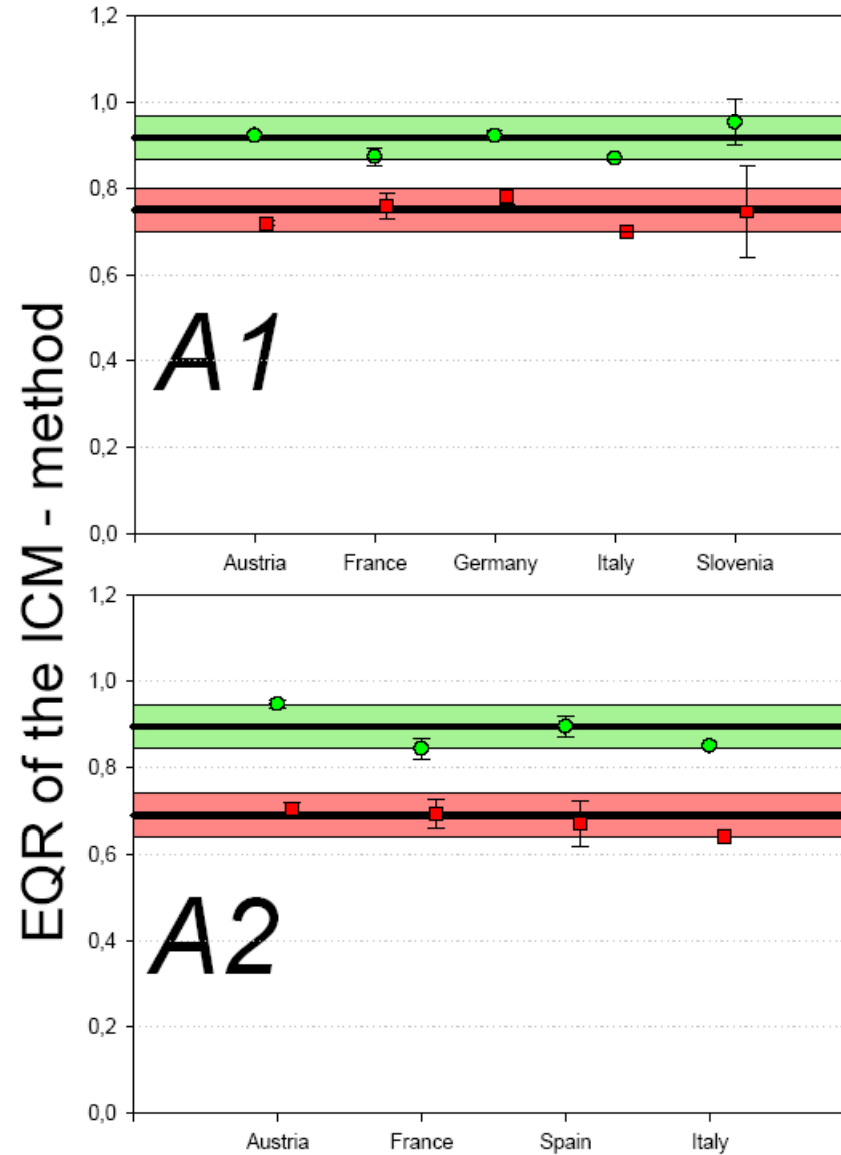
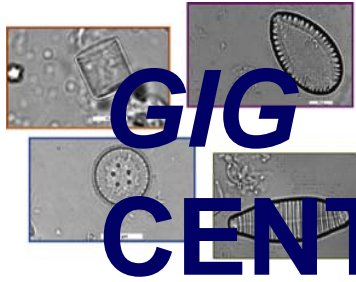
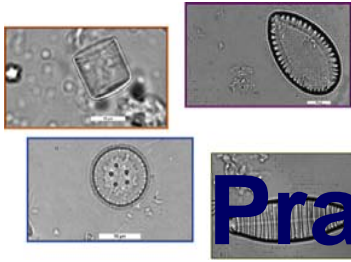


Figure 2: Comparison of the national boundary values when converted into ICM – values (+/- 95% CL). Green: High/Good boundary, Red: Good/Moderate boundary. The bands show the average boundary values (bold line) +/- 0.05.



A livello comunitario

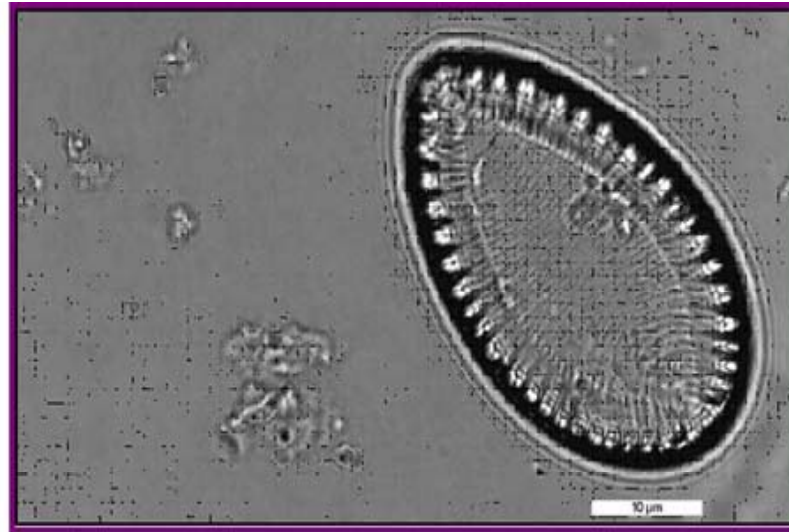
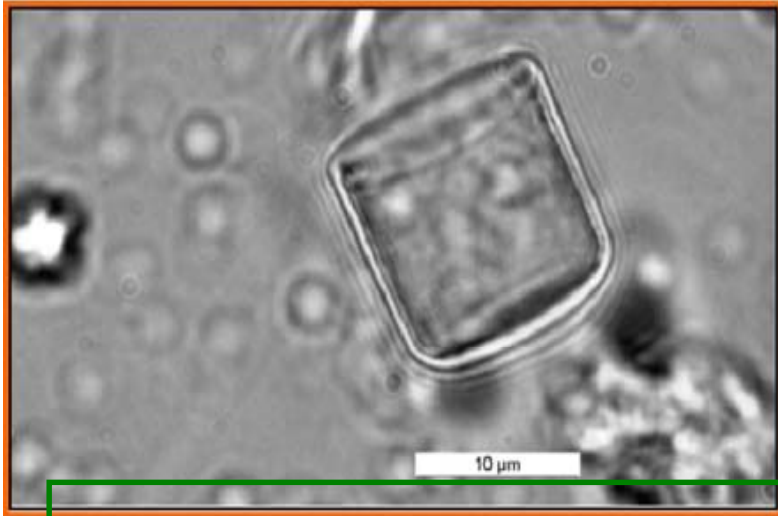
- L'Italia ha inviato i dati degli RQE sui i siti analizzati, calcolati con l' *ICMi*, che verranno inseriti nel dataset (deadline 30 ottobre 2010)



A livello nazionale

Partecipazione all'implementazione della direttiva a livello nazionale

- Collabora con **MATTM** per il recepimento della direttiva
- Collabora con **ISPRA** per:
 - Formazione**
 - Progetto Atlante**
 - Software** per il calcolo dell'ICMi (RQE) ed i relativi indici (TI e IPS)



Grazie per l'attenzione

