Human Dimensions Monitoring and Assessment Team
Phase II Kickoff Workshop
Albemarle-Pamlico National Estuary Partnership
9:30am – 3:00pm
February 16, 2018

Greenville Science Center
729 Dickinson Avenue, Greenville, North Carolina 27858

MEETING NOTES*
*Notes by Kelsey Ellis, with editing by Dean Carpenter

Human Dimensions MAT Members Present:
- Burrell Montz (STAC; East Carolina University)
- Justin Williamson (NC State Parks)
- Jake Hochard (STAC; East Carolina University)
- Janet Cakir (South Atlantic Landscape Conservation Cooperative)
- Marty Wiggins (NCDEQ Environmental Education)
- Tancred Miller (NC Division of Coastal Management)
- Doug Wakeman (Meredith College, School of Business)

Human Dimensions MAT Members Absent: Timothy Goodale (STAC; Elizabeth City State University), Jucilene Hoffmann (NC-DEQ-DWR); Christopher Snow (STAC; Wake County Parks, Recreation, and Open Space)

APNEP Staff Present:
- Dean Carpenter (Program Scientist)
- Tim Ellis (Ecosystems Analyst)
- Kelsey Ellis (Program Associate)
- Stacey Feken (Policy & Engagement Manager)
- Trish Murphey (Watershed Manager)

Welcome and Introductions – Dr. Burrell Montz, ECU (9:30am – 9:40am)

Human Dimensions Monitoring and Assessment Phase I Review – Dr. Dean Carpenter, APNEP
Human Dimensions Monitoring and Assessment Phase II Expectations – Dean Carpenter (9:40 – 10:50)

Burrell Montz – When we think about indicators, Water Resources MAT is doing some, should we just consider everything and then recommend things to other teams?

Dean Carpenter – Staff has had that discussion and feel this team should be liberal in what is considered. At the STAC level, all recommendations will be integrated among teams.

Burrell – Be all inclusive? Dean – Yes. Let's assume initially this team is evaluating the topic of "overlap", but must ensure that both teams know who is covering what. Might develop ad-hoc working groups from both teams.

Marty Wiggins – What are a feasible number of indicators: 10, 50, 3? Examples from Puget Sound?

Dean – It's complicated as to the ideal number of indicators, I would say more on the 10 side right now in terms of numbers of indicators. Don't want to be too restrictive, interested in what we think is very important.

Burrell – You've got economic, land use, population characteristics – are you talking 10 categories?

Dean – That's the difference between indicators and their underlying metrics. Example of water quality indicator and all associated metrics. Can have several metrics that feed one indicator.

Burrell – So you get a numerical value from combined actual measurements? Like an index sort of thing? Dean – Yes. Burrell – We call it a parameter in my world, sounds good.

Janet Cakir – What kind of resources are there to monitor these though?

Marty – I agree and was wondering the same thing. In environmental education this is a big thing, human numbers are very squishy and the people who report them report them in a squishy way. Problem is you would have to be sure, like if you did visitation to an educational site would have to get a few places that actually ticket people otherwise people will inflate their numbers. Need to make sure that you pick a few indicators where you can actually get good data.

Dean – This is an issue with all teams. Today, we want to develop a set of indicators and supporting metrics based on what's been done and what APNEP needs. Tier I: consensus that this is a core metric. Influencing criteria, is this good quality data? Tier II: less consensus if it's valuable and/or needs more research. During the spring we're going to start focusing on Tier I's first, what we're going to try to do is say this metric is important and develop protocols, minimum protocols to be used with partners throughout our region, there are limitations, but we want to influence people to have a rigorous protocol.

Marty – Yes, want good strong data, that will help you more.

[Dean opened indicator documents, explains. ECU's "Preliminary Report on a Proposed Social Science Observing System for Coastal North Carolina" can maybe be used for ideas.]

Human Dimensions Indicators Discussion and Ideas – Team (11:00am)

Dean described APNEP indicator document, CCMP ecosystem outcomes. Outcome 1E most aligns with this team. There are other aspects of human dimensions that aren't currently reflected in the APNEP human communities goal. Reminder that outcomes were derived in 2012, did assessment prior to that. APNEP staff took indicators developed earlier (pre-2012) and aligned them with the outcomes.

APNEP Outcome 1E – recreation and access to public lands
Recreation Resources
Dean– Indicator is aligned with outcomes, overview of metrics. Opened up the floor for reflections on those metrics. They were also influenced by whether there were data to bring to bear. Burrell – do we care the type of water use or type of water? Does it matter if its river, sound, motorized, not? Dean – That's the question, we can break them into different groups and have different protocols to support them.

Burrell – Why was this the only one for human dimensions back then? Dean – The other ones, the human component is reflective both of human needs and stressors. Staff at this first cut characterized them as stressors. Burrell – Understood.

Dean – Going through the list, this one characterizes land use. Human is definitely a driver of land use change. Metric is impervious cover. Burrell – That's it? Dean – that's it for now. One of the metrics in our 2012 assessment.

Dean – Next indicator is water use, had six supporting metrics. Then there were human populations, population age, and educational attainment. 2012 indicates that the metric was featured in APNEP's 2012 assessment.

Dean – There's human health, two metrics. Financial and economic status. Solid waste generation. Agricultural waste. Wastewater and septage, energy use/production. Mineral production, agricultural and maricultural output, agricultural output, timber production and harvesting. Many of these are stressors. Suggest to approach it from both angles (ecosystem services and stressors).

Dean – This team needs to propose an indicators list, based on our framework APNEP created for human dimensions before. APNEP has a human dimensions goal. Let's revisit to ensure we understand why only one outcome is highlighted for this team. A review of CCMP ecosystem outcomes. This team is not a human health group, that is not their focus. Outcomes aren't aligned with human culture and wellbeing, would like to see that changed when APNEP revises the CCMP, would like to at least suggest that to APNEP's leadership. If this team followed such a course, you would be starting from scratch. And it would be interesting, taking the ECU social science observatory metrics and see how that aligns. Dean offered to display the document to facilitate team evaluation.

Janet – So the list of the indicators, they're now really reflective of indicators for how humans affect the ecosystem. Human dimensions of threats versus human dimensions of benefits. Dean

– in 2012, outcome to meet the human dimensions goal. We didn't do as much intensive thinking about the human dimensions and this reflects that. That's why we're having this discussion.

Burrell Montz – Important from the 2010 ECU report, interactions – shoreline development trends, changing ecological footprints, etc. It might be those kinds of things that relate more to the CCMP. Resource use per unit, carbon footprints of tourists versus residents, etc. Much of this had to do with coastal vulnerability, but it seems to me that ecosystem vulnerability is the same. Population numbers were reviewed, first thing that occurred to me was migration rate.

Dean – I distributed the indicator document in advance for other APNEP monitoring & assessment teams, but intentionally didn't do that with this team. I thought that we could start with the ECU social science observatory list instead and evaluate that first. Charge of the team is to derive indicators and metrics to address the human dimensions component. We're pulling ecosystem stressors into our models.

Burrell – Can you display this document? Did you send it out to the team? Dean – Sent it out to the team. Burrell – I read it a long time ago, then read it again. Nothing ever happened with it by the way, maybe something will happen with it now. Just a reminder that the report was for coastal North Carolina, not APNEP. Page 7 – data needs. Page 8, there's more data needs. We were going through everything everybody cared about. This data is accessible, maybe not easily. Page 9 – other data that's not readily available. This is getting at the systems of our focus. Those are the kinds of things to me that seem like they're stressors on ecosystems. We don't have to reinvent the wheel, but we shouldn't blindly adopt the table with 4 billion data points.

Dean – Between both the APNEP and the ECU lists, we're good on the stressors side. We're also looking for those metrics that reflect human wellbeing, and I don't know if they're in there as well. Burrell – Depends on how you define human wellbeing. There are factors in there that reflect that, but they're not listed under human wellbeing. Janet – You were mentioning earlier about ecosystem services and an expansion of cultural aspects. Provisioning services, food. Cultural and spiritual services, opportunities for solitude, all that. Those are reflective of human wellbeing but are hard to measure, don't want to spin your wheels too much. Could look at patch size of undisturbed, undeveloped land. Could be proxy for solitude. Human methyl-mercury could tie in here, could be tied into use of special education services. Could help APNEP get more funding.

Dean – Ties to fish and game are safe for human consumption. Janet – Difficult to attribute because we haven't done good surveys, a lot of subsistence fishers. Dean – The first APNEP-SeaGrant fellow interviewed subsistence fishers and made recommendations about whether they were aware of advisories. Janet – So you do have some science you could point to here. Dean – I will circulate that report to the team. Janet – If you could get trends across space/time for methyl mercury, you could make the case that funding is needed to address that issue. Stacey Feken – There is an interagency workgroup about this, Stacey Feken and Kelsey Ellis

were at last meeting, they are pulling in research that others are doing. Another data source for this.

Dean – Certainly based on APNEP's ecological metrics, if we bring them through to ecosystem services we can talk about human wellbeing. Is there anything else that APNEP can or should do when we talk about tracking human wellbeing? Janet – I would track special education in schools. Methyl mercury is tied to lowering of IQ, etc. Relates to consuming those fish during pregnancy. Burrell – What about other factors that influence human wellbeing? Not sure how to define it? Janet – Millennium ecosystem services report defines that for us – food provisioning, opportunities for spiritual connection, what have you. But how do you take that ecosystem service and define an indicator, get the resources to drill down into it? In these discussions, I try to look at it as: what data do I have that can tell me about human wellbeing? Will look at readily available information that track that back to an indicator. This list is comprehensive, you have to prioritize and identify.

Burrell Montz – Return to the list on page 9. Look at the big picture, the systems, the interrelationships. Migration data for humans, people moving into the APNEP region can tell you about a lot of different things. Can tell you about income, they're all related. As both a stressor and a human wellbeing sort of thing.

Dean – I assume if you're going to design a social science observatory, there were plans for a phase II? Burrell – Plan was to see what we needed, then to develop the system. This report was created, handed to an ECU administrator, who did nothing with it. Bottom line, this was done, given to the person who was supposed to do something with it and it didn't happen. Janet – Thing I like about it, very practical. A lot of the data is readily available and ties into things we think tie to human wellbeing, and then metrics can tie into indicators. Burrell – Challenge is to fit metrics to indicators. Janet – Yes, and thinking about which are least influenced by other factors. Can make a more clear, straightforward case that you're measuring human wellbeing.

Marty Wiggins – One thing we're concerned with is how many non-formal science and nature education opportunities are within a region. Are number an indicator? Says something if a region can afford that, how would that fit it? Dean – Sounds like it relates to educational attainment. Marty – We could find that out for APNEP, but we would have to define what exactly we're looking for. Stacey – Also ties into something else, APNEP Education and Stewardship action team, right now this team is doing an assessment. That was an identified need, what opportunities are available in the APNEP region, what are the gaps and what are the teams doing to fill the gaps. Cross pollination among teams, working together to fill the gaps. Dean – This team will be working together with the Education and Stewardship team. We'd come up with a subset of metrics, then shared them with the Education and Stewardship team, ask them if that fits with what they're doing. Stacey – Chicken and egg question. Marty – If you overlaid human health indicators with educational centers, question of which is influencing which. Jake Hochard – To make policy recommendations, you have to be wary about

confounding variables. There's a front end and back end – collect data most systematically, better protocols. And/or analyze data more rigorously.

Janet – Agree. Interesting thing about APNEP and this team, this work will enable the organization to speak outside the conservation community to other groups. Think about what our end goal is, do we want to influence outside the conservation community? If so, intensive analysis and resources must go into it. Have to ask, is it worth it? Does APNEP want to put that into it? Dean – That will happen when APNEP develops monitoring protocols. This team, data are already there. Based on my experience with other teams, we might want to revisit protocols to make it easier for teams to do analysis. Data we can report in the interim.

Janet – If resources are limited, identify one or two of the less confounded things that are intuitively connected, might be a good strategy. Jake – If education is increasing, we can all agree that's good. Gleaning policy from it would be more difficult. Burrell – We aren't trying to do that, we're giving that to the policy makers. Jake – then they analyze it? Burrell – Not sure yet, we're not there yet. Pick what we need to know. Ideas from the social science observatory document, just ideas, things people thought might be useful. Wish list, laundry list. Janet – Important point, mission of APNEP is to inform policy and decisions, maybe that's just for the ecosystems, not necessarily for human health. But justification for influencing policy decisions in ecosystems could be human health. Dean – We touch upon it, fish and game safe for human consumption. We sort of take it on a case-by-case basis.

[Break for lunch]

Burrell Montz – Suggest that team first derive indicators, then derive metrics. First suggestion – land use and development trends. Maybe propose three to five indicators, and metrics underneath?

Tancred Miller – Thinking about difference between indicators and metric, should I just throw things out there? Dean – So we're thinking about indicators first? Land use and development – agreement.

Tancred – Population suggestion as an indicator. Food production/agricultural production as an indicator. Dean Carpenter – super-indicator – resource harvest and extraction – timber harvesting, mining, energy, agriculture.

Justin Williamson – What about education?

Tancred – Economics.

Burrell - So we have five indicators now, I'm trying to move us ahead. Try to think if there are any other important ones? Janet – Recreation. Proximity to water access.

Burrell – Other indicators? Anything else? Tancred – Good start. Burrell – How about we start thinking about metrics? What metrics do we want?

Jake – Migration is really important, goes under population. Burrell – What else about population while we're there? Age? Gender? Tancred – Whole range of census data. Burrell – Income. Basic census data on population characteristics and add the migration. Burrell – Other population characteristics?

Burrell – What about land use and development? Jake – Agricultural productivity really important, especially in this area. Tancred – Would be under resource extraction.

Dean – So extent of land use types? Burrell – Yes types, acres. Burrell – We want land cover which will get impervious surfaces. What else under land use and development? Tancred – Not just housing but any construction stats. Burrell – What about zoning, that could be important too? Dean – Would that be both housing, commercial too? Burrell – Yes, if we do land use types we'll get all that. Jake – Rental records are really important. Marty – What about accessible open space, everything from a nature preserve to city parks? Burrell Montz – Would that be under recreation? Marty – Yes, wasn't sure. Burrell – In collecting the data, we can put it anywhere we want it.

Tancred – I like the zoning idea but how would we measure it? Burrell – map it, not measure it. Doug Wakeman – You can look at changes over time, one type of land turning into another.

Burrell – Do we want land value? Important? Doug – Yes, it is. Jake – I think economics is a strange category. Think it is a part of all the other categories. Burrell – We can put the data wherever we want it to go, change the categories. Tancred – Tax values? Jake – In Dare county, some other places, not a great metric, but it has value. Doug – Easily obtainable. Burrell – You can track trends regardless. Jake – Zillow records, Airbnb data. Burrell – Agreed.

Tancred – What about transportation, does that fit in somewhere? Dean Carpenter – Road density? Where would that be? Burrell – Would be under land use and development. Tancred Miller – Agreed. Burrell – Development issue gets at land use development. Infrastructure gets at different things, bridges, tunnels. Dean – Some of these items in the previous list.

Doug – Presence/absence of groundwater wells. Burrell – Is water resources team doing that? Nevermind, we don't care (for this exercise). Infrastructure might be its own category.

Burrell – Next one. Anything else for land use and development or infrastructure? Janet – Humans impact on ecosystems, what do you think about sea level rise, we have models that … can see it on land use/land cover datasets, you can see loss of shoreline. Dean – One of the metrics we featured in 2012 APNEP assessment is shoreline migration. Janet – Not a local policy you could influence. Dean – Would be a stressor. Jake – Human dimensions might measure nourishment events. Janet – You could look at salinity, salinization, how upstream that goes, might tie into water availability and tie into anthropogenic climate change. But do we want to

be that global? Burrell – No, in the water group I can see that as important but how do we measure that from a human dimensions perspective, where are the humans? Can only measure the effect, not the cause.

Dean – Let's go through these indicators and metrics then revisit APNEP's Phase I indicators and see if we can put them in.

Tancred – If anyone needs data on shorelines, bulkheads, etc., we can provide that data. Will be more data – estuarine shorelines inventory, different structures, changes over time. Dean– Assessment yet of change detection? Tancred – Not apples to apples, compilation of multiple years and then one year. Getting there. Dean – Could APNEP roll that out on our first assessment, coastal infrastructure, coastal hardening sort of metric. One where we have the data ready to go. When is NC Division of Coastal Management doing the next one? Tancred – We're talking about staffing, whether to do the whole thing or just new structures since last time.

Burrell – Let's move to resource extraction, agricultural productivity. Burrell – Do we do timber? Harvesting? Mining? Dean – Energy? Renewable, land. Doug – You want to measure those new solar farms. Would be interesting to see where the timber is going, board to pellet. Dean– Changes in product class? Europe achieving biomass with wood pellets. Marty – To meet European green energy goals they're using southeast US forests. One of the big debates right now. Doug – Said they're going to use scraps, instead they're using hardwoods that are going to take 100 years to grow back.

Jake – Fishing, aquaculture. Tim Ellis – Suggest keeping wild fisheries separate from aquaculture. There are going to be tons of sub-metrics under that metrics. Jake – what are the big players, recreational, commercial, subsistence? Tim – In terms of data availability, commercial then recreational, subsistence very little data. Fishing licenses.

Tancred – Hunting licenses.

Burrell – Next, economics. Jake – What's available for insurance against flood risk? Burrell – Not a lot, one can get the number of policies their value. Tancred – Tricky because when flood maps change, all those numbers change. Burrell – But we'll know the number at a given time. Janet – Could do percent of impervious surface in floodplain categories that require insurance. Burrell Montz – 100-year floodplain requires insurance, all mapped in North Carolina. Jake – Something to look at given how wealthy the Outer Banks are, is how poverty increases as you move away from there. Genie index from income. Poverty rates at a finer level if they're available. Marty – Title I schools, correlating to free and reduced lunch. Tim – unemployment rate from Phase I list. Stacey – The RTI study, valuation of economic resources within the APNEP region, was based on available data: could use for data here, talking about value to households, value of tourism, nature, natural resource employment and wages.

Burrell – Wage rates? Justin – I think they're available at a county level but they're very aggregated. Thinking more at a manufacturing level, agriculture versus service – available at a county level or at least it used to be. Jake – Some metrics for the tourist industry. Looking at the base across different towns and municipalities. Stacey – They have a category in here for direct value of preservation of non-game wildlife resources. Burrell – Willingness to pay? Jake– We try to stay away from that, not sure how to do it well. Super important. Also, arguments that some health and energy indicators are better measurements than any gross domestic product (GDP) indicator, but we don't know how to go down that rabbit hole.

Marty – Happiness rating, based on anything? All – asking people how happy they are. Burrell – Quality of life, they come up with some index. Hospital beds per 1000, good economic indicator – how far you have to go to get medical care. Marty – I was shocked by how many counties in northeastern North Carolina don't have a primary physician. Tim – Number of medical professionals per capita or something like that. Burrell – Rental revenue by town? Put under economics. Dean – Move down from land use? Tim – That would be a different metric. Jake /Tancred – occupancy taxes, would have at a town-by-town level. Jake – Restaurant quality, Yelp reviews - creative indicator of quality of life. Marty – agreed. Tancred – Crime rate, drug use, something like that? Burrell – Yes. I think that would be under population.

Burrell – Anything else under economics? Jake – Something with labor force and how seasonal it is. Marty Wiggins – Back under education, high school completion rate might be something. Tim – Old APNEP list had educational attainment, is that census data? Marty – County by county. Burrell – Could be under economics, could be under population. Jake – Education under population. Burrell – Just education.

Burrell – Recreation? Have that from the previous. Anything to add? Type of recreation, water recreation. Motorized, non-motorized. Tim – Vessel registrations. Burrell – Don't register canoes. Tim – For motorized vehicles. Burrell – Metric is type of boat recreation. Tancred – Type of vessel. Burrell – Where they're doing it. Rivers, sounds, kayaks, canoes, impacts both on quality of life and ecosystems. Tancred – How to get data for non-motorized? Marty – Have to get permit to operate a motorized boat. General consensus that don't know how to get that data.

Jake – Beach width is a key indicator of recreational benefits that are capitalized into people's homes. Justin – You could count boat ramps. Dean Carpenter – That's water access number and location. Tim – Recreational fishing licenses under fishing metric. Tancred – Creel surveys. Tim – That would get you info about type of fishing, land or water based.

Burrell – What are we missing? We have a whole lot of data. Dean – Go back through Phase I indicators, if any of them gain traction we'll add them. Water use. Burrell Montz – Do we need them? Don't hear anyone saying that we need them. Tim – Water budget stuff is important but maybe not so much for human dimensions. Burrell – I would put it under infrastructure but I don't know if others would. Tancred – Crosses into human dimensions. Burrell – Affects quality and quantity of water.

Jake – Groundwater well data is interesting, state keeps it on file for five years and then deletes it. Tim – We just had a staff meeting with groundwater folks, they're very interested…they want people to utilize the data. Struggling to express to supervisors that their data and monitoring is important. Burrell – Have they told people it's available? Lots of people would want it. Jake – Craig Caldwell has depth data. You can match that up with the state lab testing data and know depth and water quality testing data. Tim – Some counties don't release that information. Could make tracking this as a metric difficult. Jake – Put it in the same place, same time, link them up. There's some cleaning that needs to be done but I think it's important. Justin – Affects health, affects property values. Dean – They were talking to us about the water quality side of groundwater. Amy Keyworth leaving for Wake County, she's training Christina who is taking her place, they're going out to public wells and collecting water quality information systematically. Tim – Looking for areas where to set new wells. Jake – How deep do you drill before you're immune to some of the runoff?

Dean – We have access to groundwater well data. Tim – Willing partner in the state.

Dean – Human health component. Burrell – Quality of life component, will we see differences across the region? What scale are those data collected? Jake – We use in developing countries Burrell – Not as good for this region.

Dean – Solid waste. Burrell – Do we need it, does it matter? Is it going to be different from place to place? Tancred – Interesting because of regionalization of landfills, where waste is transported. Marty – Does the APNEP region have waste transporters? Burrell – Put landfills under infrastructure. Dean – Incinerators? Justin – Air quality people could tell you, they need to have permits. Tancred – Recycling data? Marty /Burrell – DEQ/DEACS keeps metrics on it. County scale.

Dean – Agricultural waste. Burrell – I'm trying not to collect every metric. Dean – Water Resources team would like them. Burrell – Tell them to collect it. Stacey – You're trying to narrow the list. Burrell – Have you seen this list? This list is ridiculous. Marty – Scale issue as well, county-level data, etc. Burrell – Might be the next step in culling this list down.

Dean – Energy use and production. Burrell – Why do we care about energy consumption? Justin – It's an indicator of development, people use more energy. Jake – Put under economics. Burrell – By sector? Marty – Coal fired versus nuclear. Jake – Aren't there a lot of reverse osmosis facilities out there? It's growing. Marty – Solar farms, is that innovation or is that just taking advantage – cheap, flat land with no zone.

Burrell – We have our wish list, whether or not that's…is that what we wanted to accomplish? Dean – Yes. Burrell – Might be worth it for us to at some point think about it, not right now. Dean – We need something to bring to the STAC. Burrell - we might not do it all. Dean – Might be premature to call it Tier I or Tier II, give others on the team the chance to contribute. Give

others a week or so to contribute, work with Burrell. All teams will be submitting their current thinking on indicators and metrics, develop monitoring strategies and assessments.

Justin – Tiers are those for indicators and metrics? Dean – Largely for metrics, question is what metrics we'll use to represent indicators in the near term and what we want to achieve. Will talk at the meeting. Good list to start with, and then we'll start refining.

Burrell – What's next step, modeling? Dean – I'll talk about those. Modeling component, we'll have to work, up in the human need area. As far as modeling, we'll have to think how the human dimensions will fit. All ecological teams are contributing to the regional model that we saw. Plug in human needs and show how that's represented in the model. Management indicators, tweaking to the system.

Burrell – As team thinks about these, think about as a stressor or the opposite of a stressor. Dean – I distributed guidance to all APNEP's monitoring & assessment teams (MATs): review that and think about how we can move forward. Burrell – Stressors – creating problems are helping solve problems. Also, thresholds – what's bad and where does it become bad. Something we need to think about. Quality of life, is there a number of medical professionals per thousand that is good for example, need to figure that out as well.

Dean – Change between science and policy, need to start out with scientific recommendation. Burrell – Can also use trends, values are going up/down and what that means.

Dean – Regarding the APNEP assessment, was talking about technical assessments and from those we want to distill an assessment, type of report card for the general public. How's condition of the human component? Assessment point, what's good/bad. Ways to convey things, we'll work with our outreach folks on that. APNEP will have technical assessment and non-technical assessment.

Tancred Miller – Is there a reference point for APNEP versus non-APNEP? Justin – Norway. Dean – I'm interested in shifting baselines, high-quality data available over the past decade, be thinking about historical data to give folks an idea of historical condition within the region. Example of oysters. Talking about references between/outside our regions. Tancred – energy consumption inside/outside. Dean – international average, anything that is useful. Circulating to citizen groups and all of that. Looking to APNEP outreach staff to assist. Need a reference – where do we stand? Tim – The EPA, recently we've been told has been working on metrics they can use to compare across all NEPs, they want to have some common parameters, that might be something we can bring into this team. Program itself is always on the chopping block, this is a way they're looking to provide – mainly geared towards economic impact, something we can use here maybe. Burrell – We can include it in here if it's something that's not here already. Stacey – Habitat restoration and protection is the only thing being shared right now. Tim – Much of that conservation is not by the NEP itself, it's by partner organizations.

Dean – Matter of process, Burrell has been kind enough to lead this team. Appreciate if you have any thoughts, make sure she gets it, she'll be working with us to get the ball rolling. You're here, representing your piece, you represent a network out. Ecosystem assessment authors will all get recognition.

Stacey – Some NEPs track volunteer hours, we're not set up that way, but we consider your time to be volunteer time, something to think about. Tim – Something about our match we submit each year. Stacey – We don't have a way, we haven't done that, but partners contribute their time. I think that's independent of that. Tancred – We do use volunteer time as match for our program.

Dean – any questions?

Team adjourned.