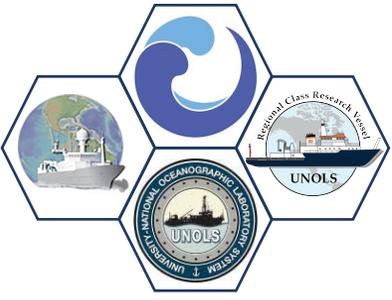




# An update on: Developing EK80 Best Practices

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RVTEC 2024  
October 21st-25th  
Portsmouth, New Hampshire



# EK80 Working Leads & Working Groups Members

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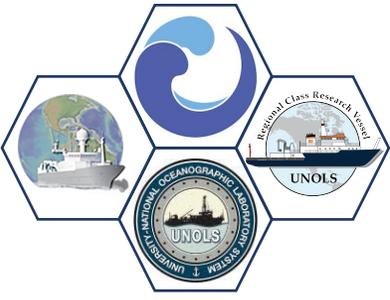


**Rebecca Hudak**  
Rolling Deck to Repository  
Woods Hole Oceanographic Institute



**Kristin Beem**  
UNOLS Tech Training Committee  
Oregon State University  
RCRV Marine Science Technical Director

- Alexa Gonzalez: NOAA  
Kristin Sojka: NOAA  
Peter Shanks: Australian Antarctic Division  
Floyd Howard: Australian Antarctic Division  
Adrienne Copeland: NOAA/FFO  
Mike Jech: NOAA  
Jennifer Johnson: WHOI/AOPE  
Andone Lavery: WHOI  
Beth Phillips: NOAA  
Liz Weidner: UNH/CCOM  
Carrie Wall: NCEI  
Chuck Anderson: NCEI  
Val Schmidt: UNH



# Our Approach



Link to working draft of EK80 BP:

[https://docs.google.com/document/d/1SA35mAjxJH-BYqyYgO60P\\_tT4jqhUBm/edit?usp=sharing&oid=114030380201355346670&rtpof=true&sd=true](https://docs.google.com/document/d/1SA35mAjxJH-BYqyYgO60P_tT4jqhUBm/edit?usp=sharing&oid=114030380201355346670&rtpof=true&sd=true)



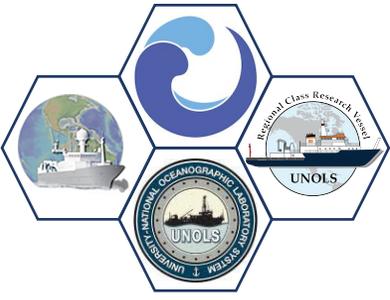
# EK80 Fisheries Sonar Suite- 2024 Update



- Monthly Meetings
- Ocean Best Practice Document - Strong focus on calibrating an EK80 as well as what features should be running to get the best data
  - Reviewed all notes from last RVTEC (lots of comments thank you!!!)
  - New working draft incorporating comments
  - Collab with MAC group to put cal sites on wiki
  - Investigating Spectra line for calibration
  - Putting in new Operation Section- Need Feedback from you



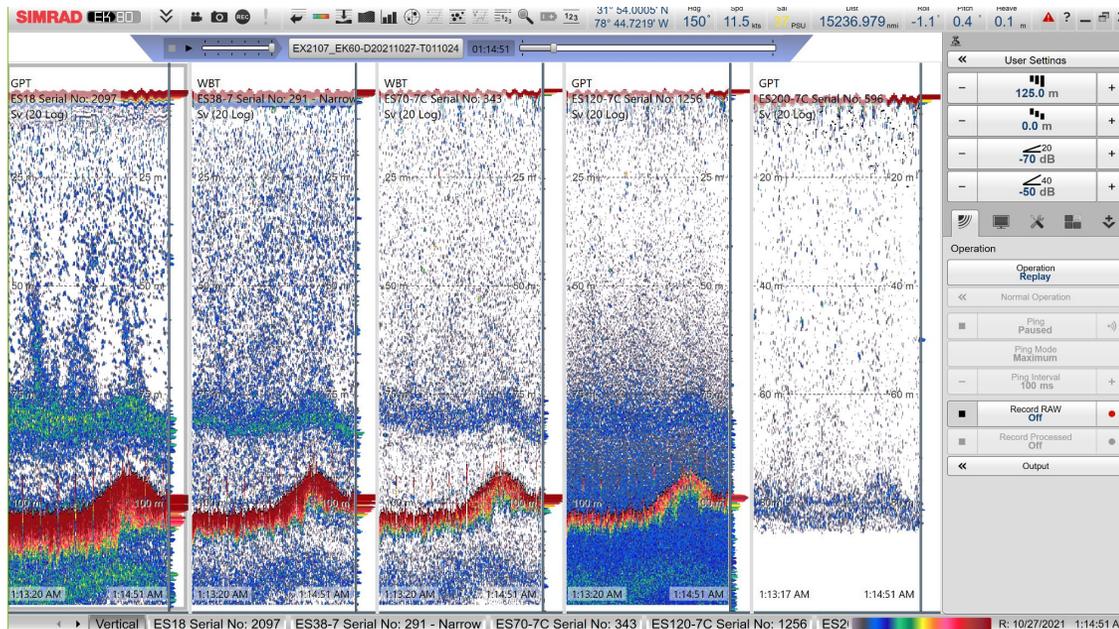
R/V Sikulaq Displays during EK80 Calibration



# Newest Section: Operation



- Screen/option(s) and related screenshots from version 23.6.2 of Simrad EK80 software (released February 5, 2024)
- Is this new section helpful for technicians? Should we continue down this path? Screenshots or verbiage or both?

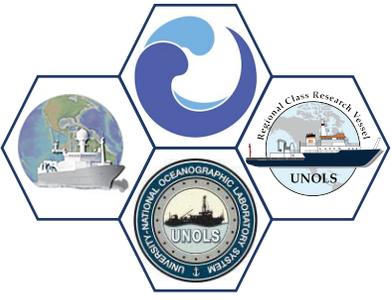


## 2.4 Operation

Operation of the EK80 system can be overwhelming at first due to the abundance of options and parameters. In this section, we go through each screen/option and related screenshots from version 23.6.2 of Simrad EK80 software (released February 5, 2024). Caution, there are certain set-up parameters that shouldn't be changed during a cruise, because it will have an effect on the data and can't be corrected post-processing (pulse length, water depth, power, file size and file saving parameters [ex water depth saved], etc.). Also ensure that settings used during the calibration are consistent with data collections.

Please note that most of our screenshots are of replayed data, so some items might look slightly different or grayed out.

- A. Operation
  - a. Operation (refer to Figure A)
    - i. Normal - how you would collect data normally
    - ii. Inactive - no data/no transducers connected
    - iii. Replay - replay data you have collected. Used to add calibration settings after the fact, would rewrite the .tr file. Will not be able to adjust the ping settings.
  - b. Ping
  - c. Ping Mode
  - d. Ping interval
  - e. Raw Record
  - f. Output
    - i. File Setup (refer to Figure B) - Where you can edit file prefixes, set files sizes.
    - ii. I/O Setup - External sensors and associated baud rate and COM ports (these parameters can also be managed under Setup-> Installation, Figure C)
    - iii. Processed Data to Output - uncommonly used
    - iv. Processed Data to File - Where you can change your save file format (eg. SEG\_Y, netCDF4 etc)

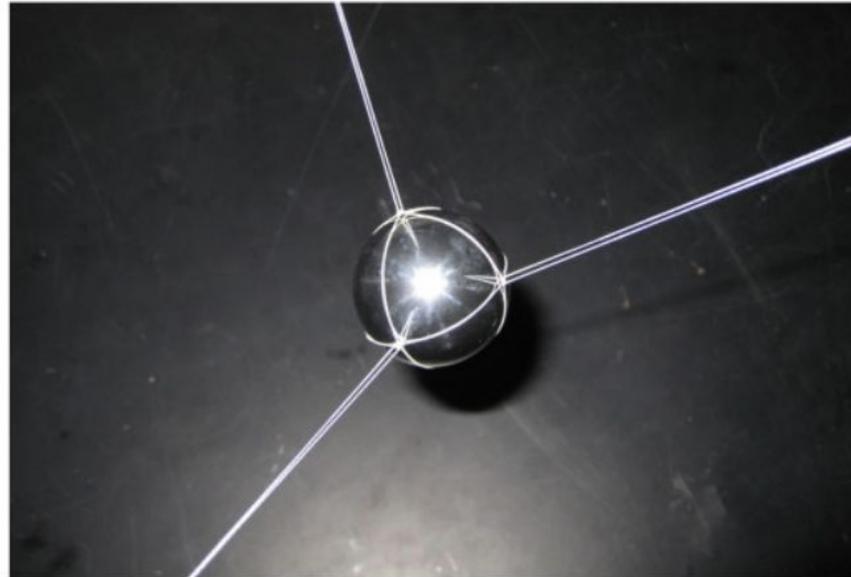
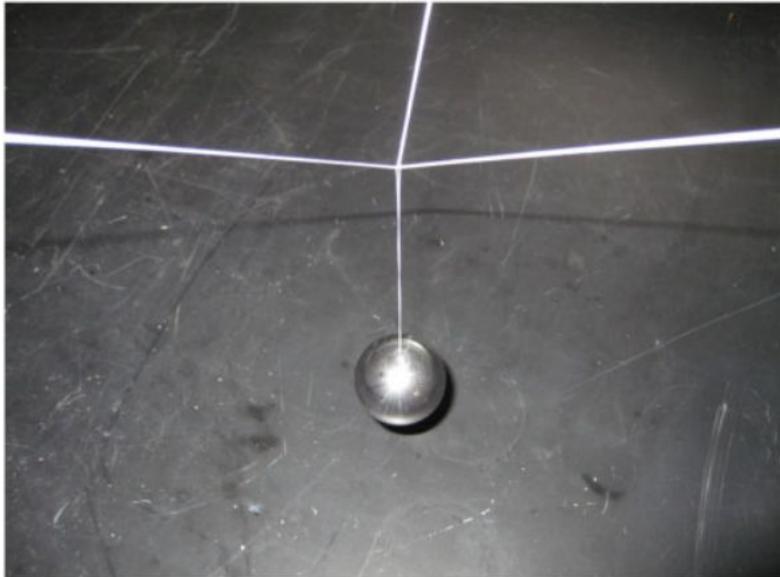


# Calibration Lines



- Monofilament vs Spectra (air bubbles)- still testing used Berkley X5, 20-lb test, 0.17-mm diameter.
- Drilled spheres vs net bag (Renfree et al. 2020)

Examples of a calibration sphere suspended using either a line-loop glued into a spark-eroded hole (left) or net bag (right).

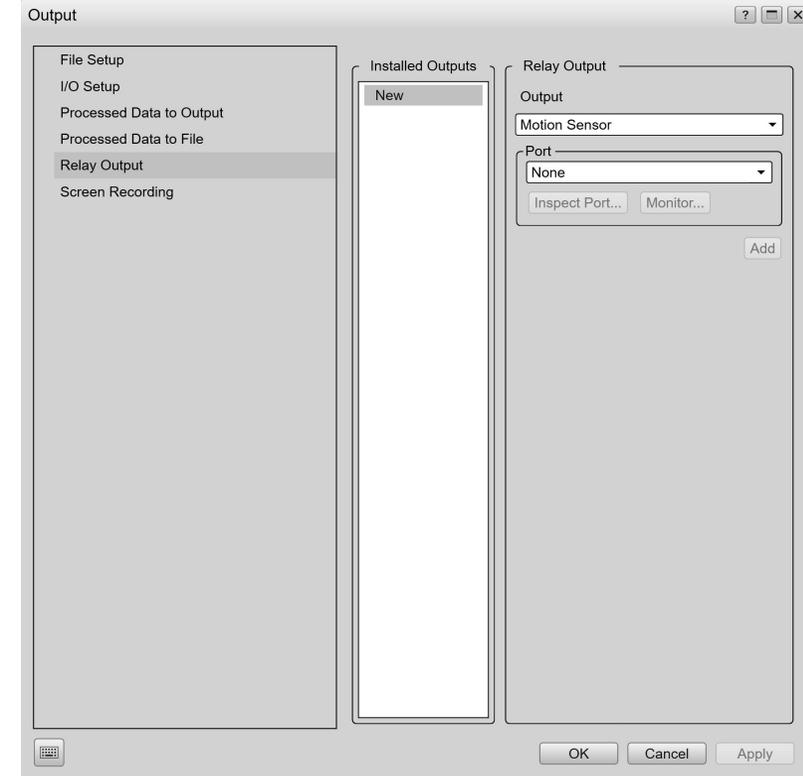




# EK80 Fisheries Sonar Suite- Discussion Topics



- Anything missing from the draft that you would like to see included?
- Any topics that are confusing or misleading?
- What calibration sites have you used in the past? **We are working with the MAC group to create a google form that the RVTEC community can submit any cal sites and will add to their super cool wiki map**
- Has anyone used the new EK80- ES18 MII transducer?
- Output setting on the software- any usage for the relay output (motion sensor, navigation, temperature, and what port it is on)?





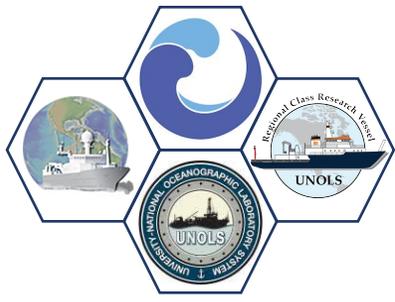
## Questions/Interested?

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### Get involved!

- Reach out to the leads if you are interested in joining  
EK80: Rebecca Hudak [rhudak@whoi.edu](mailto:rhudak@whoi.edu), Kristin Beem: [kristin.beem@oregonstate.edu](mailto:kristin.beem@oregonstate.edu)
- Oceans Best Practices Website (where final BP document will live):  
<https://www.oceanbestpractices.org/>
- Ocean Mapping Wiki- Great Resource- collaborative website includes EK80  
Information! Shannon Hoy- one of the wiki leads  
<https://github.com/oceanmapping/community/wiki>





# Appendix Documents



- Calibration Equipment Checklist
- Step-by-Step Calibration and Data Collection
  - Based off NOAA fisheries numbers
  - Sample Operation parameters from *HB Bigelow*
- Printable Calibration Report Template
  - Recommend that the calibration report travels with the data /metadata doc



# Data Management

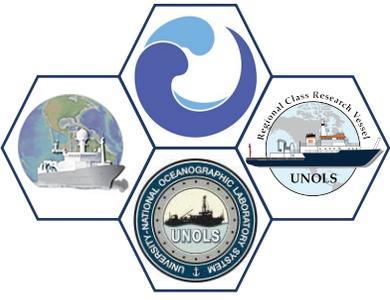


- When run unchecked in FM mode, the EK80 can acquire terabytes of data over only a few days.
- Run in CW mode unless otherwise requested
- Set max file size: 100/200mb
- **[Cruise id]\_[ddmmyy][hhmmss]\_001.raw**
- Important metadata to include:
  - Calibration documents, data sets (and whether or not the calibration offsets were used), basics on the survey (who, what, when, where), CTD casts (or SSV source)

The set of acceptable characters for filenames.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z  
a b c d e f g h i j k l m n o p q r s t u v w x y z  
0 1 2 3 4 5 6 7 8 9 . \_ -

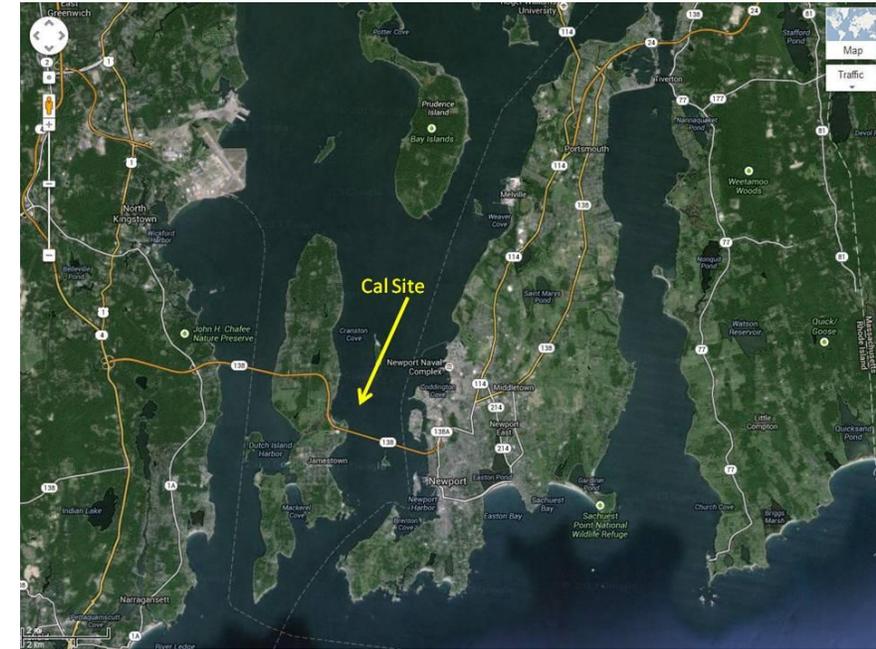
The last three characters are the <period>, <underscore>, and <hyphen-minus> characters, respectively. There should also be no spaces in filenames.



# Calibration Sites



- What makes a good calibration site?
  - Water depth of at least 50 m
  - At or near slack tide to minimize the impact of tidal current flows
  - Relatively homogeneous oceanographic conditions
  - Ideally, should be conducted in waters with similar temperature profiles as where the survey and acoustic data will be collected
  - Under 0.5 knots of current and the wind speed should be under 10 knots
  - During daylight hours
  - 1-2 days should be set aside for a full calibration
  - List of suggested calibration sites



Example Calibration Site: