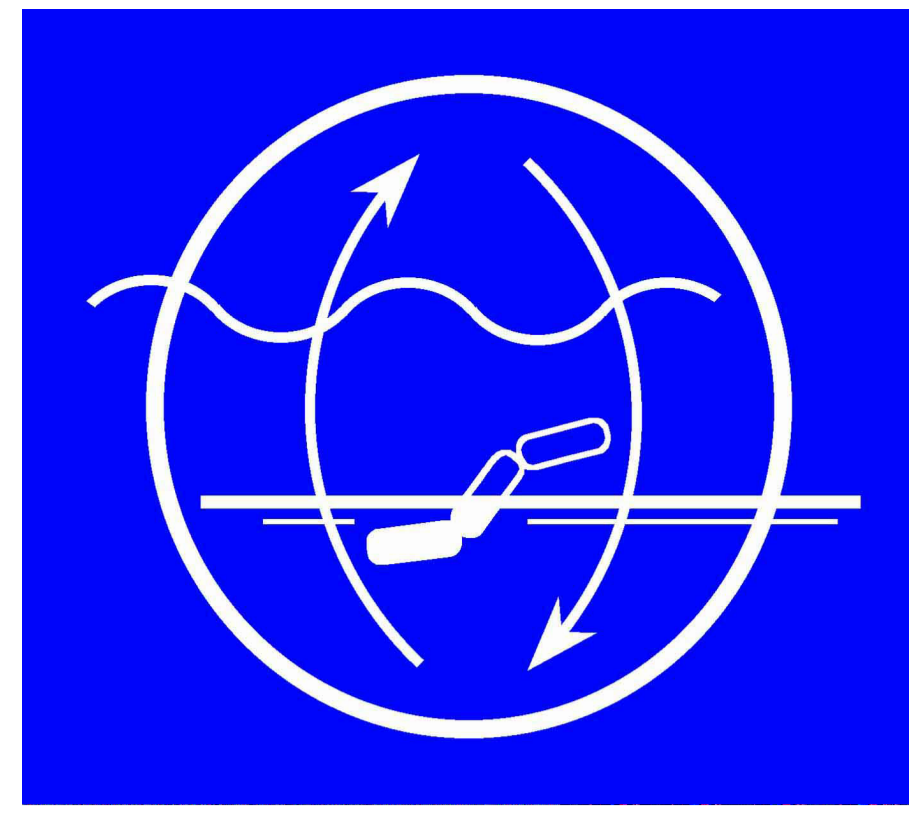




Megx.net: database resources for marine ecological genomics and metagenomics



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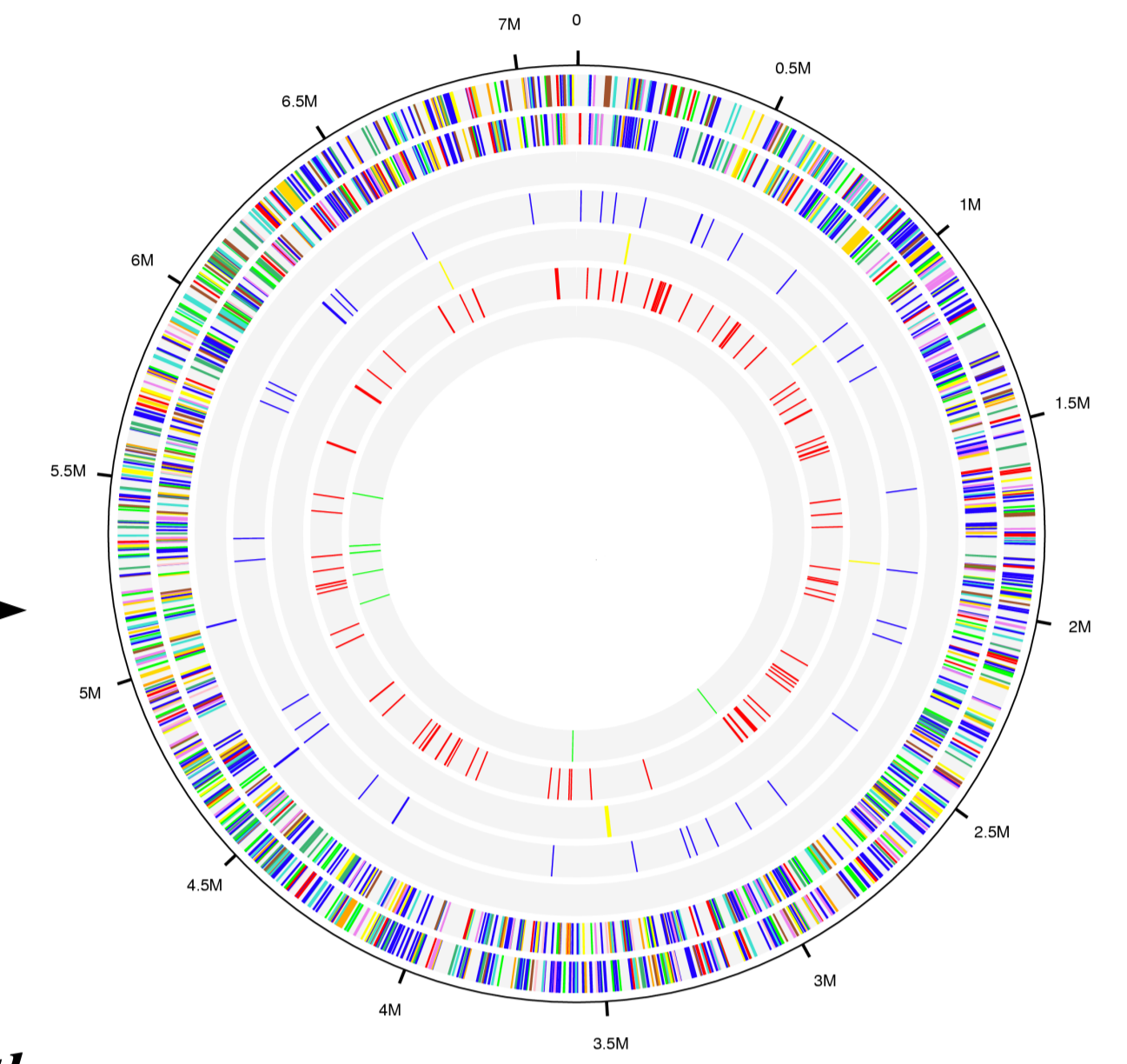
Background

Marine microbial genomics and metagenomics is an emerging field in environmental research. To address environmentally relevant questions like niche adaptations and how organisms can use the resources in their environments, it is necessary to systematically integrate the available genomic data and supplement it with contextual information like environmental and geographic data.

Therefore, new specialised databases are needed in this field of research to enable a better data integration and interpretation.

A new data portal

We introduce Megx.net, a set of databases and tools that handle genomic and metagenomic sequences in their environmental context.



- Genomes from the sea -

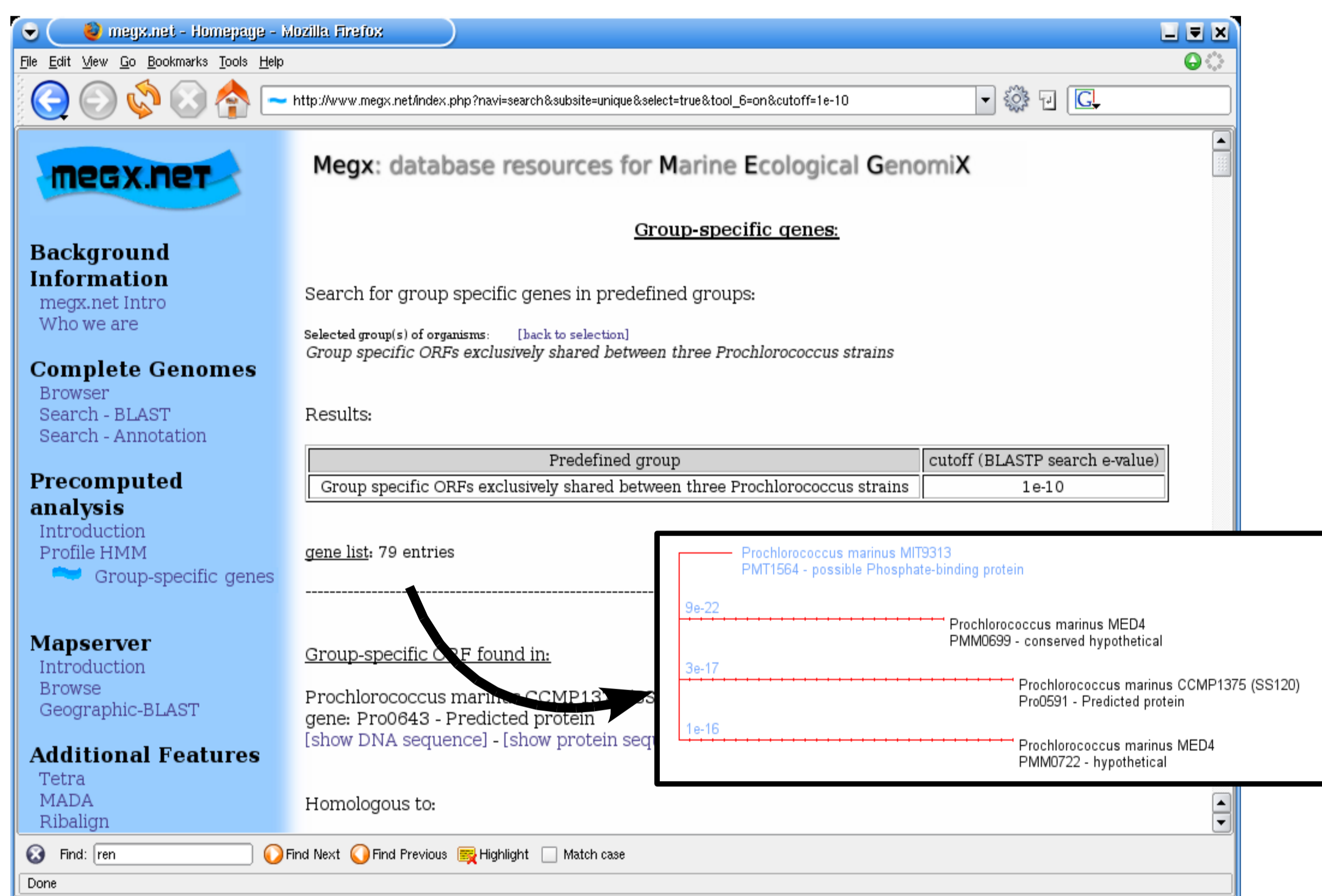


Megx.net includes:

- an environmental genome browser with fast search functionalities;
- a database with **precomputed analyses** for selected complete genomes, focusing on environmentally relevant gene families and **new group specific genes**.
- a tool to classify metagenomic fragments based on oligonucleotide signatures (TETRA) and
- The **Genomes Mapserv**, a **geographic information system (GIS)** to systematically store and analyse metagenomic data in conjunction with contextual information.

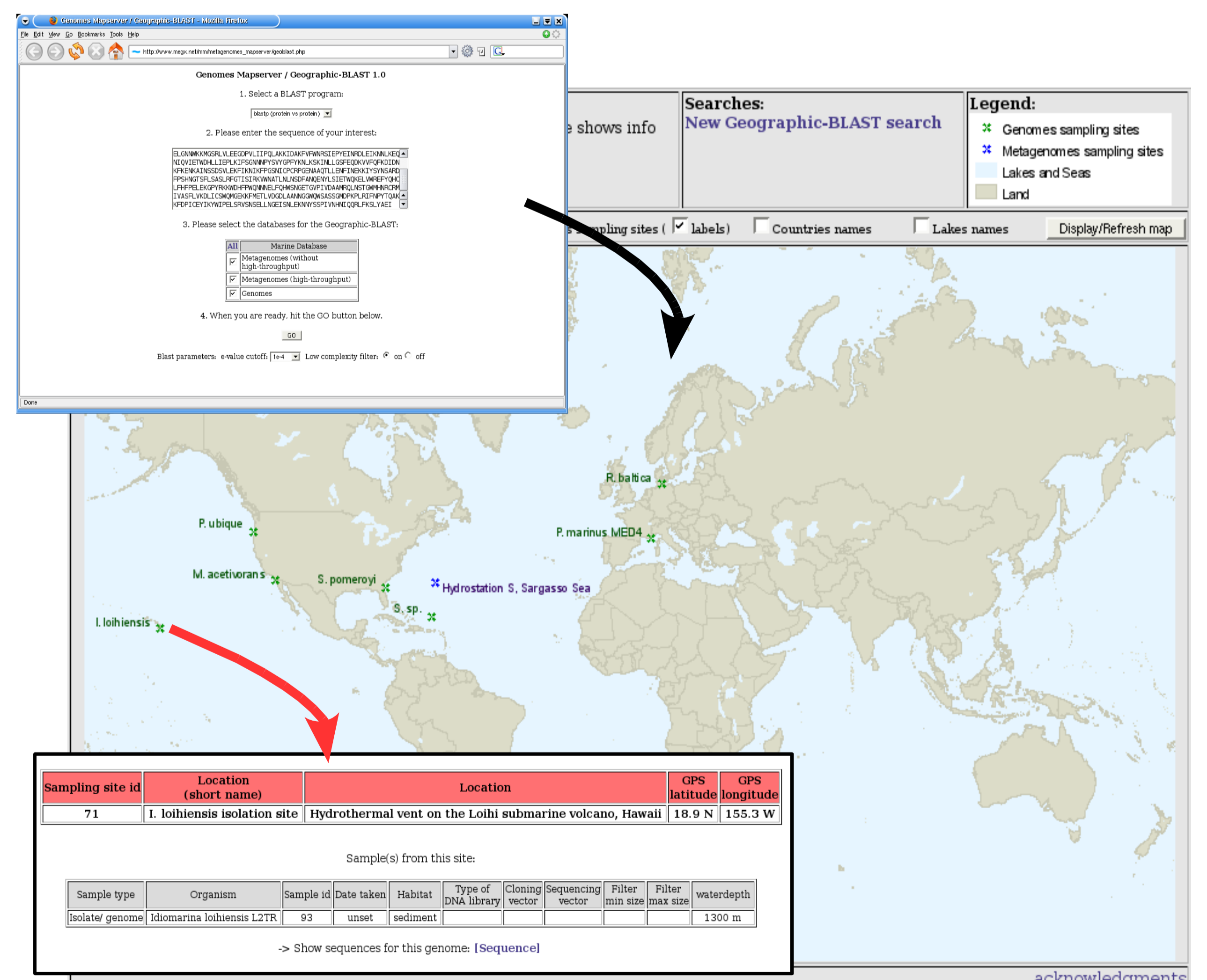
Our integrative databases and webserver will help researchers to generate a better understanding of the functioning of marine ecosystems.

Ecological Genomics



Precomputed group specific genes: the genes found exclusively in a defined group of organisms are likely to be essential genes for a particular metabolism. The example of three *Prochlorococcus* genomes is shown here.

Data Integration

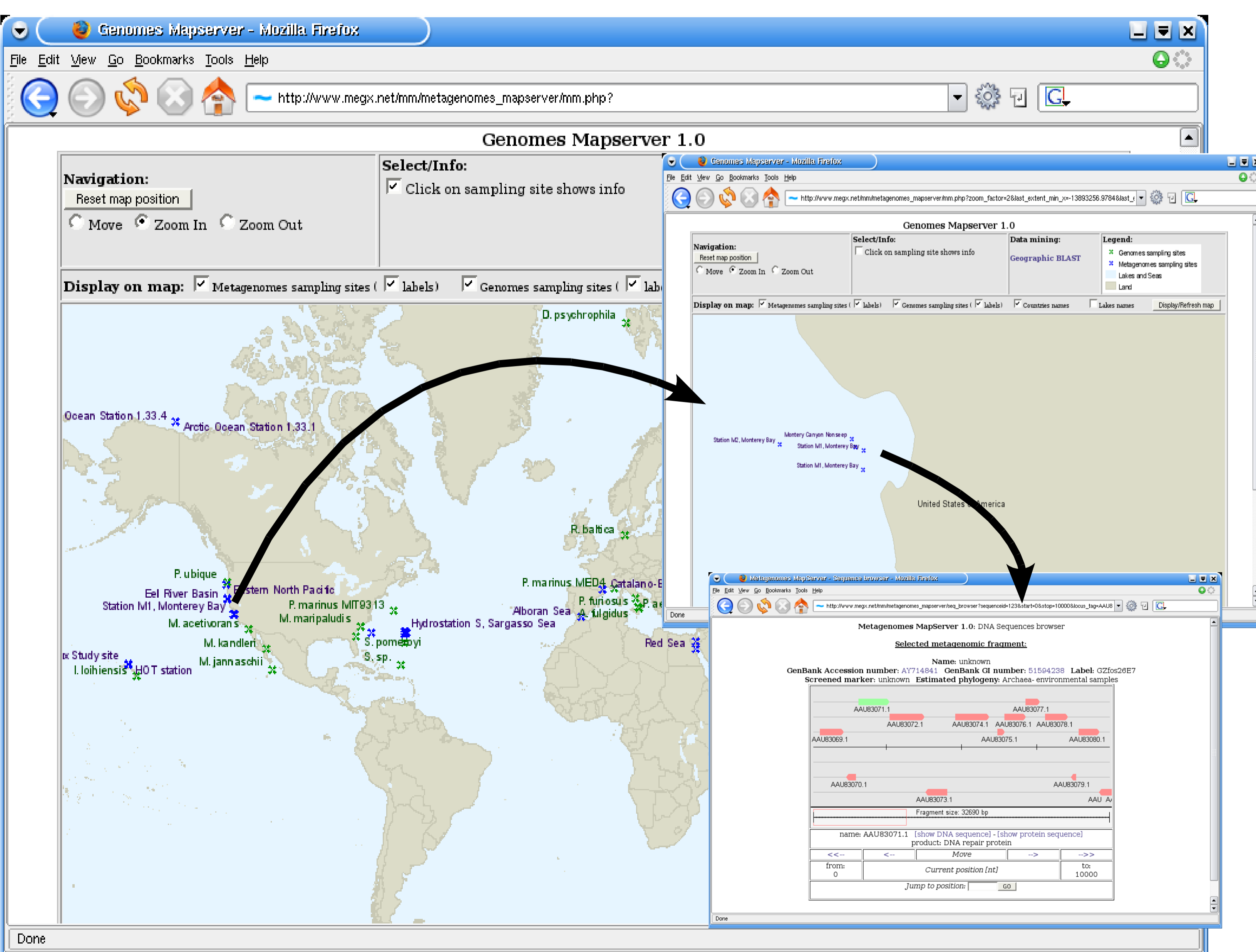


Geographic-BLAST: You can search the sequences of the Genomes Mapserv with the popular BLAST algorithm. This example shows the hits for a photolyase gene of marine origin on the world map. All hits are from the top of the water column, with one unexpected exception at depth of 1300 m.

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<http://www.megx.net>

feedback: megx@mpi-bremen.de



The Genomes Mapserv: this system provides a dynamic integration of metagenomic and genomic sequences in their ecological context (geographic origin, environmental parameters).