



# HCGS

Hubbard Center for Genome Studies

June 2015

Issue 6



## NEWSLETTER

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### Happenings at HCGS: Summer 2015

We're off and running! Jeff, Shane, and Louisa are here, and we're gearing up for the month of July!

Kelley and members of the UNH Bioinformatics Core are hosting another workshop the week of July 13th, 2015 here at UNH. Ten interns from the Seacoast School of Technology and their Biotechnology Instructor will be participating.

Our 2nd Annual Bioinformatics & Biodiversity Undergrad Boot Camp July 26-31. We will be hosting 15-20 students coming with returning colleagues Eyuaalem Abebe, Jo Sharma, and Holly Bik. This will be a hands-on workshop, focused on meiofaunal biodiversity as described in our NSF Research Coordination Network (RCN) grant.

### Pinky and the Brain

Pinky and the Brain are servers where we do most of our bioinformatics analyses. To access either server, you must first contact Feseha (Feseha.Abebe-Akele@unh.edu) for an account. You will be given a username and password, which you will use to SSH into the server of choice. For Mac OSX, you can simply use the ssh command while in the terminal. For Windows, you will need to download an SSH client (such as PuTTY) to connect. The address for Pinky is: [pinky.ad.unh.edu](http://pinky.ad.unh.edu)  
The address for Brain is: [brain.sr.unh.edu](http://brain.sr.unh.edu)



### **INBRE iSURF PARTICIPANTS**

#### **Louisa Normington:**

I have an undergraduate degree in mathematics and a passion for genetics. This Summer I am working as an intern at the Hubbard Genome Center at UNH, where I am learning how to analyze bioinformatics data with statistical tools and mathematical algorithms. This Fall I will be a graduate student at the University of Alberta where I will be studying plant biology with a focus on molecular genetics, bioinformatics and computational biology. I hope to one day work for the USDA-Forestry Service, conducting genetics research and participating in community outreach programs.

#### **Shane Kochvi:**

I study bioinformatics  
In hopes my career be not static.  
When I learned about iSURF  
I knew it was my turf,  
Was accepted and now am ecstatic.

I think there are people who's lives have been saved because of the study of the genome.~ Francis Collins

## Did you know:

Did you know that the HCGS web site has a bioinformatics software page? You can navigate to the page by choosing the Bioinformatics link from the side menu and then clicking on the NGS Software link or you may copy and paste the URL below.

[http://hcms.unh.edu/Bioinformatics/NGS\\_Freeware\\_List.html](http://hcms.unh.edu/Bioinformatics/NGS_Freeware_List.html)

The listing by category will make selection of tools easy for those who are relatively new to NGS data analysis. Some of the programs are already on 'Pinky' and 'The Brain' and the rest can be implemented on both servers upon request. Any questions please contact Feseha at [Feseha.Abebe-Akele@unh.edu](mailto:Feseha.Abebe-Akele@unh.edu)  
We also welcome any suggestions to add to the list.

## Frequently Asked Questions

Q: What are the components of a Science DMZ?

A Science DMZ consists of 3 key components, all of which are required:

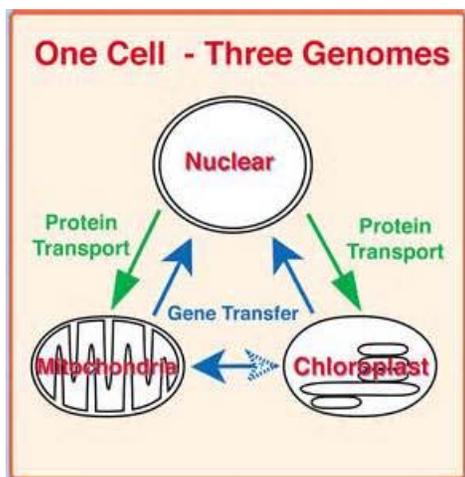
- A "friction free" network path, consisting of only highly capable network devices
- Dedicated, high-performance data mover nodes running optimized bulk data transfer tools such as GlobusOnline/ GridFTP
- A performance measurement/test node running perSONAR

## **Research Paper : Development of diagnostic microsatellite markers from whole-genome sequences of ammodramus sparrows for assessing admixture in a hybrid zone.**

The species of interest in this study are the Saltmarsh Sparrow and the Nelson Sparrow, which look very similar and were at one time thought to be of the same. The aim of this project was to identify microsatellites in both of the species' genomes to be used as a diagnostic tool for genetic admixture. That is, we should be able to see changes in the number of repeats at the locations of the microsatellites which help to identify what degree of hybridization happens when these species co-occur in the same habitat (tidal marshes in this case).

The motivation behind such a diagnostic is that it can be used to aid in conservation management. The number of Saltmarsh Sparrows have been declining in recent years, and it will be useful to know the degree of hybridization that occurs with Nelson Sparrow when considering questions such as conservation status and the protections afforded therein.

Kovach, A. I., Walsh, J., Ramsdell, J., & Thomas, W. K. (2015). Development of diagnostic microsatellite markers from whole-genome sequences of *ammodramus sparrows* for assessing admixture in a hybrid zone. *Ecology and Evolution*, 5(11), 2267-2283. doi:10.1002/ece3.1514



### Publications

If you have any publications resulting from data generated by the HCGS that you would like to have listed here, please send the citation to [Cynthia.Wiggin@unh.edu](mailto:Cynthia.Wiggin@unh.edu).

Kovach, A. I., Walsh, J., Ramsdell, J., & Thomas, W. K. (2015). Development of diagnostic microsatellite markers from whole-genome sequences of *ammodramus sparrows* for assessing admixture in a hybrid zone. *Ecology and Evolution*, 5(11), 2267-2283. doi:10.1002/ece3.1514