**Day 1**

1. Greeting and introduction from Dave
   1. Group introductions
2. Lyubov- Assessment of Unionid Refuges
   1. Coexistence in European waters- possible in N.A.?
   2. Important to keep a uniform surveying method to complete projects
   3. Main target is coastal refuges, methodology of Zanatta et al 2002, using three 200 meter transects
   4. Determine repro and recruitment- sieve ten .25 sq m areas for juveniles
   5. Monitor seiche events and preform time searches in dewatered regions
   6. Coastal river surveys to collects specimens using Metcalfe-Smith et al. 2002 and Strayer and Smith 2003
   7. Collect biological data- sex, species, shell length
   8. Dreissena- identified, counted and weighed (wet biomass) byssal thread attachment
   9. Genetic analysis- 20 voucher specimen
   10. Abiotics- substrate type, depths, temp, velocity
   11. Assess pollution, water shed development and tolerance of unionids to disturbance, including climate chage
   12. GOAL- application of unionid conservation strategies, id sites of refugia, quantify definition of refugia, address priorities for conservation management and recovery plans
3. Dave- Survivor’s guide to population and conservation genetics
   1. Define what to conserve- part or whole species/ populations/ etc. and how to define
   2. Genetic rescue effect- bringing in more genetic variability from other localized populations
   3. Need to find out how much genetic variation is available to work with for e/t species, then define which populations are more important to conserve- Choosing the best methods:
      1. **DNA sequencing (RFLP)**- nuclear/mitochondrial genomes, inheritance from both parents, PCR-DNA sequencing methods, Moderate cost (relative), amount of variation revealed is low- moderate, nucleotide sequencing output
      2. **Allozymes**- nuclear coded proteins, inherited from both parents, Buffered electrophoresis (more messy), low cost (“find ‘em and grind ‘em”), amount of variation revealed is moderate, gel output focusing on fragment types and alleles
      3. **Microsatellites (DNA fingerprinting)**- repeating patterns of ‘junk’ DNA, hypervariable, inherited from both parents (nuclear genome), PCR-DNA genotyping , High cost (develop and screen set of loci), high variation revealed, looking at DNA sequences with gel output containing peaks measured to ladders (size standards) and repeating patterns
   4. Fixation index: Fst- measure of genetic divergence ranging from 0-1
      1. 1= completely different, no alleles shared
      2. 0= no difference, all alleles shared
   5. Use genetic distinction to decide on conservation implications- do you want to mix populations that have high differentiation from two different locations?
   6. Genetic distance methods- analogs of Fst- assist in population similarity distinctions
   7. Species distinction vs. other units
      1. Designatable unit (any taxa), distinctive population segment (vertebrates), evolutionary significant unit (fish), management unit (loosely defined), conservation unit (any of the above)
   8. Number of Migrants per Generation (Nm)- relative measure, best to use in comparison with other populations
      1. Inverse analog of Fst
      2. Nm= 0 - no gene flow
      3. Nm <1 – low levels of gene flow
      4. Nm >1 – progressively higher levels of gene flow
   9. Assignment tests- likelihood algorithms and simulations
      1. Tests likelihood of individuals being assigned to a particular population
      2. Are populations genetically mixing? Are populations isolated?
   10. Standardized Allelic Richness- haplotype diversity et al.
   11. Genetic bottlenecks- detection by comparing the relative number of alleles present in a population- compared to an estimated number of alleles
       1. Bottlenecks display significantly lower number of alleles
       2. Rapid loss of individuals in short amount of time, then recovery
4. Jon- Habitat modeling
   1. Predicting locations of refuges in G-L
      1. Determine necessary parameters, develop GIS models, test predictions, refine model
   2. Dreissenids
      1. Substrates, flow, hydrologic connection, fish predations, wave actions, dense reed beds, remoteness form veliger source
   3. Two Scales- local and regional
      1. Local- Can use multivariate analysis to develop hypotheses and further delve into data
      2. Regional- ecological niche modeling to predict potential presence and absence
         1. Bathymetry, air temp, water flow, distance to river mouth, anthropogenic disturbance, wind driven currents
5. Dave’s talk- Lake St. Clair
   1. Unionid surveys pre-dreissenid = 18 spp. at 1.9 per sq. m.
      1. Historically ~37 spp ??
      2. Significant declines in early ‘90’s, but still ~17 spp.
      3. Started to fall below detection limits, 12 spp., density now at 0.7 per sq. m.
      4. Mid-90’s, densities below 0.1 per sq. m.
      5. Refuge discovery in delta- early 2000’s, 23 spp, density arount 0.05 per sq. m.
      6. Re-surveyed in July 2010 to determine if dreissenid and unionid populations have changed
         1. Significant reductions at some sites, no change, and significant increases in unionid populations at other sites
         2. Generally, significant decline in number of dreissenid fouling on unionids at all sites
         3. Unionid community dominated by L. siliquoidea (60%), several Ligumia nasuta (E), fluted shell, Wabash, 1 wavy-rayed lampmussel, among others
            1. 3 listed species- black sandshell, L. nasuta, wavy-rayed lampmussel
         4. 15 total species in 2010 (13 in mid-2000’s
6. Todd Crail- Wind-driven seiches as tools for unionid sampling
   1. Diked marshes contained four species, open sites contained seven- dominated by L. fragilis
   2. 20 timed searches during seiche events along Bayshore Rd- threeridge in very low densities. Highest fouling was 19/unionid (1 specimen, L. fragilis)
      1. Fresh dead- within 2-3 years
      2. Weathered- within 10 -15 years
      3. Sub fossil- greater than 30
      4. All depending on system and species
   3. Evidence of habitat partitioning? Substrate alteration? Composites of corbicula and dreissena shells altering substrate composition
   4. Possible recolonization of three ridge in Maumee river from lake populations
   5. Todd learns about underwater metal detectors and gluing washers to unionids- the excitement builds!
7. Trevor Prescott- Unionid distribution in nearshore portions of NW Oh streams
   1. Surveyed in estuaries and flooded river mouth areas near shore
   2. Modified basket rakes, haphazard survey
   3. Very diverse assemblage of unionids between all sites, Toxolasma parvus located in nearly all sites
   4. Concluded with ‘Healthy tendencies’ of some rivers- bank width, % cover, land use, etc.
8. Ferenc de Szalay- Unionid research in Lake Erie coastal wetlands
   1. Ottawa National Wildlife Refuge- soft sediments and high turbidity lead to tactile search methods- random across entire marsh, 4 p-h search, 50 x 50 m plot, dreissenid colonization on plates
   2. Dreissenid abundant at all locations but mostly in deeper (> 35 cm ) locations
      1. Movement inward by seiches
      2. Survivorship decreased by water depth- aerial exposure during seiche events
   3. 1129 unionids from 15 species ranging 1-28 years of age
      1. Higher fouling in deeper water, but not substantial fouling (comparatively)
   4. Majority of shells had byssal thread cover, 77% did not have attached dreissenids
   5. Possibilities:
      1. Burrowing is key feature remove dreissenids- soft mud sediments
      2. Predation by molluscivores
   6. Exclosure experiments
      1. Fishless, open, and sham (non-caged)
      2. Imply that predators impact dreissenid colonization on unionids
   7. Carp enclosures- uncharismatic microfauna
      1. Fishless, sham, carp in a 5x5 m enclosure
      2. Fishless enclosure had greater dreissenid per unionid, open (sham) had few attached dreissenid, carp enclosures had similar fouling numbers to sham enclosures >> common carp are key dreissenid predators
9. Doug Kapusinski- fish predation on benthic invertebrates
   1. Ottawa NWR, exclosure experiments, examined diet contents of commonly found fish species
   2. Significant differences (8 fold) for Sphaeriidae populations in enclosed vs open experiments, especially as time progressed, tapered off in October but no pieces found in diets- could be age related. Most fish sampled were YOY
   3. Fish and shorebird predation on benthic inverts in shallow water areas
      1. Shorebird and fish exclosures
      2. Again, high numbers of Sphaeriids in enclosure experiments, few differences in shore bird exclosures, but they were also not present until later in the season (November)
10. Michael Hoggarth- Mussels of the Lake Erie Islands
    1. Middle Bass island, 14 species in the marina as it was dewatered for construction
       1. Species were removed and relocated back to marina when construction was finished, approximately 14 from ~700 removed of the ~3000 original individuals were recovered alive after relocation
    2. Very patchy distribution of unionids along Lake Erie islands
       1. Very few found along S. Bass island and Kelleys island
       2. None along Gilbraltar island
       3. Highest around Middle bass
11. Beth Meyers- Presque Isle Bay
    1. 22 species, 10-15 ft depth throughout
    2. Surveyed adjacent stream in 2009 and found ~8 species
12. Split into 3 foci breakout groups
    1. Refuge dynamics, genetic measurements, model building
    2. Assessment of unionid refuges
       1. Method suggestions
          1. Lyubov - keep uniform time search across all sites. Start time search along transect with at least one hour time search.
          2. Ferenc- soft mud sites will restrain time search more than firm substrate sites- can the time search be uniform at all sites?
          3. Sasha- optimal time? 2-3 hour initial search may be more conclusive than 1 hr. If huge area, maybe have several sites.
          4. Pete Badra- define what is a site- by size? If large bay, have several ‘sites’ within to capture patchy distribution.
          5. Sasha- how far upstream do we sample? 1 mile, 20 mile?
             1. Todd- the lake will tell us- based on water levels, tell us how far upstream the lake has an effect on the riverine system and coastal part
             2. Sasha- Could the fluvial system of these areas still be a refugium to measure?
             3. Lyubov - good approach may be to divide sides between teams, visit sites and define to decide if it should be multiple sites or single sites

Todd- Sandusky bay should be multiple sites

* + - * 1. Lyubov - Agree on time search and then quantitative search?

DTE 4- they performed 30 min time search by power plant- if nothing, abandon – if one, double time to one hour search

* + - * 1. Todd- SCUBA at every site

Ferenc- deeps sites sampled separate from shallow- usually with boats, ponar etc

Todd- matrix to stratify shallow, deep, muddy , clear to determine methods?

DTE1 and Sasha- all methods should be same everywhere

Hoggarth- could do same methods with divers- visual and tactile like in shallow areas

* + - 1. Ferenc- Ottawa is listed as one site in proposal- but many sites within
      2. SCUBA is costly and can we get enough people certified?
      3. Sasha- good idea to have two techniques to separate high and low density sites
         1. Probably will not see high densities in most of these coastal marshes- Ferenc
         2. Hoggarth- separate tactile vs visual searches

Proposal allows for both

* + - 1. Ferenc- how do you sieve very soft substrates?
         1. Scoop with sieve under water about 4 inches, no sieve size mentioned
         2. Todd- ¼ inch mesh bags are used to hold mussels
      2. Ferenc- create data sheets together to have uniform collecting
         1. Lyubov develop before we go out and then try the sheet and make adjustments
         2. Sasha- send to everyone first to get comments, should not be complex
         3. Todd- should we meet here again to do field methods?
      3. Don- Why are we segregating into different projects- shouldn’t everyone be sampling together
         1. Lyubov - accounting for distance factor, not feasible for everyone to travel to every site all the time,
         2. Ferenc- must standardize for model, Lyubov - important not to under sample or inconsistently sample
      4. Agree on Minimum time search for quantitative study
      5. Todd- divide lake basin into regions and select dates to sample each part of the basin
         1. Sasha- as many people as possible will ensure that we are using the same technique
         2. DTE 4- how many people are available to do this project? Unsure at this time- approximately 13 altogether that can scuba
         3. Sasha- depends on if we snorkel or dive. More people available for snorkeling than diving.
         4. Ferenc- regardless, we will need big crews, and then we get to the cost and equipment availability.
         5. Todd- if the site is in the lake, you will need to scuba
      6. Sasha- for diving, is the institution of the field crew responsible or the institution that the project is based from (CMU)?
      7. DTE1- logistically have PI’s available at all times for the decision making process out in the field.
      8. Sasha- each institution has very strict policies, if we have five divers from five universities, do we need five boats? Many institutions will not allow other divers on their boats
         1. Many sites can be accessed from shore
      9. Every region will have leaders and core people who will be present at each site sampled.
      10. Lyubov - attached weight of dreissends is much more reliable than number of attached. Abiotic factors- substrate, separate analysis for transect or by overall site
          1. Jon- depends on the detail of analysis- local vs regional. Overall push of project seems to be large scale for whole area, not each individual sample.
          2. Ferenc- substrate can vary within each wetland, across large wetlands
          3. Jon- use substrate where unionids are found, not just what is present in the wetland- should characterize where unionids are found, not the whole wetland
          4. Sasha- unless there is a huge difference within each circle, but probably will not be an issue
          5. Jon- is it a common occurrence to find drastically different substrates within a circle?

Ferenc- no

Jon- then we should note that

* + - 1. Lyubov - water levels, use Jessica’s water gauge?
         1. Jon- its up to the experts to decide what is important to measure
         2. DTE1- what about using the NOAA gauges?

Todd- Need more precise at each site

Sasha- issue of theft?

* + - 1. Ferenc- its important to measure dreissena- we need to insert colonization tiles to track them
      2. Sasha- weigh dreissenid before putting them into ethanol- weight change from ethanol and proportion will be off
      3. Todd- collect and sort soil cores
         1. Joe- why
         2. Todd- standard depth
         3. Ferenc- affects how deep unionids can burrow
      4. Ferenc- standardize a method for collecting depth of soft sediment
         1. Todd- beveled tub with stopper on top and bottom to collect substrate
         2. Penetrometer? Probably not reliable
         3. Sasha- how many cores to collect? Per site? Per circle?

Per site

**Day 2**

1. Lyubov- Assessment of Procedures
   1. Lyubov- Will Conneaut creek be sampled?
      1. Beth- there was discussion to not sample creeks
      2. Todd- three replicates would be easy
   2. Lyubov- divide sites into state groups, need to have 2-3 leaders per state:
      1. Mi- Dave, Matt Shackleford (DTE), Don
      2. Oh- Ferenc, Mike, Bob
      3. Pa- Beth, Mary
      4. NY- Lyuba, Sasha
         1. Sasha- good idea to have to for each state
         2. Ferenc- three would be good for ohio because there are so many sites
         3. DTE could help for Michigan
      5. Leaders responsible for permits, housing, data collection, etc. for their state sites
   3. Lyubov- collaborate to draft protocols before June and then have several group training sessions to survey several sites that are very different from one another, including coastal and river sites
      1. Sheets for biological data, abiotic data, and genetic tissue collection
      2. Confer methodology at IAGLR?
         1. Dave- or the week after IAGLR
         2. Sasha- finalize methods before IAGLR
      3. Training should be mid to late June
   4. Ferenc- wouldn’t time search summarize entire unionid community and be comparable data for both rivers and coastal sites?
      * 1. Yes
        2. Just time searches for rivers, difficult to preform circle plots in river
      1. Doug- Meeting and training should be in early June in order to avoid prolonging the start of sampling. Plan for early to mid-June to get everything done as early as possible
         * 1. Ferenc- we will also need time to build equipment also

Lyubov- that should be done before June, regardless

* + - 1. Sasha- we should develop all methods in May and then use them for training and sampling in June- the training should also be sampling for the project, not just example
         1. Ferenc- The PI’s are scheduled to get together in May- we could do it at that time
      2. Doug- do we know how many sites are proposed for 2012?
         1. Lyubov- we do not know yet- that will depend a bit on the model and what the model predicts
         2. Ferenc- I would predict a comparable site number and sampling effort
  1. Sampling should be conducted June- mid-august
  2. Lyubov- Methods: Dave uses time searches to find initial mussels- Lyubov suggests the time search not to just find mussels, but as another unit of measurement- how many mussels were found during a set time period?
     1. How do we standardize a time search across all coastal areas? Sites can vary greatly in size- we should standardize effort more than time
        1. We need to develop a unit for time search or for site
        2. Ferenc- we should use a GIS measurement of size to break down each area into the number of sites that should be sampled. Standardize to size of wetland to determine the number of sites within
        3. Sasha- we could agree to do a set number of subsets in a large wetland
        4. Lyubov- we want to ensure a unified sampling effort for all teams, we need to determine in advance how big each site is to verify effort also
        5. Sasha- need to pick a ‘cap’ on the number of subsets to sample- extremely large sites could contain far too many subsamples feasible to survey
     2. If no mussels are found during time search, the site has a density of 0
     3. If mussels are found, transects with circle plots should start there
        1. Todd- important to keep in mind that we are looking for where unionids are located as well as where they are *not* located
     4. Dave- to meet randomness, sites should be gridded off and randomly selected for surveying
        1. Lyubov- if we want to determine densities in populated areas, randomness is less of an importance
     5. Dave- also indicated how long it took to find a set number (1 or 10) could also be used to indicate population numbers. Time searches need to be adaptable- in St. Clair, we ran out of the habitat with the transects, but also keep in mind that if you continue for a period of time without finding more mussels, to abandon surveying for the sake of time.
        1. Transects should be parallel to shore and follow contours so the sites is relatively homogenous
           1. Ferenc- how long do you usually get during a time search

Dave- usually around 200 meters in high quality sites

* 1. Dave- we need to survey all tributaries that have not formally been surveyed in the past
     1. Ferenc- coastal refugia are any of the tributaries, marshes, bays, etc. that are affected by lake water levels
  2. Dave- methods
     1. Upon arrival at a site, fan out and start time search, if suitable number of unionids found, start searching for transects
     2. When finding a mussels, conduct a circle plot search, collect all mussels within and then work up
     3. Next, step approximately 10 meters away from plot and begin the next search for mussels, continue circle plots and transects. Circle plots are only done where unionids are found
     4. Other searchers are about 20 or so meters away on the contour
        1. Sasha-what if low density, then system is biased?
        2. Dave, we have survey out of the high density areas with the transect method
        3. Jon- what question are you trying to answer by each method?
           1. Dave- determine density in a targeted area. Find mussels and then determine their distribution
        4. Sasha- the circle plots will be biased unless chosen randomly, not upon finding a mussel
           1. Dave- lake St. Clair is extraordinarily patchy
           2. Bob- the first mussel found is indicating habitat so the first mussel found should not count
           3. Dave- it’s already documented as an overestimation of abundance, but it’s important to keep the same methodology across the board. The bias is immediate because you start where one is initially found
           4. Ferenc- getting 10 circles at 100 m stretch is a different density from 10 circles at a 200 m stretch
           5. Mike- it’s easy to set weighted transects to follow
           6. Ferenc- circle plots end up being a qualitative sampling. To get a quantitative sample, a transect with known area should be visually assessed then, go back and do the circle plots at each unionid found along the transects. Two densities- one from the transect and one from the circle plots
           7. Jon- conduct a random search and then follow through with the stratified the area with the circle plots
           8. Sasha- we cannot do circle plots where we have done a time search because the mussels will have been removed during the time search

Dave- maybe we should think long term and do a time search at sites during the first year and then doing a stratified circle plot search at the same site the following year.

Todd- map transects for year 2 based on what was found during year one time searches

* + - * 1. Jon- in a patchy community, average density is not telling you enough, what probably matters most is the maximum density
        2. Ferenc- if we do not collect quantitative data during year one, it will push a lot of work onto year two because we will also have the test sites to survey
        3. Lyubov- the quantitative search will still need to be uniform at all sites

Mike- some of the sites will be eliminated from the work done during year one where no or very few unionids were found.

* + - * 1. Ferenc- time and patch size should be about the same in order to standardize sampling efforts among teams

Dave- bias cannot avoided, but the time searches are important for getting rare species and for building the model

* + - * 1. Sasha- we cannot have both time and area constants, we should pick one- most likely time

Time search within a standardize area or approximate patch size

Dave- we can stratify the time search to areas where we are more likely to find mussels in familiar areas

Ferenc- not getting an estimate of quantity but having an estimated CPUE and knowing what species are present

* + - * 1. Solution- dewater the Great Lakes
      1. Bob- how long are the time searches
      2. Lyubov- in rivers, in addition to time search, we pick several spots in longitudinal transects and randomly select a number to do horizontal transects. In wetlands, we could do systematic circle plots at specified distances along transects
         1. This is how we could do the quantitative sampling during year two
  1. Lyubov- Number of divers? Approximately 15, can we exchange divers and boats among sites and states?
     1. That will have to be checked with institutions and insurance companies- dependent on locations, accessibility, etc
  2. Lyubov- successful reproduction and recruitment
     1. Check for recruitment in the first year, especially areas with high densities (beyond a threshold for CPUE)
     2. ¼ inch screen or ½ inch- can be determined during field training
  3. Seiche method- Todd- sampling protocol is needed
     1. Dependent on weather and year, hard to predict, control for
     2. Seiche surveys will most likely have to be used for confirmation of sites
        1. Ad hoc seiche
  4. Coastal rivers- time search only? No circle plot methods.
     1. Ferenc- access to sites?
     2. Most are near road crossings and marinas- TBD upon site evaluation also
     3. Will land owner access be an issue?
        1. Site by site issue- whoever is working at that sites will have to deal with that if the issue arises, localized issues
        2. Todd- use aerial photos to find ways to get in
  5. Biological data
     1. Id species, sexed when possible, shell lengths and wet weight, check females for gravid, evidence of past fouling (byssal threads), return alive back to water
     2. Dreissenids- removed and weighed, labeled (unio spp and length, transect and plot #) and send in alcohol to Sasha and Lyuba
        1. Be sure to get wet weight of dreissenids before putting in alcohol (changes weight)
        2. Should we record dreissena densities in wetlands? Naturally occurring adult population is different from the recruitment on the plates.
           1. Dave-densities haphazardly measured by quadrats?
           2. Lyubov- or just mentioning if present

Categorical – 1, 2, 3 depending on densities

* 1. Abiotic data
     1. Location (GPS, name of bay, road, etc.), dominate substrate, depths, water temp, pH, conductivity, turbidity, depth of soft sediments (measure by? Stick, device?), % macrophyte coverage- (visually assessed)
        1. Characterize sediments with sieves?
           1. No- Visual and tactile estimates
     2. Colonization plates- install in June, use five at a central location
        1. Construction- pvc vs. clay
           1. PVC may be best, (weight, durability, etc)
           2. Sasha- how will we keep them in river systems and marinas?
     3. Water levels- use gauges and NOAA data
  2. Current threats
     1. Record visible factors- sediment disturbance, pollution, land use, etc.

1. Genetic analysis
   1. Target five species for genetic sampling (*L. fragilis, P. grandis, Q. quadrula, L. siliquioidea and L. nasuta*)
      1. Joe- are we interested in these species anywhere they are found?
         1. Dave- only in sufficient numbers (approximately >10 per site)
            1. Also, limit the number clipped to 50
   2. For L. nasuta- do swab samples- 1 to 2/ refuge- endangered species
   3. Numbers (site = refuge scale) depending on microsatellites vs. mtDNA vs. swabs
      1. Sacrificing animals for mtDNA
         1. Use only the most common species and only when in high abundance at a site
            1. P. grandis and L. fragilis (dimorphic)
            2. Sacrifice juveniles more than adults- chance of survival is higher anyway
   4. Clipping instructions
      1. Pry open shell (blunt end of scalpel)
      2. Wedge shell open (thumb, pencil, rubber stopper)
      3. Clip ~ 0.5 sq cm piece of mantle tissue form shell edge using surgical scissors (half the size of pinkie finger nail)
      4. Clip from ventral-anterior side (avoid siphons)
      5. Preserve in 95% ethanol or lysis buffer, do not store in sunlight, keep cool
   5. Swab samples
      1. Open as instructed above
      2. Swab with sterile swab 2-3 times along foot – avoid touching the mantle and siphons, keep on anterior side
      3. Store in a lysis buffer solution, do not store in sunlight, keep cool, stored in -20 freezer
   6. Preformed mainly by Zanatta lab (2 grads and 2 undergrads)
      1. 2 teams will join field teams as dedicated clippers/swabbers
         1. Will also help conduct field work
      2. Krebs lab will provide Trevor Prescott +1 will be a third team available to help with clipping
   7. It’s important to make sure the right names and a sufficient number of names are on permits
      1. Someone on the permit must be present in the field during sampling
      2. Mantle clipping must be explained in the permit application
2. Modeling
   1. Concerns
      1. Focus on project – regional project, not several local projects
         1. Why are they in the refuge is just as important as why they are not
            1. Importance of absent data
            2. Keep data consistent
         2. What is the landscape? History? These variables are as important for explaining the community as the substrate type is for explaining species
            1. Why they are there is as important as where they are located
         3. Dave- some of the assessment is focusing on where they are in the refuge where the model is looking at where refuges could exist
         4. Ferenc- what are the landscape scale attributes that GIS will measure?
            1. Distance to stream mouth, dams, etc., surrounding land use, population density per time, temperature data, and other aspects that still need to be brain stormed

Todd- contacting oceanographer to measure/model currents

Ferenc- water quality of streams, is it available?

Yes, for Ohio, not sure for other states

* + - * 1. Gary- Great Lakes data may be available from generalized data sets from NOAA

1. Dave- decide on dates to reconvene for methods
   1. Site tours- meet at Ottawa NWR
   2. Teleconference to finalize field sheets before convening in June
      1. Mid- May – Doodle calendar
      2. 1-2 hour conference
   3. Methods workshop
      1. Week of June 20-24th
      2. Probably a 2-3 day meeting