

# The Fluvial and the Lake Shorezone Functionality Indices: a new macroscopic approach to river and lake functionality

By Maurizio Siligardi, Barbara Zennaro  
Province of Trento Environmental Protection Agency,  
Italy





# What is new?

## What is new?

Advantages

IFF & SFI

Report

IFF

IFF in Italy

SFI

SFI in Europe

Eulakes

Silmas

Future steps

## Earlier/Existing Indices

- Chemical analysis
- Biological extended index
- *Point-form* indices

## IFF and SFI

- Looks at the overall status of the environment
- Evaluates:
  - Both biotic and abiotic factors
  - The buffering capacity of the riparian vegetation
  - Complexity and artificiality of the shoreline
  - Anthropogenic use of the surrounding territory
- *Linear-form* indices





# Advantages

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Future steps

- Easily surveyed parameters
- 5 functionality levels (as suggested by WFD 2000/60/CE)

LEVEL	JUDGMENT	COLOR
I	excellent	BLUE
II	very good	GREEN
III	good	YELLOW
IV	fair	ORANGE
V	poor	RED

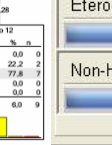
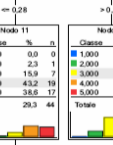
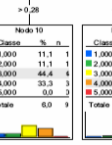
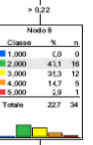
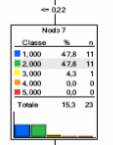
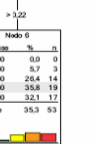
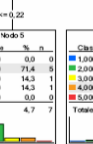
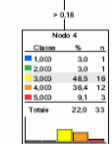
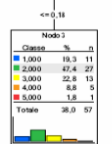
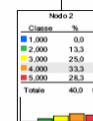
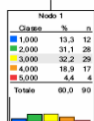
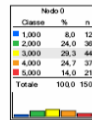
- Localize and identifies causes of deterioration
- Includes the surrounding territory and watershed topography

# IFF and SFI reports

## IFP Indice di Funzionalità Perilacuale

Classification Tree (ver. 1.2, aprile 2008)

N.B. I dati riportati come frequenze percentuali e numeri (% e n) sono riferiti ad un test set di 150 osservazioni indipendenti da quelle utilizzate per l'addestramento dell'albero.

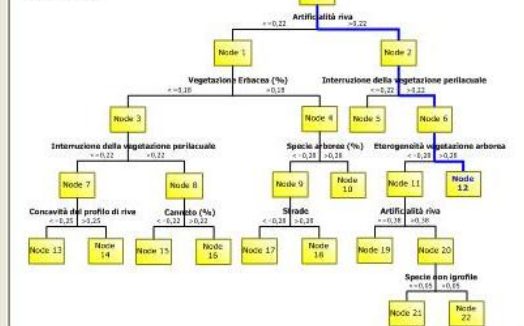


ITALY | Trentino-Alto Adige | Trento >> Survey 1 on 25/10/2005 on Shorezone TOBL01

Parameters	
Artificiality of Banks	0,30
Grass	0,80
Until 50 Meters From Shoreline	1,00
Concavity of Shoreline	0,40
Reed Species (Elophyte)	0,00
Arboreal Species	0,20
Secondary Roads	1,00
Eterogeneity of Arboreal Vegetations	0,80
Non-Hygrophilous	0,20

Class	Probability
1	0,00
2	0,12
3	0,65
4	0,18
5	0,06
Leaf	12
Class	3
Points	3,21

### SFI Tree



- Modeling for different scenarios
  - Impact of future public or private work



# Index of Fluvial Functionality

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## IFF

IFF in Italy  
SFI  
SFI in Europe  
Eulakes  
Silmas  
Future steps

- IFF data produces a photo of the functional status of a river and can be elaborated to extract more information on the complexity of the system.
- Looks at:
  - Surrounding territory
  - Riparian vegetation
  - Hydric condition and river substratum
  - Morphological condition
  - Detritus and periphyton presence
  - Macrobenthonic community



# IFF in Italy

What is new?  
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IFF

## IFF in Italy

SFI  
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Eulakes  
Silmas  
Future steps

- Since 2000
- 12 national IFF trainings organized
- 4000 km of rivers/streams surveyed in Italy
- IFF status reports/database
- Used as a tool for management and planning

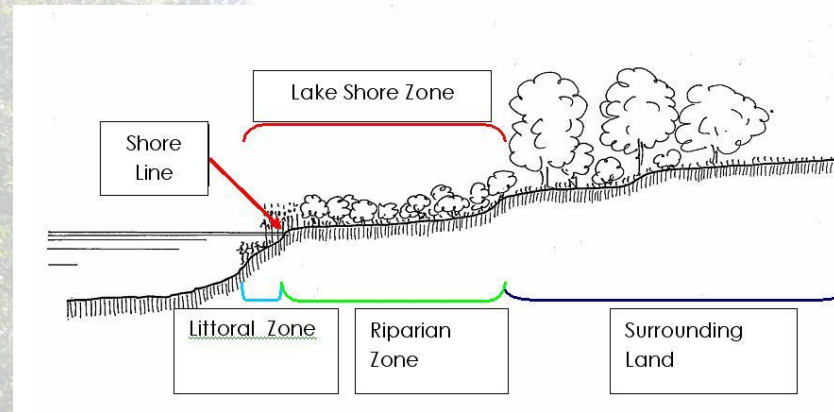


# Shorezone Functionality Index

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**SFI**

SFI in Europe  
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Silmas  
Future steps



Since 2009

Looks at:

- Topography
- Surrounding land use
- morphology
- Socio-economic parameters
- Riparian vegetation type and composition
- Vegetation continuity



# SFI in Europe: EULAKES

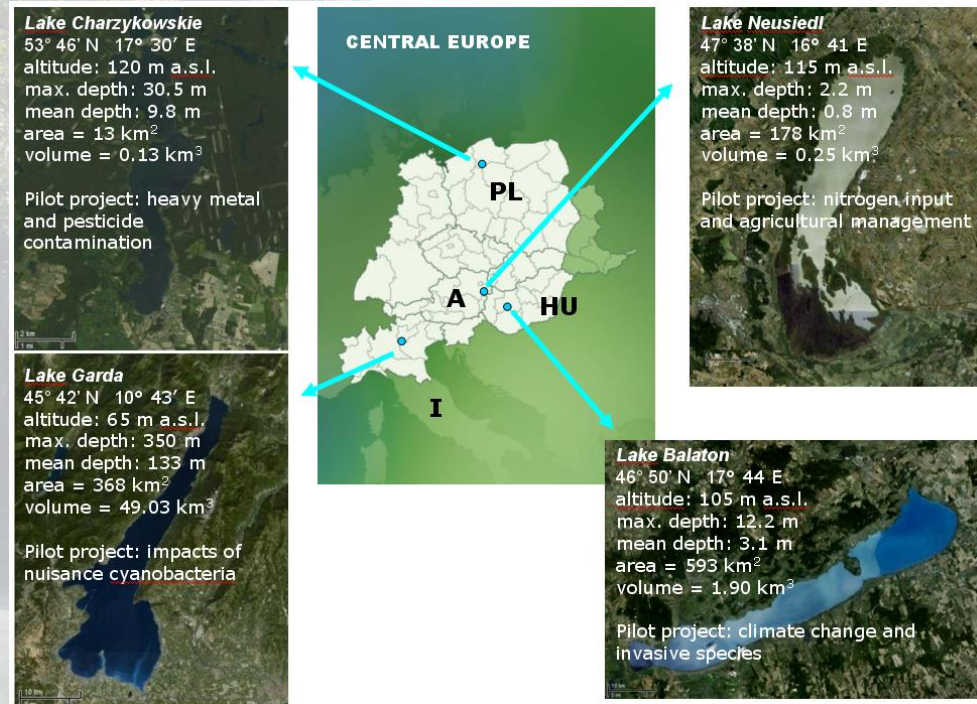
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Future steps

## European Lakes under Environmental Stressors (Supporting lake governance to mitigate the impact of climate change. 2010–2013)



9 partners from: Italy, Austria, Poland, Hungary  
SFI Lakes: Garda (IT), Neusiedl (HU), Charzieskowskie (PL),  
Balaton (HU)



# SFI in Europe: SILMAS

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# Silmas

## Future steps



# Sustainable Instrument for Lake Management in Alpine Space (2009–2012)



14 partners from: Italy, France, Austria, Germany and Slovenia

SFI Lakes: Levico (IT), Caldonazzo (IT), Wothersee (AU), Millstätter See (AU), Bohini (SL), Bled (SL)



# Future steps for IFF and SFI

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## Future steps

- ArcGIS tool
- SFI: comparing between different countries results and management actions.
- IFF and SFI in Chile
- IFF manual: english, spanish, italian
- SFI manual: english, italian



# Thanks for the attention!

- Barbara Zennaro
  - barbara.zennaro@provincia.tn.it
- Maurizio Siligardi
  - maurizio.siligardi@provincia.tn.it
- <http://www.appa.provincia.tn.it/appa/publicazioni/-Acqua/>