R workshop tailored specifically for WDNR to be given in conjunction with the 2015 FM Statewide meeting. This will include two parts:

A large (up to 40 people), 1-day session on the day prior to the Statewide (March 2, 2015)

* Mixture of demonstration and hands-on
* Objectives
  + Provide enough R skills and some example code that attendees can do some tasks with their own data, or any data from FM database.
  + Spark interest in future workshops (breakout sessions and future training sessions)
* What will we focus on?
  + Data manipulation
    - Subset
    - Filter
      * Throw out if lengths outside range,
      * Invalid species check
      * Filter by species or lake of interest
    - Add variables (PSD categories, log weights, etc)
    - Sort
  + Summarize/aggregate
    - Summarize CPUE across different stations within one lake
    - Table showing all species in a survey with mean, max, and min lengths and total number captured
    - Mean, median, of CPUE for species/WBIC
    - Compare lake-specific to regional (or statewide) average?
      * We could provide values for average – e.g., mean length of common species statewide
    - Plyr, DDPLY
  + Length-frequency histograms
    - Brief intro to graphing
    - Histograms by sex or by lake
  + Basic stats?
    - T-test
    - ANOVA
      * Propagation data?
    - Regression
      * Some variable over time
    - May want to just provide example dataset for this (doesn’t have to come from their specific area)
  + Some more advanced teaser
    - R markdown
      * Creates webpage, PDF, word document, LaTex
      * Show with an example report
* What data? Download from FM database (headers will be the same).
  + Beforehand: tell people to download raw fish data from 2013 from their jurisdiction, save as csv, bring to workshop
    - We will provide instructions, including how to get multiple counties if their jurisdiction includes more than one.
    - Collection of waterbodies
    - Species
    - Length
  + One of the first things we teach them is how to drill down into area of interest.
  + For other topics – we demonstrate with Sawyer county data, then hands on activity is do it with their own data.
  + Will column headings be identical? Yes, if people use same report (we need to tell them to do that). We should tell them not to manipulate it.
    - We can teach how to rename as something less cumbersome – “pre-code” to make more user friendly
  + Lakes and streams will both be included – waterbody type, waterbody name, WBIC (some headwater streams may not have WBIC)
* Several (2-3) smaller, shorter sessions during the Statewide on more advanced uses of R that are tailored to specific user groups. We would meet with the relevant teams prior to the Statewide to tailor the workshop to their specific needs, WDNR data structure, and reporting requirements.
  + We considered 2 hour sessions, but suspect this may be logistically difficult. Perhpaps 30 minute sessions that are just 30 minute demonstrations + code provided.
    - Von Bertalanffy
    - Catch curve
    - Age length key
    - PEs
    - Statistics
      * Regression and ANOVA
    - Figures
  + Must attend previous session (or be familiar with R already)

TO DO :

* Get laptops – GRETCHEN CHECK
  + Can work in pairs if necessary
* Make sure everyone who will attend has latest versions of R and R studio. (GRETCHEN TALK TO CASEY – Regional ITC heads up)
  + Install packages – wait until last minute, send out email with code to install packages the week before
* Touch base with Karl – how long are the sessions? How many should we do? When do we need to get on the schedule (GRETCHEN)
* Pull example data from 3 counties with different types of surveys (Sawyer, others?)- LORI will pull different counties (Raw fish data for a whole year)
* Start putting together curriculum – use Max’s code as starting point (DEREK and MAX)
* Next meeting: November 11, 1-2pm