

NARS IMPROVING TRAINING 2 WORKSHOP

Capacity Building

We would like to capture your thoughts on what capacity building training, tools or other activities would be useful. Please consider the following two questions.

What capacity building objectives should NARS strive to meet near-term and longer-term?

Technology transfer as mentioned above is an important outcome, to get that capacity moved into the states/tribes need to support the state having 1 or more probabilistic programs then they will have the want/need to run RR or state of the art MMI R code. Short/long term goal(s) include increasing dollars per station as discussed and then peg an increase every few years based on inflation. The more money a program can bring to the state every year, the more likely they are to support full time employee to the program. State/tribe could attend week long "NARS" academy to learn R code techniques/latest science and monitoring instruction (as mentioned above) but could also put code on shared GITHub space, offer webinar(s), publish paper/manuals on these techniques (JH).

I would argue that if states are going to increase capacity in terms of technology and data analysis/assessment (especially post-field sampling), that it wouldn't just be a discussion about increase dollars per sampling event/station, but also the potential for annual salary support in order to keep person(s) on longer than a per site or seasonal basis. Especially in the event that NARS 2.0 be instigated and states/agencies participate every year, as opposed to punctuated participation based on the resource type (MG)

The responses above are right on target. Since the inception of the NARS program, PPG dollars have remained flat. As such money provided through the NARS program largely goes towards sustaining currently funded PPG staff and programs. As such, NARS activities are largely placed on the backs of staff and programs that already have "full plates". To really advance the program, states that are regular NARS participants including state-level probability surveys should be given funds dedicated to these programs. The commitment would need to go both ways in that if a state accepts the money they commit to completing NARS and state-level surveys for some period of time. As part of this EPA could then establish regular training to advance NARS efforts. Training could run the gamut from design to field methods to analysis procedures. Consistent funding and training would also result in state-level products that are more comparable (DN).

Long-term. Encourage repeat participation and minimize state crew turnover between years. (AT)

Near-term. Improved NARS data management. If EPA wants to build capacity for states to continue performing rivers and streams surveys outside the scheduled rotation, they need to maintain the app and provide a way for states to upload and retrieve data from the NARS database. Accessing data becomes impossible when changes occur to either the EPA database or app. Communicate major changes with state partners. (AT)

Near-term. Continued logistical support from GLEC/EPA on data submission, protocol questions, all things in the field. Quick, informed assistance helps states to push through and learn from their mistakes.(AT)

Near-term. Continue NLA's work on the dashboard and transferring tools so states can display results similar to the national data are reported. This would be an effective tool for states to communicate results with the public. (AT)

What activities do you think NARS should do to meet those objectives?

Would instituting some sort of "NARS Scholarship" be possible? In the short or long term? Where funding would be available on a case by case (state by state?) basis to pay for a (short or long term) staff position dedicated to a probabilistic program to help alleviate workload from other agency personnel? (MG)

Annual national and regional training events. NARS certifications. Regular webinars. The current focus is on implementing whatever survey is being done in a given year. This importance of these efforts is not lost, but to really advance the program regular technical trainings beyond methods need to occur (DN).

Move forward with proposal to establish cross-regional audits among the states/tribes, etc. This allows experienced crew leads to share difficulties and accomplishments experienced in other regions, increases collaboration within the NARS group and likely instills greater sense of ownership. Some logistical and budgetary hurdles still exist to implementing this. (AT)

Consider increasing budget to adjust for inflation since ~2004. The cost to sample high effort sites exceeds what we are given. (AT)

Instill greater sense of ownership from states/tribes via continued participation in workshops (e.g., data analysis; protocol evaluation/development). (AT)

GLEC/EPA logistical support, keep it up! Great effort and great results, no suggestions.(AT)

Provide updates to partners using the apps and databases continuously, including new copies of databases, R code for importing, etc. (AT)

Levels of Expertise

What criteria/expertise might define each level to aid in determining what type of training they would be required to attend?

What do we need to do to provide a path to obtaining the skills/experience to reach each level (or to progress through the levels) and then to assist people in maintaining those skills?

1. Criteria Ideas:

- **Master Trainer – can teach at Train-the-Trainer or Training Academy (and act as auditor when needed?)**

• Criteria Ideas:

- *Must have complete knowledge of the survey. Survey design, methods, how data is used. Would require training with the Survey lead along with the staff at ORD who created the majority of the procedures and interpret the data. The Master Trainer must be able to project all aspects of the survey to the trainers. (JA)*
- *must attend NARS Academy (if developed) and Train the Trainer; experience in all other tiers listed below (MG)*

• **Auditor (Regional Expert) – approve crews based on field visits only (not regional training events)**

• Criteria Ideas:

- *Must be a Survey Leader/Master Trainer/Trainer/**experienced** Crew Leader. This person must have the knowledge and field experience to **assist** the crews by answering questions, making BPJ calls and most importantly being able to interpret the FOM since every possible situation is not spelled out. Must participate in Train-the-Trainer (T-t-T) or Regional Training. (JA)*
- *Auditor/Regional Expert: some experience in field related to resource survey; more advanced knowledge of “why” for protocols; attend Train the Trainer and/or NARS Academy; sample in field with crews (MG)*

• **Trainer – teach full crews at regional training and/or Training Academy**

• Criteria Ideas:

- *Can be from any of the following experience levels: Master Trainer/Survey Lead, Experienced Crew Lead/Member, Auditor. Must complete T-t-T the year of the survey. A Trainer can become a Crew Leader without demonstration at a Regional Training. (JA)*
- *Must complete at least one full season as a crew leader performing the same NARS protocols that they’re teaching. Also attend a training academy. (AT)*
- *not necessarily fully trained in all protocols (e.g. trained in index sampling, but not necessarily fishing protocols) but has experience related to particular resource survey; field experience related to resource type; attend Train the Trainer (MG)*

• **Crew Leader (new and experienced) – can teach and oversee crew members**

• Criteria Ideas:

- *New Crew Leader: 1-2 years of field experience (preferably with the survey resource survey they will lead). Must attend full Regional Training and show demonstration of capability. (JA)*
- *Experienced Crew Leader: 2+ years of direct experience with the resource survey they will lead. Must show demonstration of capability at a Regional Training or Advanced AV. This person should not be the fish*

taxonomist unless there is an experienced crew member that can “lead” the PHAB team. (JA)

- Must complete training and pass audit. Ideally, crew leaders will have attended at least one NARS training before. (AT)*
- previous experience with resource survey(s) (not necessarily resource type for new crew leads); at minimum - some field experience (not necessarily with particular resource survey for new crew leads) (MG)*

• **Crew Member – works with supervision from crew leader (direct and indirect)**

• Criteria Ideas:

- New crew member: Full training recommended. Presentations/videos required. Highly encourage Crew Leaders to take their new crew members to a local “practice site” for training prior to sampling. (JA)*
- Experienced Crew Member: 2+ years of direct experience with the resource survey they will participate. Should have the experience to “lead” either the fish or PHAB team.*
- Same as new crew member. (AT)*

• **Field Taxonomist – Plants, Fish (separate approval from NARS survey leads)**

• Criteria Ideas:

- National Fish/Bug Certification (JH)*
- Regional taxonomic expert (DN)*
- Field Plant Taxonomist must be a regional expert and provide some sort of certification. (JA)*
- Field Fish Taxonomist must be experienced enough to identify MOST fishes encountered. Not necessary to have an expert in the field if you have an expert available in the lab to identify unknown vouchers. (JA)*
- Pass agency-specific proficiency test? (AT)*
- EPA approval via CV and experience qualifications (MG)*

• **New Crew Member – may include new Field Taxonomists**

• Criteria Ideas:

- Consider not including new Field Taxonomists in this category. For new crew member, no previous NARS experience needed. Full training needed. (RC) ;*
- I concur, although it may have to be ‘full training highly encouraged’; sometimes I just can’t get people to leave town (ED)*
- Meet basic agency hiring protocols. (AT)*

***Too many categories. Not sure how the various levels could be documented. Online “testing”? Field demos with Masters? Also could lead to lower state participation because can’t keep up with certifications. Need dedicated funds to keep a required level of training (DN).

2. Ideas on what could be provided to assist in advancing through the levels/maintaining appropriate proficiency

Ties into my answer on capacity building - states that do 50 sites a year will have appropriate proficiency (JH)

Certification system? Financial motivation/incentive? Annual online testing/review? (MG)

NARS Academy (JA)

EPA already does a good job of maintaining proficiency by advocating for and funding participation. We recommend using the most qualified individuals who have the best understanding of protocols to train the trainers and/or lead regional trainings. (AT)

Lessons Learned

In thinking through your experiences with NRSA 2019 training (or other training if you didn't participate in the NRSA trainings), please consider the following questions

What worked effectively and why?

- *The “demonstration of capability” approach worked well (NRSA 2019). This forced crews to show they were capable of fulfilling techniques/protocol. Historically, crews would just show up to the training day and this would fulfill the demonstration requirements more or less. This approach only goes so far to what content individuals are actually absorbing. (BB)*
- *Agree with Ben - this year's training worked well especially for second year, it got us together, organized, and we got to practice then get signed off then gone (JH)*
- *Regarding piloted abbreviated training - R6, for experienced crews:*
 - *Was effective for crews that had “knocked the rust off”, showed up prepared, and had given new crew members some form of orientation (videos, practice site, etc.). (RC)*
- *For those that viewed them, the videos were helpful. On another project for which we are using NRSA protocols, the team put in their “video time” and it showed once they got to the field training. The replacement of the class time with videos prior to the hands-on training seems effective. (RC)*
- *I agree that the demonstration of capability was good because it forced us to stay and show what we know as opposed to sliding out early to beat the traffic jam we knew was waiting for us. (ED)*
- *For, NH this was our third NRSA round with mostly the same field crew leaders. The 3-4 day trainings in the past were dreadfully long. Watching videos and showing up to demonstrate was a nice change. We do typically have new interns that assist us and made sure they put in the required video time. Plus having state staff and EPA trainers at the demo helped them practice the field techniques (DN).*
- *Additional time in the field for demonstrations by the trainers and practice for crews. I think the crews become more relaxed (reducing teacher effect) when they get to spend more time with one trainer. Makes for better communication and more questions being asked during the course of the crew's demonstration of capability. (JA)*
- *We appreciated the on-the-spot audit during our demonstration of capacity day. This provided crews instant feedback of how to improve/modify protocols.*

We appreciated being encouraged to complete the protocols in their entirety rather than an abbreviated demo. Good job, Jerry! (AT)

- Not devoting time during the in-person training for watching PowerPoint presentations worked great. We appreciated the flexibility to watch the videos on our own, at our own pace. This resulted in better prepared crews at the training. (AT)

What didn't work as well and why?

- Getting all the appropriate gear to the training sites for each crew can be challenging (if travelling). Some states aren't allowed to take motorized equipment out of state, which causes issues at trainings. For some crews, having to bring all equipment affects travel arrangements, which might be more costly. This can have a negative appearance from directors/management. (BB)
- Region 8 teams have yet to go to a real non-wadeable site. I realize the conundrums with this given where the training is held, but it would be great to have a "real" site at one point. It would be good to mix-up the wadeable site location as well just to get some variety. (BB)
- The videos. "But you just said they worked well?!". I know, I know. The videos are great IF the team views them prior to training. I would suggest some sort of mechanism to track the viewing in order to ensure prep before the training event. (RC)
 - I would agree with Rob on this point. I believe the NAP discussed this at the last meeting too, with some sort of tracking system to show completion/viewing of pre-training requirements/materials as opposed to the "honor system". (MG)
- We may want to re-evaluate the format or depth of material covered in the PowerPoints, as well. Without the context of the classroom setting, or ability to immediately ask questions to clarify things, the PowerPoints may need to be expanded slightly to clarify things to folks seeing some of these protocols for the very first time. (MG)
- I think it worked better when the power points were more of a webinar. That way people could ask questions and learn from each other. It is more similar to the classroom setting but you don't need to leave town to do it. (ED)
- The habitat protocol is particularly challenging as there are a lot of nuances and sometimes changes from prior surveys. On occasion this leads to confusion during the training which is carried over to the surveys. It would be helpful if the NARS developers revisited the habitat survey and consider what data elements are truly necessary and clarified the methods (DN).
- Format of the online PowerPoints. Not sure everyone watched the PowerPoint videos as they were asked. Need accountability for future surveys. (JA)
- The backpack shocker didn't work during the trainers' demonstration. Ensure trainers bring appropriate back-up equipment. (AT)
- Please thoroughly review all videos for accuracy before releasing to partners. Similarly, be sure all trainers have a solid understanding of the FOM sections for which they're responsible. These issues were very minor in 2019; if cleaned up a little they'd be perfect. (AT)

What lessons/approaches should we carry forward into future surveys (e.g., coastal in the spring, to wetlands in 2021, to lakes in 2022)?

- *The demonstration of capability approach should be carried forward on future surveys. I could see how trainings might need to be longer by doing this though. The approach for the 2019 NRSA training worked well because it's on a two-year cycle. One year was focused more on training while the next was focused more on crew demonstration. This may not work as well for other resource types. (BB)*
- *Potentially training at a real site. I think this makes the site more relevant. (RC)*
- *I like the idea of going to a real site especially in the second year, requires having a team together that is qualified and a funding mechanism. Maybe could come through 106 grant if a state/crew promises to help another state/crew (JH)*
 - *We felt that the R6 truncated training was more of a pre-AV than a "training" per se. I think having the training at a "real site" might make it feel even more like an AV. Neither of these are bad things, it may just make crews question or push back when it comes time for the AVs later in the season? (MG)*
- *Things to carry forward: viewing presentations before going to the training (with the caveat of a tracking system to "prove" crews did their due diligence); allow for a demonstration-of-capability-only option to experienced crews, but also give crews the option to send member(s) to a full training (even if experienced). (MG)*
- *Keep the demonstration of capabilities. I feel it is critical to show that you know what you are doing and, hands on, in the field practice is invaluable. Because it has been 5 years since we do these surveys (except NRSA yr. 2) the presentations either need to happen in the classroom or as interactive webinars. I have found that it is easier to keep people in the classroom than it is to keep them in the conference room at the office. (ED)*
- *Demonstrations of capability is a nice advancement. Pre-trainings for "greenhorns" are a good idea but could also be challenging for some that use seasonal staff since they don't start employment until near the time actual surveys are commenced. I still like the idea of creating a training academy with various levels of training and certification. The regional assistance visits are a good check, but often we find that we know more than the EPA staff conducting the visit. Perhaps re-exploring who and how these are conducted would be worth considering (DN).*
- *Agree with the viewing of presentations (hopefully videos one day) with (online accountability incorporated). For upcoming surveys, give experienced crews the option to participate in a demonstration of capability day rather than the full training. (JA)*
- *Consider using the demonstration of capability as an official audit. This would free up crews to plan their field season better without the need to consider logistics for auditors. However, having that feedback a second time is useful for crews, especially done early in the season. (AT)*
- *The more interactive the trainings are, the better crews digest and learn material. Please explore ways to make the trainings interactive across all days. Consider fun ways to test knowledge of the FOM. (AT)*

What additional adaptations should be considered?

- *As NARS continues to grow, it will be challenging to find a one (or two)-size-fits-all training scheme for crews. At this point, there is a wide range of crew experience across the country. We have some crews that have years of experience while new ones are forming. It's a challenge to cater all trainings to*

each individual crew out there. Some of the more experienced crews might just have to get used to going to a 3-4 day “review” every year. (BB)

- *Accountability for viewing videos prior to training. (RC)*
- *Clarification of “experienced” vs. “new” and requirements for crew (member)s to attain in order to meet those statuses (statusi?) (MG)*
- *Actual videos of sampling being done might be more helpful than PowerPoints for specific tasks, e.g., water sampling or benthic collection, particularly for new crews. (ED)*
- *I like the idea of videos with actual sampling. Accountability for viewing videos prior to training is also a good thing. I really think a training academy is needed (DN).*
- *Video demonstrations are key to improving the current way of person to person trainer-trainee training. Not only will the videos be available at all times for future reference, but they could also depict multiple examples of what crews may encounter in the field. The problem with the current training is the crew only sees one demonstration site whether it a stream, river, lake, wetland (pseudo river in the arm of a lake) etc. The demonstration sites are rarely what any crew will ever encounter while in the field. (JA)*