**Notes from the third meeting of the e-Device Subgroup: August 12, 2022**

**Attendees:**

Karrin Alstad, Virginia Afentoulis, Denise Barnard, Sarah Brown, Jillian Burns (note taker), Ryan Cook, Rachel Pisor, JT Robinson, Jonathan Speegle, Stephen Straiger, Nicholas Bertrand

**Agenda #1 and #2 (Karrin):**

* Reviewed the agenda and summarized the groups’ goals and progress
* Initially we wanted to develop a pros/cons list for different softwares but decided to use more detailed evaluation criteria in a large table
  + Showed this table format and reviewed categories
  + Table can be revised based on any input from this group.
* Trying to communicate with agency IT to understand what security we need to be looking for
* Final product will be a summary document pointing people to resources
  + Will be careful about what contacts to include in final document
* After we review the software options, will come up with test trials:
  + JT and group farther along
  + Will also have a group or groups who are starting fresh (Bay Study, other study?)

**Agenda #3-#6 (Karrin):**

* Reviewed software mentioned in survey and assigned priority for demonstrations or more investigation.
  + Priority assigned based on products that do not require a lot of programming and get demonstrations:
    - JT presenting Survey 12 3 today
    - Companies are willing to demonstrate their products
    - Trinh or Ted Flynn could show how to scrape PDFs
    - Esri collector is different than Survey 123; is it also called Esri fieldmaps?
* Working to schedule interviews and demonstrations with external groups
  + E.g., with NEON in October
* Reviewed status of tasks from previous meetings (see agenda)
* Timeline: will continue to meet monthly, but no date right now for reporting to managers.

**Agenda #7 (JT):**

* JT (Yolo Bypass Fish Monitoring Program) presented Survey 123 in three main sections: 1. Actual data collecting form, 2. Excel file used to code the form, and 3. ArcGIS online cloud storage.
* Open to suggestions and questions.

**Form:**

* + Reviewed how form is set up and different types of possible fields (e.g., auto populates date/time, site code (drop down), gear (circle), weather/tide (dropdown, more than 4 options, can only pick 1), flow direction (circle), text fields, number fields (does not accept text). Screenshot below shows the form:

Graphical user interface, calendar

Description automatically generated

* + Some sections have nested tables (can collect more than 1 observations)
  + Sections can be collapsed or not when start new sample
  + There are many different formats and everything is customizable
  + Most complicated part of this form is the fish data and beta testing in the field helped figure out the best way to format this section:
    - Decided to use common name because this does not change survey to survey, and then species code is auto populated
    - Measurements and plus counts are nested
      * Plus count is a tally, so can keep adding numbers.
    - Can use arrow to go back and forth between measurements
    - Genetics is a nested table, and can have any type of nested table associated with the individual fish.
      * Genetics and fish nested table is not totally connected, so need to make sure the record number matches and the observation is added together
    - When saved, data goes to the cloud.
      * If do not have service, data will save to tablet, and then can upload when you have connectivity.
  + Questions on Form (response from JT in bullet):

Can you look at the data besides the forward and backwards arrow? (Karrin)

* + - Thinking about adding a table, but have not done yet. It can be annoying to go back to measurements in the field when checking numbers
    - Team does a check for each sample where a separate crew member looks in the field and makes sure no glaring mistakes. They have to use back arrow for this.

What if app closes unexpectedly or tablet is lost, what happens to data? (Karrin)

* + - If closes out, the form repopulates where it was. Might be some kind of a backup, but not sure.
    - Can you do periodical auto backups, a local Bluetooth backup?
      * We have not, but you can manually save and then still edit data
      * Auto backups would be good for fieldwork.
      * JT has a hotspot and they are using a tablet that has cell service.
      * Mainly focusing on improvements from the datasheet; will always be risk of losing datasheet or tablet.

For the genetics section, which JT decided not to nest within the regular observations (because the survey only does genetics on a subset of the regular observations; JT has composed a label system that associates the separate genetics section with the regular observations), could you just have a NA option, and then it could still be nested? (Ryan)

* + - JT looking at it from a data cleanup perspective, the extra zeros and more forms they have to go through because are still doing manual entry until the new database is ready. This works best for them, though R code could assist in data cleanup.

Have you set up parameters for flagging outliers/weird values in real time? (Stephen)

* + - Yes you can do that, but we are still developing this. Some options include a cell not allowing someone to enter a number outside of range, or can have a message pop up. Have not done it yet.

Does software connect to barcode scanner (e.g., genetic barcode)? (Sarah)

* + - Not sure, but there are fields where you can take a picture that is associated with a table and data.
    - Ryan provide this link in the chat: <https://www.esri.com/arcgis-blog/products/survey123/announcements/barcode-scanning-in-survey123-for-arcgis/> “Barcode Scanning in ArcGIS Survey123”

**Survey123 uses coding within Excel spreadsheets to configure data entry forms:**

* + - This process has a learning curve, but once you get familiar with how it works it is very doable for anyone (even those without formal computer programming experience) .
    - All info discussed can be found on the ESRI website and there are a lot of forums for questions – this is how JT figured learned.
    - The excel file includes different tabs (see screenshot below):
      * First three sheets: survey, choices, settings – set up data and form
      * Next tabs include questions, appearances, field types

Graphical user interface, application, table, Excel

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* + - Naming conventions link to choices in next sheet
    - Once start nesting, coding gets a little more complicated
    - Reviewed details and options for designing your own form to give group idea of possibilities; will be different for every survey.

**ArcGIS online cloud storage:**

* + - The suite has the form, web map, and feature layer (see screenshot below).
      * Can view all datapoints in ArcGIS
      * If you just want data, export data whatever format needed
      * Data is stored in different tables.
      * Currently someone is manually entering into the database, but eventually will have it linked to a database

Graphical user interface, text, application, email

Description automatically generated

* JT filled out evaluation criteria table for Survey 123 and reviewed his responses.
* YBFMP is getting a new database called WSKI through KISTERS (contracted 3rd party)
  + - DWR gives them data and they develop and return a database
    - KISTERS builds database and provides to team
      * Has good QC control checks in database.
    - Group is working very closely with them
* Thank you JT for a great presentation!

**Final thoughts (Karrin):**

* No opposition from group on having companies deomontrate their products.
  + Sometimes companies give free trials, and we should see what options are available (Nicholas)
* What softwares are people interested in next?
  + Pendragon (JT)
  + NEON
* Are there QC factors we are missing? (Rachel)
  + QA subcommittee (DUWG) is working on a document of best practices for electronic field entry.
  + Maybe the next couple meetings, talk about best practices and see if our group has input.
* Karrin sending out 2 poll to schedule next meetings with Pendragon (Sept) and NEON (Oct).

**Third meeting of the e-Device Subgroup: Aug. 12, 2022**

**Member Introductions:**

**Please introduce yourself, your affiliation, …**

**Proposed meeting agenda:**

1. **Re-cap the goals** **of this e-device sub-group**:

**In general: to research field data entry devices and to generate resources that support IEP survey teams in their ability to select and deploy digital data entry procedures.**

1. **Re-cap the intended sub-group products:** 
   1. A table of pro/cons of each hardware/software type
   2. A reference document summarizing hardware/software options
   3. Include contact names of folks within IEP who can serve as a general reference for different types of e-device software or hardware (Clear guidelines that these IEP refs are not full tech support, but intended as general decision-time and start-up support)
   4. Potentially: report on a couple of test trials of different e-devices for specific surveys.
2. **Re-cap the approach we agreed on:** for gaining the e-device information and for determining the major impediments to deploying e-devices in IEP surveys
   1. First: E-device survey within and beyond IEP:

Collected user data from:

* + 1. Experienced e-device users
    2. Those who are currently researching
    3. Those who have determined e-devices will not work for them.

Link to survey: <https://forms.office.com/g/arrvNGLwqD>

* 1. Next, expanded to external associates (ICF, NEON, CDFW Marine)
  2. Follow up interviews of e-device users and vendors as needed
  3. Coordinate demonstrations of the most promising options
  4. Potentially: Test specific devices (e.g., Bay Study,

DJFMP? -delta juvenile fish monitoring)

1. **Logistics**
   1. Time Line: *Aiming for draft reference document by end of year, but* *leaving somewhat open*. We will continue to meet monthly until our questions are answered…
2. **Status (dot means done, arrow means current task)**
   * 1. Sent the survey to IEP [mid-June]



* + 1. Sent the survey to promising external contacts (NEON, ICF, CDFW Marine) [mid-July]



* + 1. Survey responses summarized and distributed



* + 1. Met to discuss responses, basic criteria for comparing software and hardware and next steps [at July meeting].



* + 1. KA is conducting follow up interviews and arranging demonstrations [in progress]



* + 1. Team will extract information from app demos to fill in feature comparison table [in progress]



1. **Updates:**
   * 1. **Software Summary table**
        1. Prioritize app demos



* + - * 1. First: products that are off the shelf and do not require high level of programming language
        2. Second: .NET grouping
      1. Arrange Demonstrations



* + - * 1. iFormbuilder has agreed to meet
        2. Requests out to NEON & Pendragon

1. **Intro for Today (Aug 11, 2022)**



* + 1. Criteria table with QC related factors
    2. JT Robinson (DWR) introduction

**Additional Screenshots collected by R. Pisor**

Graphical user interface, table

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Graphical user interface, application

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Graphical user interface, text, application, email

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Graphical user interface, application, table, Excel

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