Citizen science and citizen sensors in Finland

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SYKE
15.8.2017

CONTENTS OF MY TALK
Вещи, о которых я говорю

- LONG HISTORY OF CITIZEN SCIENCE
- DEVELOPMENT PROGRAM – MONITOR_2020
- SYNERGY: MONITORING AND SCHOOL REFORM
- TOOLS DEVELOPED FOR CITIZENS
- WHAT HAVE WE DONE?
- ACTIVITIES TODAY?

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LONG HISTORY OF CITIZEN SCIENCE IN FINLAND (EXAMPLES)

- **HYDROLOGY**
  - Ice break-ups from the year 1693
  - Water levels from 1910's
- **ANIMALS**
  - Birds from 1920's
  - Butterflies from 1970's
  - Hunting and hunting animals since 1970's
- **WATER QUALITY**
  - Early system 1913-1933
  - LakeWiki 2011
- **SEASONS SINCE 1960's**
  - The Finnish Association for Nature Conservation (FANC)
  - Campaign to follow the processes in sping

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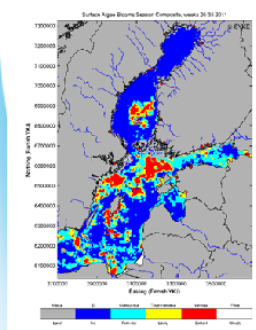
Two ways to improve information chain

Field work → Labora - tory → Processing → Storage → Report → Secondary use

- Technology
  - Mobile observation bases
  - Probe/sensor technology
  - Mobile technology
- New ways to organise
  - Derived knowledge
  - New business models
  - Citizens





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MONITOR2020

School reform: started in autumn 2016

Реформа образование: началась осенью 2016

GOALS AND MEANS:

- From substance-based to phenomenon-based
- From teaching to learning
- From toy-problems to solving of real problems
- From school building to authentic environments
- From lonesome performers to team players
- From sitting position to walking position

AUTHENTIC ENVIRONMENTS (аутентичные среды)
REAL PROBLEMS (реальные проблемы)
EXCITING CHALLENGES (интересные задачи)

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Synergy between school and monitoring reforms

- Monitoring deals with real world phenomena
- Students can go out and learn monitoring by themselves
- Monitoring environment is a real world problem
  - If data is used for real purposes
- Students go outdoors for authentic enviroment
- Environmental monitoring can be done in teams
- You are in a walking position outside

All conditions of school reform are fulfilled

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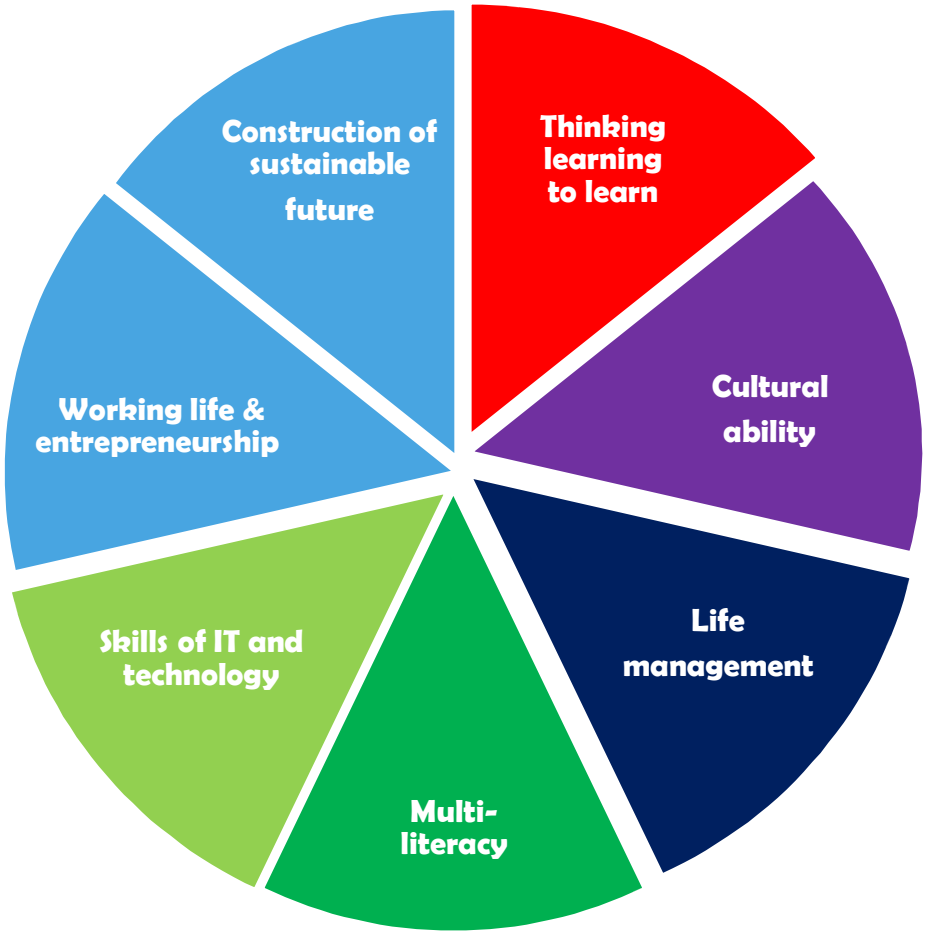
GOALS
ЦЕЛИ



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Мышление, умение учиться

Thinking, learning to learn

Pedagogic Games

Педагогический игры

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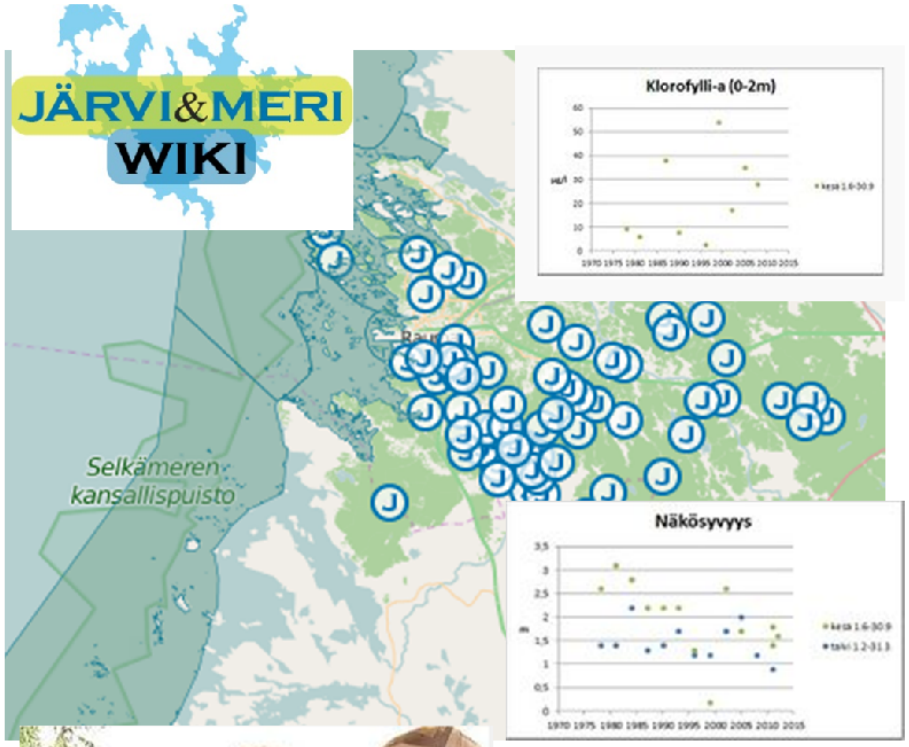
Педагогический игры

http://opaskartta.rauma.fi/ims



Well done. You are team nr 1.

Our answer:
Kaljasjärvi
28.8.2015, 12.20
Secchi depth= 1.60m;
Temperature =16C;

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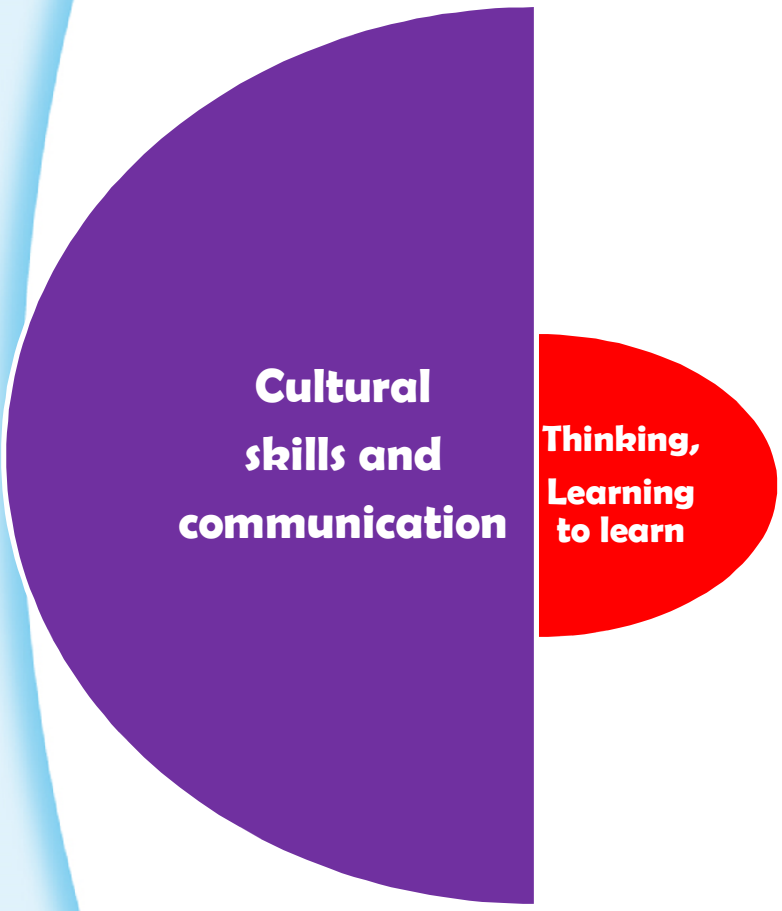
Finnish-Portuguese Young Citizen Science Conference

Финско-португальско научная конференция школьников



Культурной компетентности

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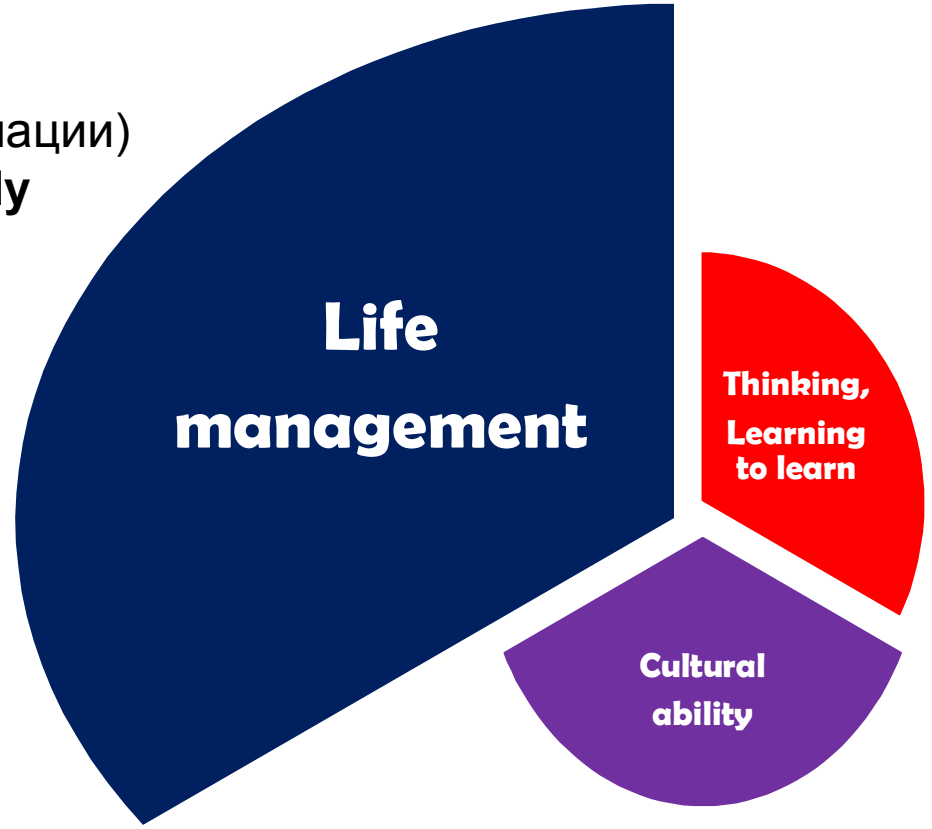
IMMIGRANT CHILDREN (Дети иммигрантов)
- **Motive of learning**
- **Family members**

GRANDPARENTS (Родители, бабушки и дедушки)
- **Primary level**

ASSOCIATIONS (Ассоциации)
- **Keep Archipelago Tidy**
- **Sea Rescue**
- **Outdoor**



Управление жизни

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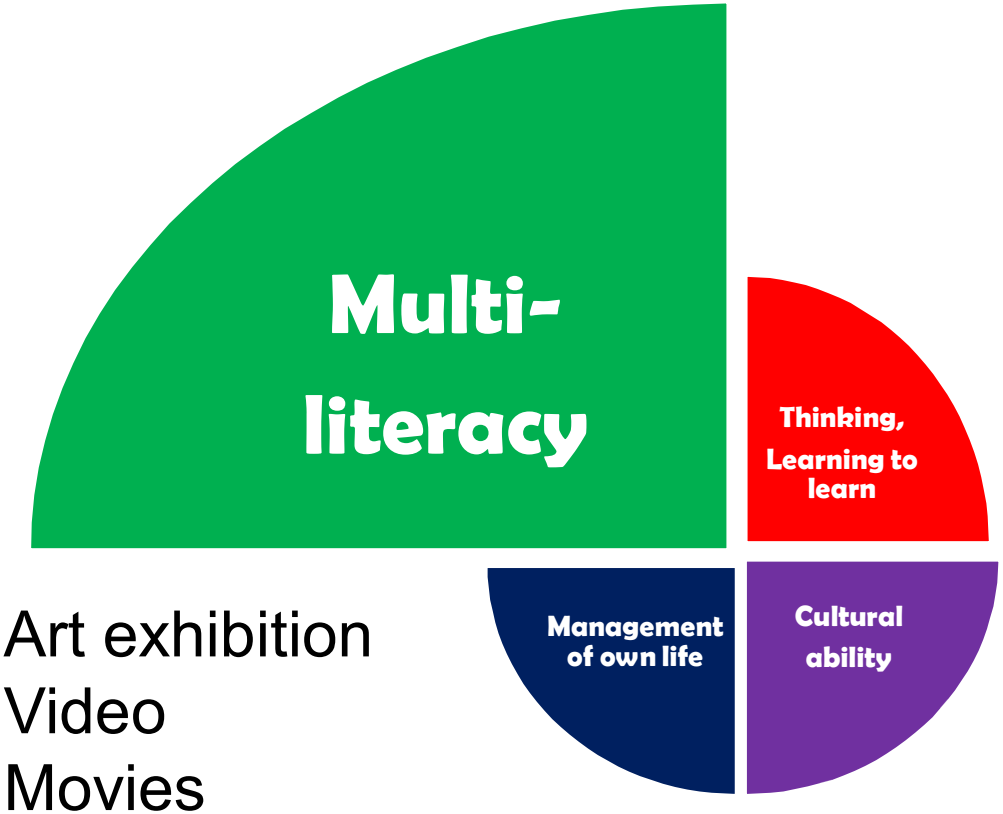
мульти-грамотности



Art exhibition
Video
Movies
Conference
Joint professional journal
Biology, physics, mathematics, art, handicraft…

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Навыки Информационные технологии

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трудовой жизни и предпринимательства

Team work(работа в команде)
Joint outputs(общие выходы)
Biology, geography, maths, arts (Применение в различных дисциплинах)

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TOOLS DEVELOPED
Инструменты разработаны

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Suomi | Svenska | English

- Main page
- What is Järviwiki?
- Lakes by
- Sea areas
- Plants and animals
- Observations
- Interaction
- Toolbar

Page | Discussion | View source | History

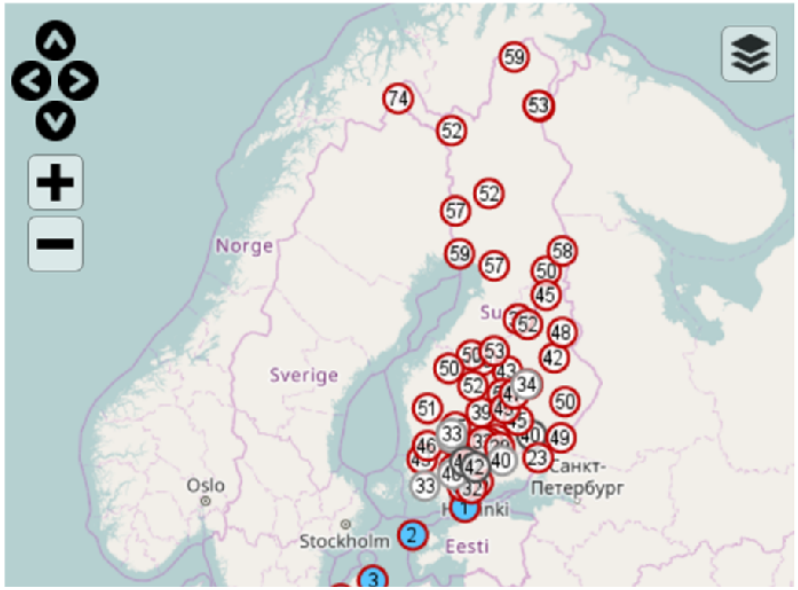
Järviwiki is about Finnish lakes and sea areas

Järviwiki (Lakewiki) is a web service which is built and maintained in cooperation by authorities and common people. In Järviwiki there is basic information of each Finnish lake over 1 ha in extent and tools for sharing ie. observations and pictures.

In addition to the Finnish lakes, the different parts of the Baltic Sea are also present. You might as well upload observations and other information for marine areas as for lakes. *More >*

Ice conditions & Water temperature

Authority | Expert | Experienced | User



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Järviwiki
Tykkää sivusta

Mitä Itämerell…
Tykkää sivusta

SYKE's hydrologists on Twitter
Follow 1,219 followers

Current discussions

Iisalmen rajalla oleviin järviin tarkennuksia

Miikala started **a new thread** on page *Kahvihuone/Virheet ja korjaukset*

27.1.2017

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Water quality sensor (S3000)

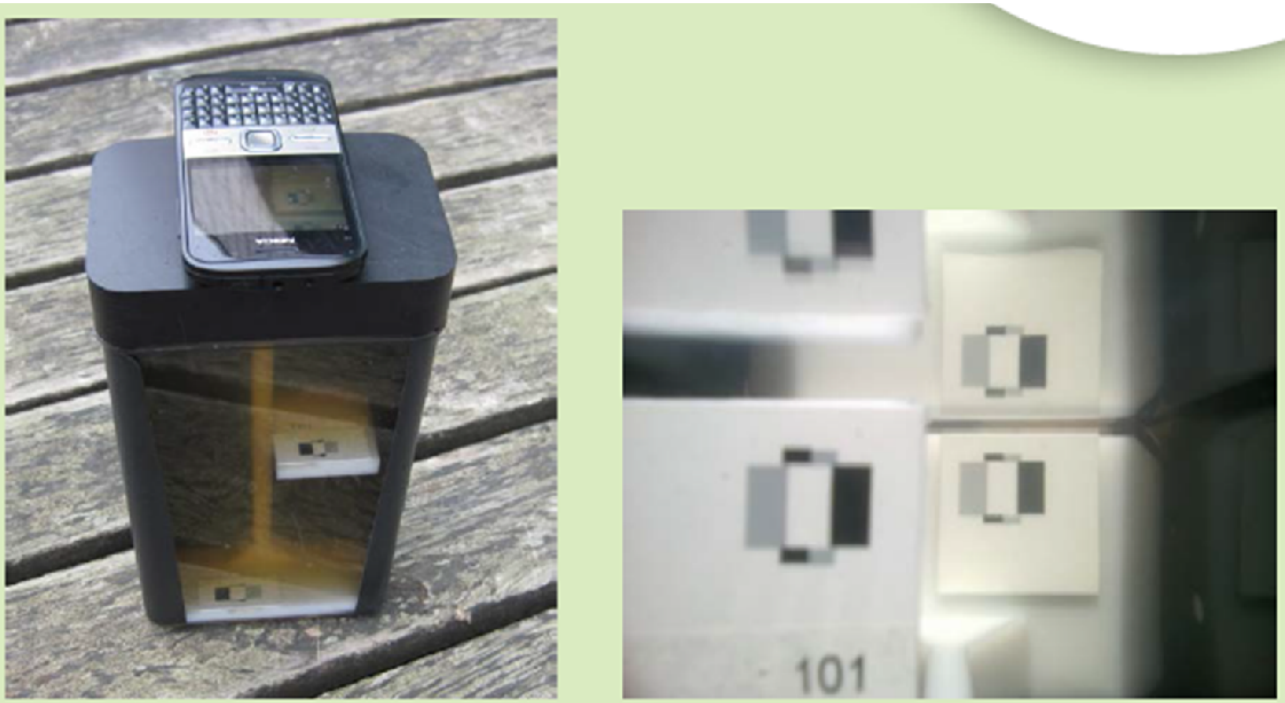

Fig. 1. Secchi3000 and a mobile phone on the top of the device. Inside the container there is the measurement structure with plates consisting of white, grey and black target areas.

Observable parameters:

Secchi depth, Turbidity, CDOM, TSM, Color, (Chlorophyll-a)

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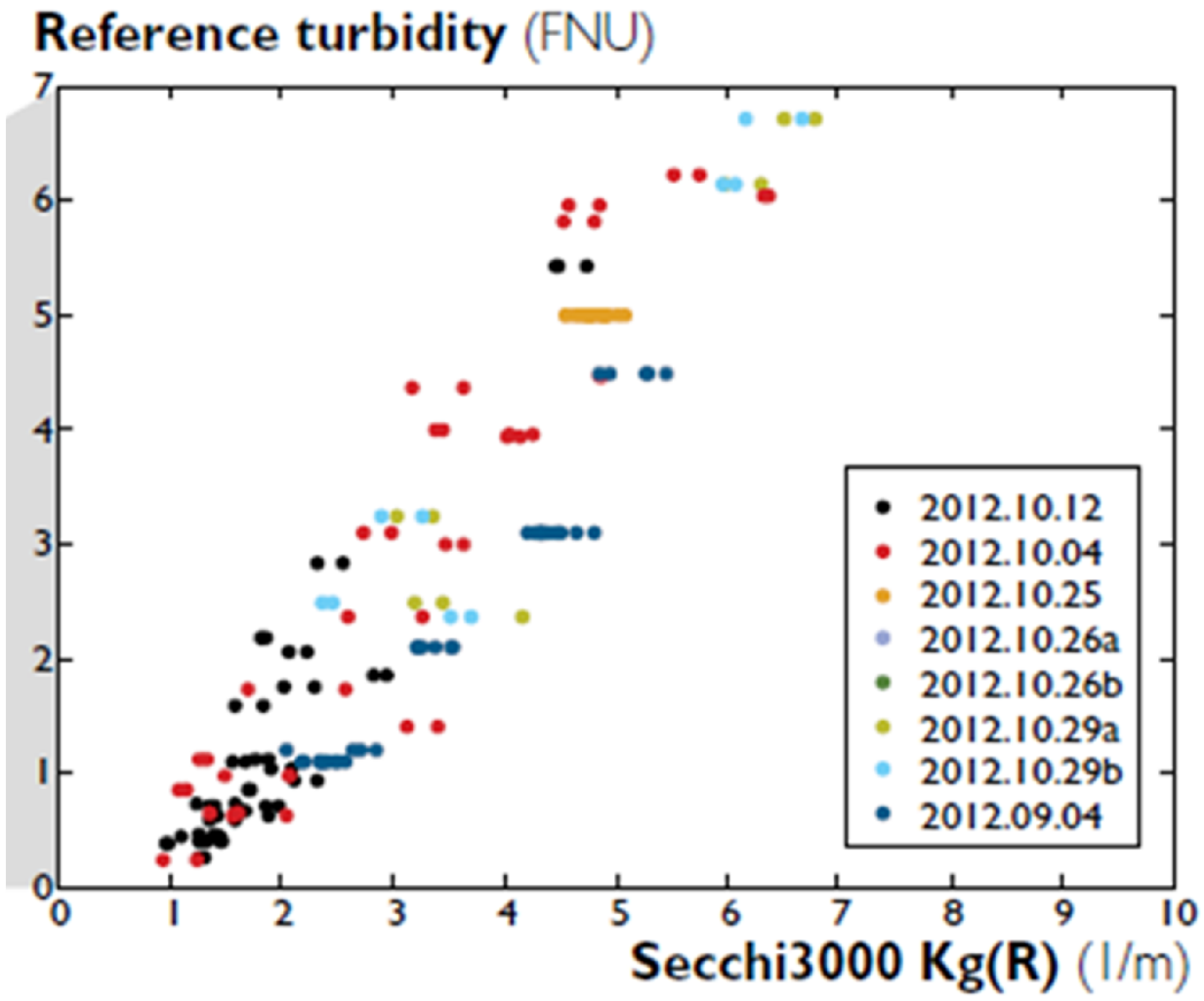
Accuracy of the S3000

Comparison of Secchi3000 turbidity results with laboratory reference method.



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Näykki, Koponen et.al. 2013

COMPLETED PROJECTS

- **Start - 2 municipalities**
  - About 1000 school children (primary/secondary)
  - 25 schools – 50 school classes
  - 50 teachers
- **Snow campaign 2016 – 2017**

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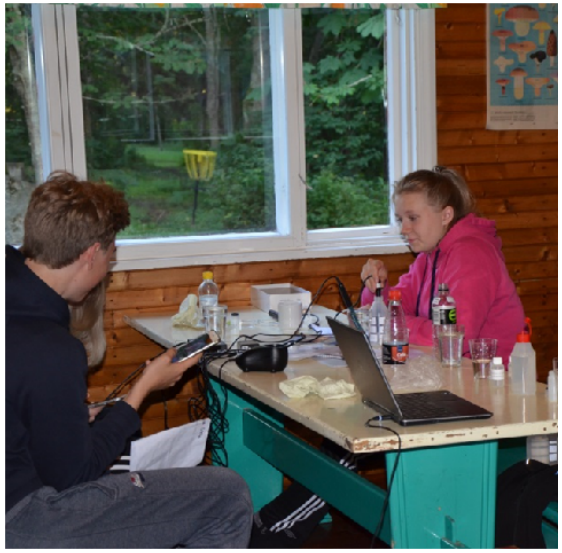
PRESENT PROJECTS

- **Present – 10 Municipalities**
  - 250 teachers, 4000 school children
- **Coordinating volunteers** (15 municipalities) - Работа с 15 муниципалитетами
- **Work at high school level** – работа высшая школа



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