



欢迎莅临 克罗地亚萨格勒布

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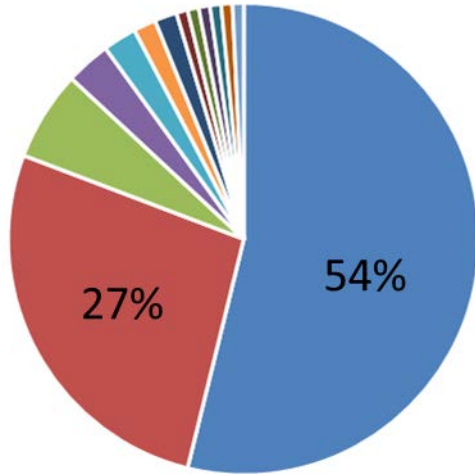
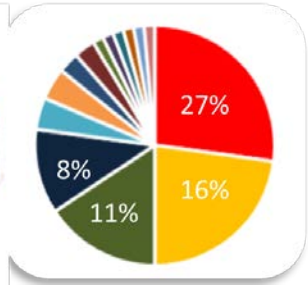


女士们、先生们，尊敬的来宾们，亲爱的中国同事们

我特别荣幸地代表扎格勒布大学理学院和中国科学院成都生物所，向各位介绍克罗地亚与中国合作发展的目标、成就和未来计划。双方在环境保护和评估管理方面的科研合

中—克政府间
科技合作项目
130 Bilateral projects

Some numerical facts

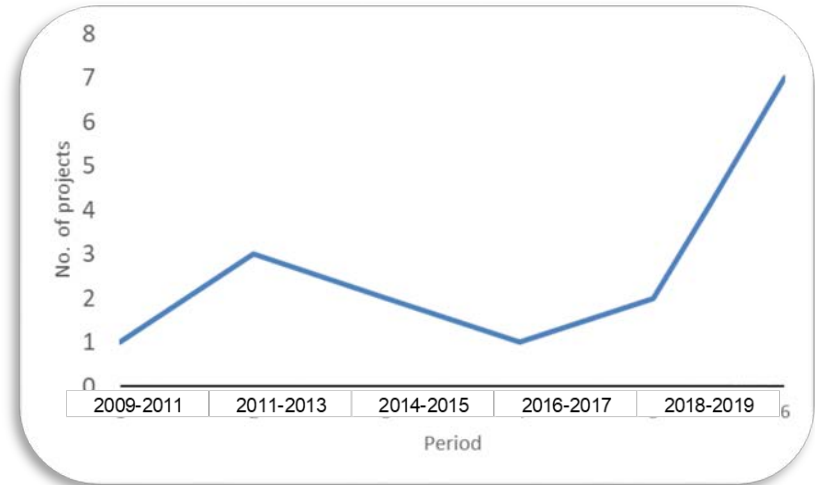


HIGH TECHNOLOGY AND ROBOTIC SYSTEMS

SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL PROTECTION

AGROECOLOGY

HUMAN HEALTH





Chengdu Institute of Biology
Chinese Academy of Sciences



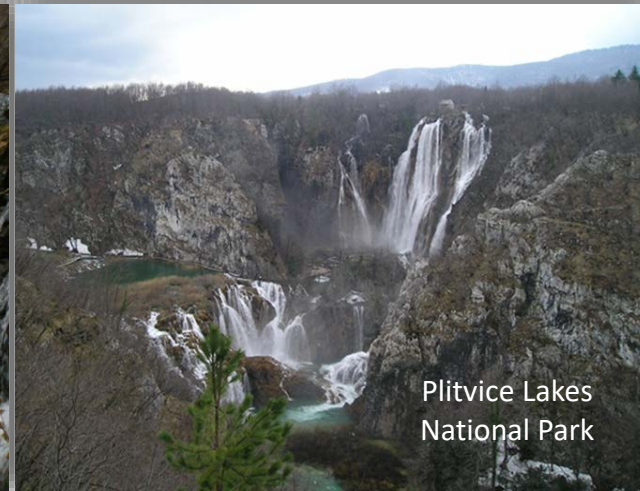
University of Zagreb
Faculty of Science



A World Heritage Site



Jiuzhaigou
National Park



Plitvice Lakes
National Park



A World Heritage Site

两个机构在环境保护和评估管理方面的科研合作由来已久，培养了一代又一代的学生，并取得了许多新的成就。

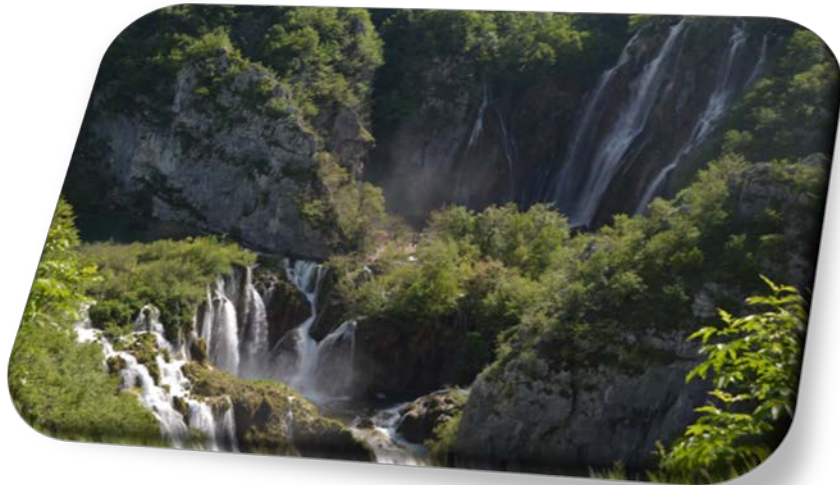
普利特维采 Plitvice Lakes



Established in 1949



UNESCO World Heritage List in 1979



Special geological and hydrological phenomenon



Consists of 16 lakes, which gradually blend into one another in a long series of more than 5000 m



九寨沟 Jiuzhaigou



普里维彩和九寨沟都属于世界上最令人印象深刻的岩溶地区。由于它们的自然特征（景观、水文地质、地貌、植物群和动物群，这两个公园结合了生物多样性、可持续发展和基因收集方面的大量专业。因此，两者都拥有代表全球水平的自然财富。



Beginning of the cooperation

Who?



中科院生物所所长吴宁教授
prof. Wu Ning, CIB-CAS

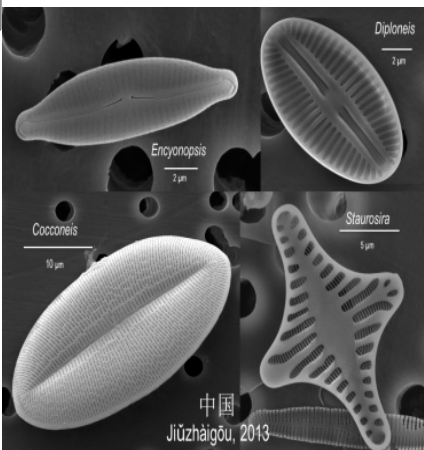
Where?



克罗地亚普利维茨湖国家公园

Why?

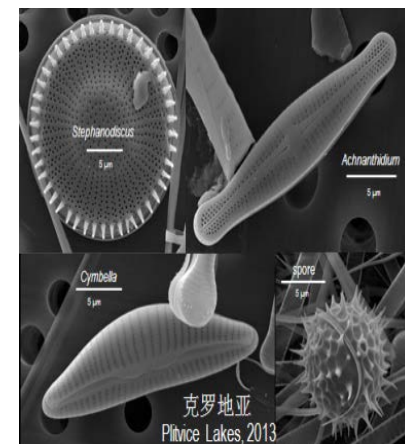
Because of scientific curiosity, recognizing the values of the UNESCO Natural World Heritage and the amazing similarity between Plitvice Lakes and Jiuzhaigou



克罗地亚—中国生态保护科技合作情况汇报

Croatia-China Ecological Protection Science and Technology Cooperation Report

suitable model organisms for ecological topics



•以湖泊藻类研究入手

•水质是九寨沟和普利特维采喀斯特钙华景观维持的关键

•藻类特别适合作为湖泊水质监测指示物种

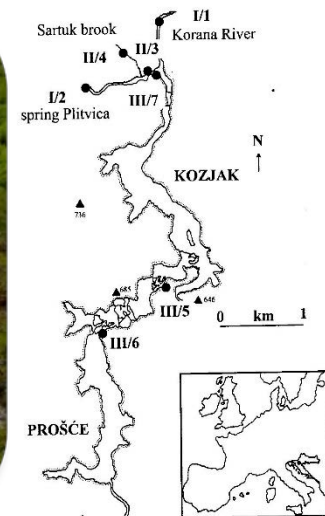
构建了喀斯特湖泊统一的环境预警藻类指标体系





每个项目参与者根据各自国家相关原则和调查地点的实际情况在本国进行相同类型的调查。

Each projects participant conduct the same type of investigation in their country according to national relevant methodology and place of investigation.





EU funds

- ❑ *Diatoms - ecological status indicators of Plitvice Lakes.* ESF EU fund

中—克政府间 科技合作项目 Bilateral projects

- ❑ Biodiversity and ecology of phytoplankton communities in Lake Jiuzhaigou Valley (China) and National Park Plitvice Lakes (Croatia)
- ❑ Application of phytobenthos in water quality assessment in karstic waters of Croatia and China
- ❑ Cooperation research on monitoring technologies based on the ecosystem services for world natural heritage tourism sites
- ❑ Cooperation research on common conservation technology of karstic lakes based on outstanding universal value in world natural heritage sites

主要合作项目

Main cooperation project

中国科技部
国际合作专项

**China Ministry of Science and
Technology International cooperation**

- ❑ 九寨沟水资源与生态安全保护关键技术合作研究

克罗地亚的机构
Croatian National Institutions
(MZO, CV, NP)

- ❑ Utjecaj ekoloških čimbenika na slatkovodne alge u krškim vodama Hrvatske, (MZO)
- ❑ Struktura zajednica sedrotvornih alga u krškim vodama Hrvatske (MZO)
- ❑ Testiranje bioloških metoda ocjene ekološkog stanja u jezerima Dinaridske ekoregije (CV)
- ❑ Testiranje bioloških metoda ocjene ekološkog stanja u reprezentativnim slivovima Panonske i Dinaridske ekoregije (CV)
- ❑ Funkcionalna organizacija planktonske zajednice jezera Prošće i Kozjak kao indikator ekološkog stanja u hidrosustavu Plitvička jezera (NP)

President's International Fellowship Initiative (PIFI)

- ❑ Diatoms - Ecological Status Indicators of Jiuzhaigou Valley
- ❑ Applied Use of Cyanobacteria and Green Algae from Jiuzhaigou Valley as Indicators of Water Quality and Ecological Status: Sampling, Analysis and Ecological Remarks

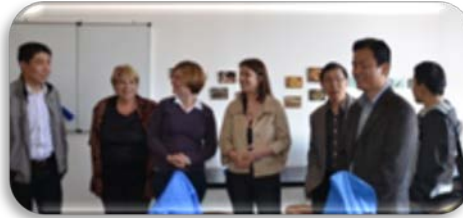
四川省
国际科技合作项目
**Sichuan Province
International Science and
Technology Cooperation Project**

- ❑ Evaluation of ecosystem services and the evolution trend of Jiuzhaigou cooperative research, Sichuan International project
- ❑ Based on EU standards for water quality monitoring and research on protection of travertine landscape in Jiuzhaigou.
- ❑ Travel to Jiuzhaigou-Huanglong travertine effect of natural heritage and its sustainable management, Sichuan International project
- ❑ Jiuzhaigou study on the key technology of water resources and ecological security cooperation, MOST China
- ❑ Tourism of travertine landscape in Jiuzhaigou and its sustainable management, Sichuan International project



学术交流与人才培养

Academic exchange and talent training



More than 20 persons participated in more than 50 times academic visiting, cooperation investigations and seminars

科研成果应用

Application of scientific research



共同开展了野外考察取样、样本分析和多层次的深入座谈交流

Joint field sampling, sample analysis, multi-level in-depth discussion and exchange

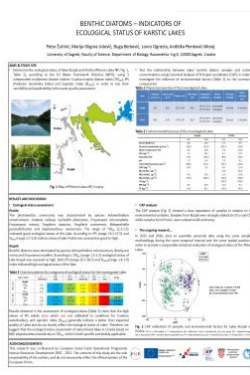
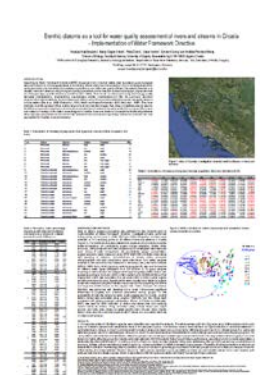
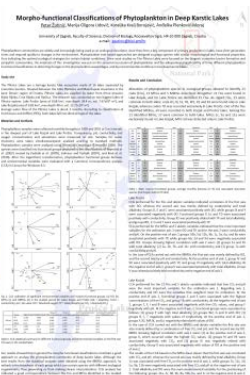
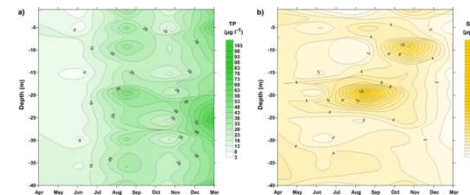




科研成果应用

Application of scientific research

- Water quantity and quality safety security key technology
- Biological Monitoring technology for water quality
- Ecological risk avoidance and treatment measures



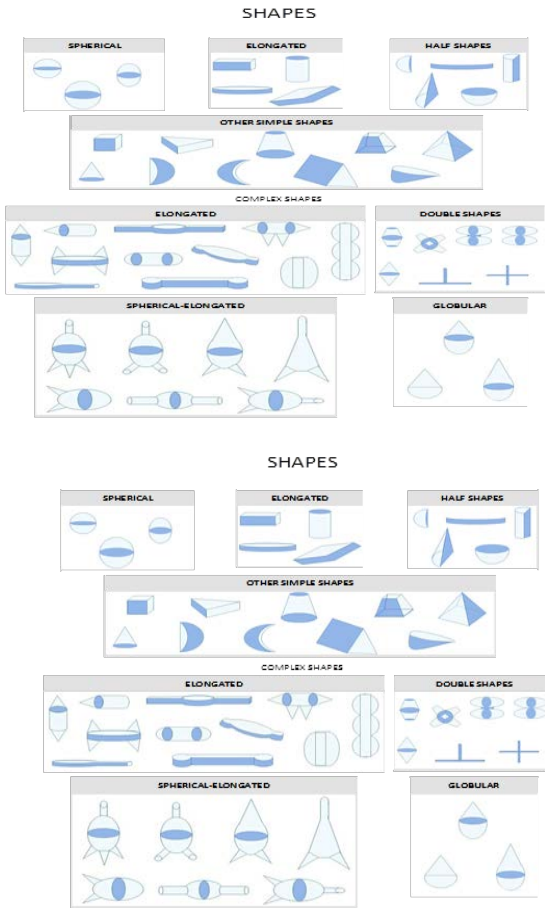
20 scientific papers
8 congresses and symposiums
12 invited lectures
3 books of scientific report



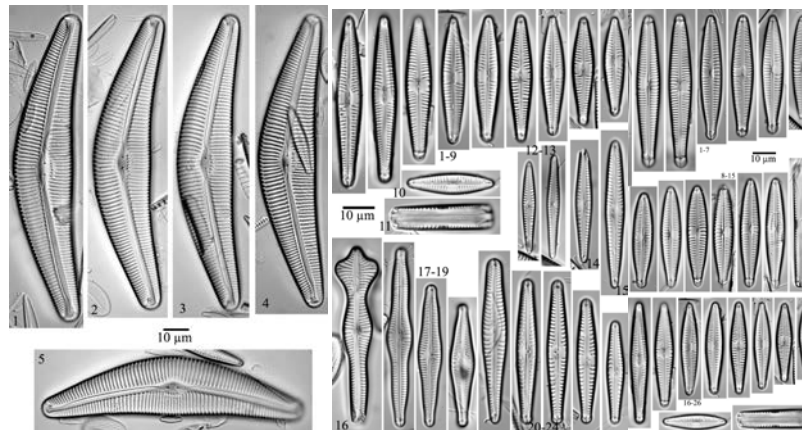
科研成果应用

Application of scientific research

Manual - identification of diatoms



4 new algae species



Sampling protocols

Chengde Institute of Biology, Chinese Academy of Science, CHINA
 University of Zagreb, Faculty of Science, Department of Biology, CROATIA

A protocol for collecting planktonic samples:
 一种用于收集浮游植物的采样协议

1. in the field notebook **REQUIRED** to WRITE the number of the sample, date and place of sampling
 在电子笔记本上，日期地点的采样数及所需的信息。
2. On the bottle in which the sample will be saved also **COMPULSORY** to WRITE the number of sample, date and place of sampling. 在瓶子的瓶口处保存必需的信息。日期地点的数。

Name of location
 Date of sampling: _____ No. of sample: _____

3. 10 L of lake water filtered through a phytoplankton net (see on the picture) 10升湖水通过过滤器网面上的过滤膜。
 Fig. 1 Filtering
4. After filtration the 10 liters of pond water add to the filtrate on phytoplankton net come later. Shaken it several times as shown in figure 2 过滤后的10升湖水加入过滤膜的浮游植物头采集水。摇晃几次。如图。
 Fig. 2 Shaking it several times
5. The samples of phytoplankton from plastic cup save into properly marked bottle as in figure: 将植物浮游液杯在纸杯里正确标记的瓶子。如图。
 Fig. 3 Saving the phytoplankton sampling
6. Do not forget on return from the field to the samples. 从外回来要记录样品的位置。不要忘了。

For students

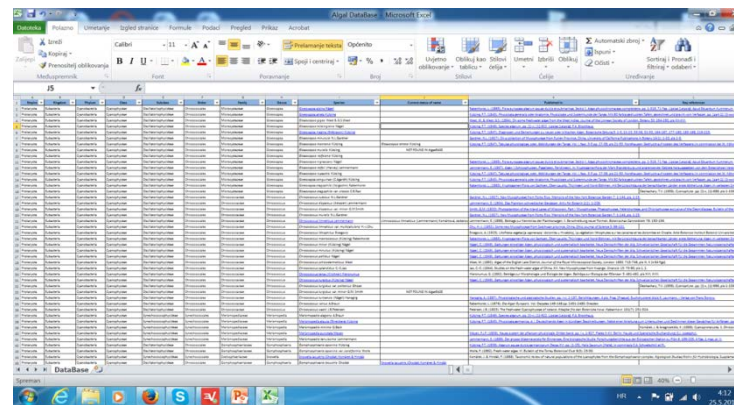
How to increase your chances of having a paper accepted

The purpose of written material is to help Chinese students of CIB to increase their potential in scientific writing. Provided suggestions are based on the personal experiences and different online sources.

TO WRITE AN ARTICLE IS YOUR OPPORTUNITY TO CONVINCe READERS THAT YOU CLEARLY KNOW WHY YOUR WORK IS USEFUL. THERE IS NO SECRET RECIPE FOR SUCCESS, JUST SOME SIMPLE RULES, DEDICATION AND HARD WORK!

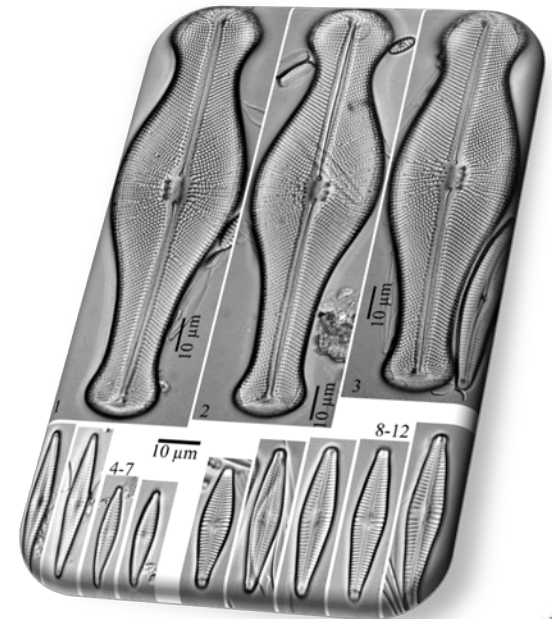
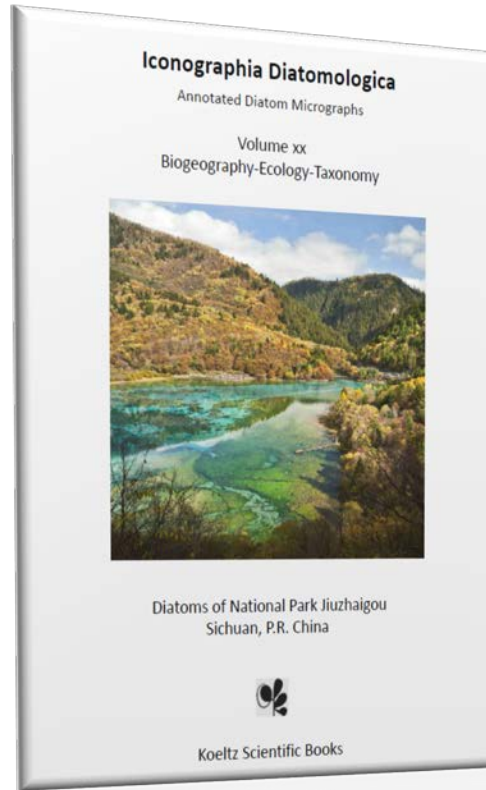
Prof. Dr. Anđelka Plešković-Moraj
 Chengde, January 2014

Algae database



科研成果应用

Application of scientific research





九寨沟 普利特维采 Jiuzhaigou Earthquake 7.0 degree – August 8, 2017



Required scientific support for restoration

Ongoing activities and challenges

- ❑ 强化伙伴关
- ❑ 在涉及生态系统管理和环境保护、公园管理和环境能力的所有领域进行合作研究，重点考虑作为世界自然遗产一部分的生物群落的可持续发展。
- ❑ 通过支持青年学者的学术交流和访问活动实现知识和技术的转移。
- ❑ 中国和克罗地亚在合作研究、学术访问、教育等方面签署协议，并将这样的合作进一步扩大到中欧和东欧的其他机构。
- ❑ 建立保护区生态保育联合实验室。



Intra-region Institution

+

Advanced Institution



Cooperation Progress – on the state scale



Mr. Wu Cheng (Deputy Director-General STDP),
February 2018



State Secretary Mr. M. Glunčić (Ministry of
Science and Education) visited CIB, December 2017



Croatian National Council for Science, Higher
Education and Technological Development
at CIB, March 2018



Mr. Luo Zhiping, (Deputy Director- General, STDSP), June 2011



Mr. Bai Chunli, President of CAS, December 2017



Mr. Zhou Menglin (Deputy Director-General STDSP),
September 2013



Mr. N. Koharović, Ambassador of the Republic of Croatia at CIB,
March 2017



Cooperation Progress – on the state scale

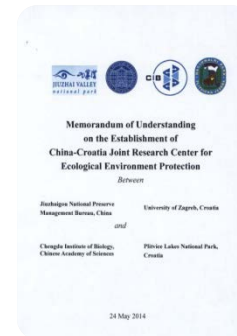
Croatia – China Joint Research Center for Ecological Environment Protection

established in May, 2014

刘延东：“加强中、克生态环保领域的合作有战略意义和广阔前景，相关单位在九寨沟的合作是中-克科技合作的典范。”



Vice Premier PRC,
Mrs. Liu Yandong



Cooperation Progress – on the state scale



June 12, 2018 - signing ceremony of MoU



Thanks to

最后，我要对两国的科技部、中国科学院、中科院成都生物所和扎格勒布大学理学院的领导、九寨沟和普利维茨湖国家公园以及我所有的中国同事和学生表示衷心的感谢。当然也特别感谢大力支持这一合作的我的家人。



Deans of Faculty of Science University of Zagreb



WU Ning



ZHAO Xinquan



SUN Geng



Chines collaborators, colleagues and students



my family

Andelka Plenković-Moraj, University of Zagreb, Faculty of Science





单方面的力量是有限的，联合起来会创造奇迹。

—— 海伦·凯勒

Xièxiè nín de guānzhù