The Solid Waste Issue

Solid Waste Management in a Disaster - Disaster Debris Management Planning

Translating Solid Waste Outreach and GIS Mapping Materials into Alaskan Indigenous Language

Vermicomposting in Florida Schools during COVID-19
Letter from the CEO
Nathan Ohle, RCAP

Teaming up for Recycling Success in Southeastern Kentucky
Melissa Melton, Great Lakes Community Action Partnership (GLCAP)

Solid Waste Management in a Disaster - Disaster Debris Management Planning
Michelle Viney, Communities Unlimited (CU)

Dose of Education on Real Rural Drug Issues
Stephanie Ross, Midwest Assistance Program (MAP)

Vermicomposting in Florida Schools during COVID-19
Rachel Silver, Southeast Rural Community Assistance Project (SERCAP)

Translating Solid Waste Outreach and GIS Mapping Materials into Alaskan Indigenous Language
Evelyn Agnus, Rural Community Assistance Corporation (RCAC)
This month’s issue of Rural Matters is focused on a topic that is incredibly important to rural and tribal areas across the country, but is often overlooked - solid waste disposal. Recycling programs, classroom worm farms, and landfill safety and site management are just a few examples of the solid waste disposal programs being operated at the Rural Community Assistance Partnership (RCAP). While they are not as high profile as safe drinking water, broadband or transportation issues, the health and safety of our environment and our people is paramount to the economic prosperity of rural and tribal communities. Whether it is protecting a water source from a leaking landfill, or teaching students at a young age the importance of reduce, re-use and recycle, these programs have a direct effect on communities and individuals, and directly set the stage for economic opportunity in ways that set them apart from other areas of focus.

As we think about solid waste disposal, and the many other programs that operate at RCAP, I want to highlight the interconnectedness between these programs and the needs of the communities we collectively serve. Without a safe environment, you cannot have safe drinking water. Without safe drinking water, business growth will stagnate. With limited economic growth, comes a declining revenue base, and with a declining revenue base comes an increased risk of financial hardship for a community. Whether you are working with students in extracting vermicast from a worm farm to fertilize the school garden, helping a water operator or small business owner with an issue, or building community capacity through leadership development programs, you are working to build opportunity in your community.

We do not take enough time to celebrate the small victories happening every day through the dedicated and committed technical assistance providers of RCAP’s regional partners. What might seem like small progress often leads to big results, in some of the smallest and most vulnerable communities across the country. Thank you for all you do to make a difference in these communities, your region and the country.

Nathan Ohle
RCAP CEO
Land Stewardship through Unlikely Collaboration.

From protecting clean water to creating economic opportunities, communities across the Mountain West are partnering with the LOR Foundation to co-create solutions that meet daily needs. We listen first, then collaborate with local advocates, experts, and philanthropies using an evidence-based approach.

#EXPLORE our impact at lorfoundation.org
The Bell County 109 Board in Pineville, Kentucky is expanding services to meet the growing needs of smaller communities in the county for enhanced solid waste and recycling services. The 109 Board is the entity that oversees solid waste management for all Bell County residents, including trash pickup, transfer stations, and recycling. Named after the Kentucky Revised Statute 109 (the legislation that created it), the 109 Board is comprised of members appointed by the Bell County Fiscal Court.

To concentrate their efforts around recycling, the 109 Board partnered with local schools and the City of Pineville, as well as engaging RCAP’s technical assistance. All of this has yielded measurable results. In the smaller communities of Bell County (including Ambleside, Frakes, and Pineville), the year-to-date totals (as of July 2021) show 960 tons of material being recycled rather than landfilled. This is quite an increase compared to the 922.71 tons of material that was recycled in all of 2019. There were a number of different approaches to the work that yielded this level of impact.

Strategically Located Trailers Are Popular
The 109 Board launched a new recycling program in Middlesboro in September 2010. As Bell County’s largest city, Middlesboro has a population of approximately 9,300. It is situated between Pine Mountain and the Cumberland Mountains and sits entirely inside a huge meteorite crater. Surrounded by lush green trees and blue skies, it is exactly one mile from the famous Cumberland Gap. Tourists frequent this scenic area, in addition to the city being the county’s main shopping hub.

To enable easy access to recycling services, the 109 Board placed compartmentalized collection trailers in strategic locations near popular shopping centers and strip malls. These spots are convenient for all Bell County citizens. Soon, the 109 Board members were pleasantly surprised to find the volumes of collected waste surpassed their expectations. The trailers quickly filled and overflowed, distracting from the scenic background. It was clear that the program could be expanded. However, with the increased cost of processing materials and the
downturn in material sale prices due to China’s ban on U.S. recyclables, the 109 Board has had to be selective in choosing additional areas and expansion sites for maximum participation.

The Program Expands...
After receiving petitions for recycling services from several densely populated areas within the county, Kirby Smith, the 109 Board chairman, contacted RCAP for technical assistance. Smith said the 109 Board wanted RCAP’s help to ensure adequate participation before they invested in the equipment and labor needed to collect and transport materials to the recycling center in Middlesboro.

Not long after Smith, officials from Pineville also called RCAP for assistance. Pineville, the Bell County seat (population nearly 1,800), has recycling collection trailers and bins located throughout the downtown business district. The receptacles are there due to the joint efforts of Mayor Scott Madon and the former city clerk, Callie Melton, who partnered with the 109 Board and RCAP to install them. Next, Mayor Madon and Clerk Melton were requesting RCAP’s assistance to market the Pineville recycling program and perform a door-to-door sign-up for curbside services. With RCAP’s help, the 109 Board expanded their door-to-door outreach and began providing curbside services to approximately 300 houses within the Ambleside community.

Another successful tactic was locating compartmentalized collection trailers at each of Bell County’s seven public schools. School employees, students, and parents alike use these trailers while schools are in session. Area residents are also welcome to use the trailers during drop-off and pick-up times, or anytime outside of normal school hours. Since public schools are often the center of community activities in rural areas, and they have great lighting and parking access, they are a safe and convenient option for siting recycling equipment.

Educating Students Is Key
When marketing and launching recycling programs, directing public messaging toward schools and younger students is very effective. So, to support the 109 Board’s efforts, RCAP worked to increase environmental education opportunities for Bell County children.

For America Recycles Day in November 2018, RCAP staff provided environmental education classes to fifth, sixth, and seventh grade students at the Yellow Creek School Center. They used the 3D EnviroScape® Waste Management (Landfill & Recycling) model, which helps students explore hands-on recycling activities. The model demonstrates how proper waste management practices, in contrast to illegal dumps, are designed to prevent harm to the groundwater, surface water, and air.

For Earth Day 2019, four of RCAP’s Kentucky staff teamed up to develop and provide classroom environmental education programs at the Frakes School Center (PS–8). Technical assistance providers Adam Bourque, Maggie Mahan, Chris Wells, and I each created a unique program for our respective classroom age groups.

To give an example of how we approached the challenge, I am passionate about ending plastics pollution and its damaging effects on lakes, rivers, and streams. So, I concentrate on this environmental message when in the classroom, since water is the primary source of outdoor recreation for Kentuckians. In addition, I talk about the state’s reliance on tourists visiting the waterways to boost the economy. This message is effective for the majority of the student body. It helps them see the connection of dead fish and dying habitat they have seen while on the waters of Kentucky with the plastics that get thrown out nearby.

In 2020, RCAP staff were looking forward to joining people around the world in celebrating the 50th anniversary of Earth Day. The annual theme, Climate Action, emphasized looking to natural processes to restore the world’s ecosystems. Sadly, the COVID-19 pandemic prevented us from holding in-person and onsite activities.

The pandemic challenged us to adjust our approach in order to reach as many students in the Ambleside and Pineville communities as possible. So, we assembled take-home kits of environmental education items and supplies for Earth Day instead. One school distributed them with the students’ non-traditional instruction (NTI) packets during the week of April 22. At the Bell Central School Center (PS–5), which serves Ambleside, the cafeteria staff and bus drivers delivered the kits on Earth Day along with the daily lunches they brought to students at home.

Earth Day Moves to Social Media
The pandemic also pushed us to explore digital and virtual platforms for the 109 Board to reach a greater number of students in the rural communities of Ambleside, Frakes, and Pineville. As part of this, we discovered that the Bell County Solid Waste & Recycling Facebook page had originally been set up as a personal page, which did not allow for following. RCAP’s Adam Bourque created a new Facebook page for the organization and provided design assistance to modify their logo.

In observance of the 50th anniversary of Earth Day, Bourque, Mahan, and I planned a week of informational and action content for the new Facebook page. Since copyrighted
materials require permission to share, this took us several weeks of planning and development. Bourque made videos on some ways to keep the planet healthy: reducing the use of plastic under COVID-19 shelter-in-place conditions, avoiding accidental littering, and identifying and preventing the infestation of invasive plant species common to Kentucky (honeysuckle and winter creeper). Mahan posted craft projects using common household items that would typically be discarded, like coffee filters and toilet paper/paper towel rolls, as well as tips for regrowing vegetables like celery in lieu of disposal or composting. I posted quotes, coloring and activity pages for download, an Earth Day action pledge, and an Earth Day cookie recipe.

RCAP also facilitated a contest of yard art and robots made from recycled or upcycled materials that was sponsored by Bell County Solid Waste & Recycling. The contest was open to people of all ages, divided into four age groups. Participating adults posted feedback that the contest was “a fun, educational activity that shelter-in-place parents could share with their children.” Contest winners received their choice of gift cards redeemable online. Another feature our RCAP team developed was an employee interview sheet; we used this to glean information and share it on the Facebook page in posts titled “Get to Know Your Solid Waste Recycling Staff.”

In addition, we revised the existing Accepted Recyclable Materials handout to reflect the expanded acceptance of plastics 4, 5 and 7. This handout is an informational resource that is distributed at civic meetings, public events, and the solid waste billing office. We included it in the Earth Day kits for students, and it was posted on Facebook with an announcement of the expanded acceptance of plastics with a link to download the handout. On April 24, Bell County Solid Waste & Recycling posted these comments on their Facebook page: “Thank you everybody that participated in Earth week! And a shoutout to Rural Community Assistance Partnership (RCAP) for working with us to put this week all together!”

**Going the Extra Mile During COVID-19**

A letter written by Doug Hoskins, Bell County Solid Waste Coordinator, outlines the outstanding efforts local staff made to adapt solid waste services during the pandemic:

“... the thing I would like to give a great round of applause to Melissa for; she knew as essential workers our staff would be exposed to the COVID-19 virus and she immediately sent facial masks to protect our staff. This has inspired us to continue and stand in the necessary jobs of not only collecting and sorting recyclables, but also in the service to the county of operating the transfer station. The masks helped us feel that we were protecting others and ourselves, as we performed our daily duties. Each staff member from the secretary sitting in the office greeting the public to the transfer operator accepting people’s trash, to the recycle staff collecting and sorting the recyclables have benefited from these masks. And we hope and feel the public we have dealt with felt safer because of this kindness.

**An Online Map Helps Spread the Word**

If any Bell County residents are wondering where their nearest recycling location is, they now have an online resource to help them quickly get that information. Using an equipment inventory list that I prepared, Bourque created asset IDs (unique identifiers) and provided addresses to reference with recently collected GPS points of all the Bell County Solid Waste & Recycling assets. He used this data to construct an online web map that provides residents an easy way of locating the nearest collection bin relative to their current location. They can also report overflow or a need for servicing through a digital Survey123 form in the web map’s pop-ups.

In response to the web map, a staff member who works in customer service for Bell County Solid Waste & Recycling said, “After over 10 years, people still say ‘I didn’t know there was a place to [recycle] in Bell County.’ We feel the effort that Adam and Melissa have put out will increase awareness greatly, since most people get their information from online searches.” In the future, Bourque plans to use ArcHub applications to host the webmap on a webpage in order to optimize sharing data through better URL schemes. To view the current map, go to [https://rcapnational.maps.arcgis.com/home/webmap/viewer.html?webmap=949719e835394f1fa758e57ae9fe14c4](https://rcapnational.maps.arcgis.com/home/webmap/viewer.html?webmap=949719e835394f1fa758e57ae9fe14c4).

Also reacting to the web map, James Hoskins, the Bell County Recycling Center manager and solid waste operator, said: “Thanks to Adam we now have a virtual map that our people can use to locate the most convenient receptacle to them for recycling. We will also now have an easy option for people in the community to report that our bin is full and in need of servicing. It is far better than the paper map we had, and accessible to all.”

In closing, over the last few years, the county has made considerable and measurable strides in their solid waste and recycling efforts, many of which were enabled through RCAP’s broad array of services available through our solid waste technical assistance programming.
Training for AWIA Compliance
Now FREE for Small Systems

Students will learn about the 2018 America’s Water Infrastructure Act (AWIA) requirements and how utilities may apply the various AWWA standards and resources to aid compliance.

UTILITY RISK & RESILIENCE CERTIFICATE PROGRAM COURSES INCLUDE

- Facilitating Compliance with America’s Water Infrastructure Act of 2018 (EL260)
- Security Practices for Operations and Management (EL261)
- Risk and Resilience for Water and Wastewater Systems (EL262)
- Emergency Planning (EL263)
- Cybersecurity Guidance and Use Case Tool (EL250)

FREE for Small Systems only.

LEARN MORE: awwa.org/smallsystems

American Water Works Association

RCAP
Both natural and man-made disasters can quickly create a need for waste management responses in recovery efforts. Ensuring public health and safety is part of solid waste management planning. That is why solid waste managers regularly consider how to properly collect, handle, transport, and dispose of solid waste using safe methods for both employees and residents. Response during and immediately following a disaster can require special considerations.

In advance of a disaster, preparing for debris management is a small investment of time that will reduce the response time required and minimize the stress on municipal resources.

Disasters and Debris
Following natural disasters such as hurricanes, ice storms, floods, wildfires and tornadoes, communities are often faced with large volumes of debris that require significant cleanup efforts.

Disaster debris often includes the following categories of waste:
- **Yard** – vegetative waste including downed trees, stumps, limbs, and other debris
- **Bulky** – carpet, furniture, bedding, and other large items
- **Construction and demolition** – building materials from downed structures, downed utilities, destroyed roads and other inert wastes
- **Hazardous** – oils, fuels, pesticides, and other chemicals that require special waste handling
- **Electronic** – televisions, computers, laptops, and accessories that require special waste handling in many jurisdictions
- **Scrap metal** – vehicles, metal roofing, appliances, and other recyclable metals

Disasters amplify the need for solid waste management planning as disaster debris management can be extremely costly for communities and create a burden on budgets that are already tight. Planning for emergency debris management can prepare solid waste managers to respond more quickly and safely following a disaster.

Managing Disaster Debris
Debris management begins almost immediately following most disasters. Removing debris, including downed trees, power lines, and structures, will often be crucial to life-saving emergency response efforts. During this early emergency response phase, debris management will focus primarily on the clearance of roadways and access routes for emergency responders.

As the immediate emergency response begins to transition into recovery efforts, larger-scale implementation of debris management response will begin. Management of solid waste and debris is a critical function of the recovery period. During this period, solid waste management functions are focused on continuing operations for regular solid waste services, and large-scale debris collection and disposal.
Writing a Debris Management Plan

A debris management plan is a written document that outlines the resources available for debris management in the community and the surrounding geographic area. The document will identify procedures for collection, transport and disposal of solid waste resulting from the incident. The plan should be written to provide detailed information about emergency contacts, established mutual aid agreements, procedures for assessing the scale of response needed, and disposal needs. In addition, it is not uncommon for local solid waste managers to be personally affected by the disaster and unable to provide immediate response and leadership. The author of the plan may not be leading the implementation following an emergency. Therefore, the plan should be written so that even a stranger would be able to pick it up and use it during the disaster recovery phase.

Every debris management plan should include the following sections:

Contacts for local solid waste decision-makers
This section will typically include emergency contact information for the chief elected official(s) of the jurisdiction, the solid waste manager and local emergency management service contacts such as fire, police and medical responders.

Considerations and procedures for assessing the scale of response
Answer questions such as who will conduct the assessment, when will the assessment occur, what will they be looking for during the assessment, and how will the results be communicated to decision-makers.

Regional contacts for the recovery effort
Beyond the local jurisdiction, include the agencies that should be contacted for involvement in the recovery phase. Identify agencies such as regional or state emergency management officials, hazardous materials (hazmat) teams, state regulatory officials, funding agencies and others. Include detailed emergency contact information for these resources.

Local and state regulatory requirements for debris management
Include copies of local and state regulations that outline emergency response requirements, solid waste management rules, required permits and temporary permits, and provisions for exceptions to the rules following a disaster.

Temporary debris management sites
Often, temporary collection sites are needed for the consolidation of waste and preparation for disposal. This section of the plan can outline site selection factors such as: location, accessibility, available space, owner agreements, and stormwater management factors. Locations may be pre-identified according to the factors in site selection. Pre-selected site location and owner contact details should be recorded. A survey of jurisdiction owned properties or properties of neighboring jurisdictions should be included in the planning.

Disposal facilities
A survey of transfer stations, landfills and recyclable materials recovery facilities should be conducted. Details about the location, distance and disposal guidelines for each facility should be included in the plan. Record what types of materials will be accepted at the facility if there are any specific restrictions or disposal requirements for the facility. Record contact information for the facility and be prepared to reach out to each facility at the time of response to verify disposal guidelines and fees.

Disaster Contractors
Many jurisdictions will find it necessary to hire additional contractors to assist with the debris clean up following a large-scale incident. Heavy equipment such as backhoes, grapple trucks, boom trucks, dump trucks and others may need to be hired by contract. Some contractors may be hired to help complete assessment work. It is a best practice to identify qualified contractors in advance of an incident.

Contacting them and getting them set up for service contracts through your jurisdiction’s contract/purchasing procedures before you need their assistance will ease the challenges at the time of incident response. Remember, these contractors will be in high demand following an incident. Recording the emergency contact information and pertinent details regarding the services they offer in your debris management plan will save critical response time. Reach out to contractors early after the incident to ask them to be on standby as assessments are being completed. This allows them to prepare for mobilization while you are determining specifically where and when they will be needed.

Responder safety
Managing solid waste operations requires local governments to maintain regular assessment of employee skills and training to safely handle, transport and dispose of solid waste in communities. Following a disaster, solid waste employees often become part of the disaster recovery efforts to restore public health and safety. During the recovery effort, public works employees are often considered essential staff and requested to report as soon as possible. Many will leave their family situations and personal recovery efforts to respond to community recovery. This places additional stress on employees during an already difficult situation.

Jurisdictional leaders need to recognize that added stress and extreme environmental conditions require extra attention
to safety during disaster response and recovery. Use this section of your debris management plan to include regular safety information for staff and record additional safety measures that will be needed according to the disaster situation. Outline procedures for location and use of personal protective equipment (PPE). Include important contacts for suppliers of PPE, first aid and medical supplies and other safety equipment. Describe requirements for response teams’ assignments, including a safe number of team members, leadership structure and function. It is recommended that you include contacts for local emergency response agencies in this section of your plan and other sections where users of the guide may need to find this information.

Funding Debris Disposal
The cost of debris disposal can be an enormous burden for many communities. Financial restraints can impact the recovery process. It is important to consider the financial needs of disaster recovery during the planning process. State and federal regulations will allow for designations of the disaster areas, which will, in turn, provide opportunities for communities to submit a request for emergency funding following an incident.

Record state and local emergency contacts that can help you through this process. Include procedures and processes that will initiate approval for emergency funding. Include procedures for tracking expenses incurred for Personal Protective Equipment (PPE), and other equipment and disposal costs that may later be eligible for reimbursement. Make note of technical assistance providers, such as those in the Rural Community Assistance Partnership (RCAP) network, who may be available to assist you with funding identification and application.

Public Outreach Following a Disaster
Last, but certainly not least, is the preparation needed to direct public response during this period of cleanup and recovery. Residents of your jurisdiction will need information about how they can manage the disaster debris following an event. They will need to know what special services will be offered. Will curbside collection be available to them, or will they be required to transport debris to collection sites? If curbside collection is available, what type of staging requirements will be necessary? If debris must be transported personally, what types of debris will be accepted and where? Will the burning of vegetative debris and wood waste be permitted? Many of these decisions can be considered and planned in advance of an incident. Following a disaster, these considerations can be modified according to type and scale of the event response needed.

It will be important to communicate with the public early and often following a disaster event. Use this section of your debris management plan to address these advance considerations, as well as list key contacts and supports for public outreach. Note any jurisdictional social media accounts, who administers them, and emergency contact information for administrators of those accounts. Include local media contacts, names and contact information for all support organizations that may have robust public outreach capacities. If your jurisdiction has an assigned public information officer, be sure to include emergency contact information for that individual.

Don’t forget your updates
if and when your community experiences a disaster, the effort and planning that goes into developing a debris management plan will be well worth it. But keep in mind, the initial work of developing this plan is only the first step. Updates to the plan should be made at least annually, and any other time a change in point of contact or staff merits the review. The plan should be readily accessible, with copies available throughout the jurisdictional offices including the mayor, county judge, public works director, emergency management office, fire, and law enforcement departments. Any time an update is made, all copies should be replaced with updated documents.

It is a best management practice to conduct an annual review of the plan with staff and employees to make them aware of the document and its location and the value of its information. Developing this document will save time, stress, and promote efficiency for your community at a time when all those things are crucially important.
Drug overdose is a leading cause of injury-related death in the United States. Over 70% of overdose deaths involve an opioid like prescription painkillers, heroin, or fentanyl. Small towns are often struggling, and it is our job to help. Midwest Assistance Program (MAP) and its parent organization, Rural Community Assistance Partnership (RCAP), assist rural communities and see the impacts of drug abuse while working with water and waste operators, clerks, elected officials, staff and community members. Misuse of opioids not only impacts the budget, it impacts how the community measures up in terms of health care and schools — and it shows up in other measures that you would never imagine, as well as in the hearts of every person in a rural area.

This is not new, but something can be done about it. It’s possible to improve the intervention measures with something simple, such as cleaning up the medicine cabinet. Open the medicine cabinet and see what’s expired. On average, there is some medicine left over from a previous surgery or medical condition, and another from not finishing a prescription. Although keeping them seemed like a good idea at the time, now they are likely to be more dangerous than helpful. Friends or family may help themselves to the supply with or without the owner’s knowledge or consent.

Under no circumstances would you want to find that someone took your pills and used them or sold them to someone else, causing harm. It’s always best to finish a prescription or dispose of any medicine you don’t use, instead of keeping it. Tear off the label and take it to a disposal site — or find out if your pharmacy takes returns. If they do, that is great.

Supporting Drug Disposal Education and Awareness

Within the solid waste program, MAP and RCAP have a goal to help low-income rural communities provide environmentally sound waste disposal facilities and strategies to their residents. This will help protect public health and encourage economic development. RCAP programs focus on serving the communities most in need.
need with funding from the United States Environmental Protection Agency (EPA), United States Department of Agriculture (USDA), and Office of Community Services (OCS). Population, income, poverty level and compliance are all taken into consideration when prioritizing services.

The activities of RCAP’s current USDA-funded solid waste program fall into one of seven categories: 1) community recycling and education/outreach; 2) disposal of prescription drugs including opioids; 3) training on operations and maintenance, including training on household hazardous waste management, composting, and food waste reduction strategies; 4) school recycling and re-use programs; 5) illegal dumping prevention strategies; 6) the development/update of Integrated Solid Waste Management Plans; and 7) tribal and Alaska Native village projects.

According to census.gov, Warsaw, Missouri has a 25% poverty level with a median household income (MHI) of $33,152 which is less than half of the national average. Drugs in rural America are a concern that cannot be ignored, and we must educate and increase awareness in every generation.

Initially, MAP worked with Warsaw Operator, Alan Kihn, on compliance efforts and permit coordination with the Missouri Department of Natural Resources (MDNR). Assistant Superintendent Christian Meier and Operator Kihn reviewed information on the prescription take-back partnership available with MAP and RCAP, then worked with MAP staff Ross to establish Red Ribbon Week in October as the designated distribution time for 600 envelopes. Missouri Department of Education recognizes drug abuse and prevention campaign annually with Red Ribbon Week and supporting the program while cleaning up the community helps everyone. MAP discovered the key to the program in Warsaw was the school nurse, Krystal Finkenbine.

As part of Red Ribbon Week, an alcohol, tobacco, and other drug and violence prevention awareness campaign, Warsaw Elementary Counselor, Mrs. Flores, provided students attending Warsaw public schools with pharmaceuticals handling education, including instruction and prepaid postage disposal bags. This program, coordinated with MAP and RCAP, focuses on helping small communities like Warsaw, Missouri, address the opioid epidemic.

As elsewhere, COVID-19 presented an additional hurdle as schools were not allowing public entry due to the pandemic. Fortunately, a MAP staff member already had an education degree, a completed background check for working as a volunteer with children, and all necessary vaccinations based on operator certification. Nurse Finkenbine was able to meet with the MAP TA provider for the delivery of the drug take-back materials, but MAP was not on site during the in-class training with Mrs. Flores. If we have learned anything over the past year, it is to adjust our traditional model as needed.

The Missouri Department of Education had resources available and Warsaw schools had lesson plans established for Red Ribbon week which MAP and the aforementioned nurse and teacher were able to leverage for this successful school event. There are also resources available on the Drug Enforcement Administration (DEA) website, such as:

- Lessons — https://www.getsmartaboutdrugs.gov/content/resources-educators
- Social media info — https://takebackday.dea.gov/content/partnership-toolbox

RCAP’s Prescription Take-Back Partnership
RCAP proudly partnered with Stericycle, a leading provider of environmental and regulated waste management services, to ensure the safe disposal of prescription medication. This avoids contamination of water systems, source water, and other illegal dumping sites through the improper discarding of medication. According to the World Health Organization (WHO), people flushing unwanted or excess pharmaceuticals down the toilet is one of the main contributors to pharmaceuticals being found in wastewater and surface water. To combat this, RCAP provided communities with seal-and-send medication mail-back envelopes. Each envelope holds up to eight ounces of medication and they are waterproof, spill proof, tamper evident and tear resistant. The postage is pre-paid for each envelope to allow people
to safely and easily dispose of prescription medications.

This mail-back program is designed to play a small but important role in combating the opioid crisis in America. While the issue is not disproportionately rural, many rural areas across the country are fighting this battle. RCAP understands the importance of maintaining safe water, wastewater, and solid waste disposal systems in rural communities, as well as the impact that unsafe disposal of opioids can have on the health of a region.

MAP and RCAP had success with the prescription take-back partnership earlier in the year at an Earth Day distribution event. We gave out 300 pre-paid envelopes in Buchanan County R-IV School District (De Kalb/Rushville, MO) as well as another 25 at the USDA Senior Housing in Bethel, Missouri. Senior housing is a focus to prevent cleaning out a home and tossing or flushing large quantities of medicines when someone moves or passes. Often large quantities, whether it’s a meth bust or other drug-related dump, can be seen impacting the wastewater lagoon of a small rural community; this can cause compliance concerns and be costly. This is just a sampling of successes in Missouri but the take back program has been implemented in rural areas around the country over the last few years.

We look forward to working with others to help with solid waste programming and encourage everyone to help ease the burden by taking care of your community.

**TIPS AND TRICKS FOR SAFE DISPOSAL**

- Remember to remove labels with personal information.
- See if your pharmacy will take back unused prescriptions.
- Large stores such as CVS and Walgreens often have take-back programs.
- The FDA has a list of what is allowable to flush only if there is no take-back available.
- To learn more, read this paper on 15 active ingredients and their environmental risks, “Risks associated with the environmental release of pharmaceuticals on the U.S. Food and Drug Administration ‘flush list’.”
- Search for “drug disposal near me” or “medication disposal near me” to find your nearest drug disposal site. Your computer should find the location — Google Maps will help. If you do not have a computer, you can call this number to find a local location for disposal: 1-800-882-9539.
Vermicomposting in Florida Schools during COVID-19

Rachel Silver, Southeast Rural Community Assistance Project (SERCAP), Technical Assistance Provider
A 2012 Yale research team found that much of the waste dumped into landfills each year consists of organic waste (21.4%), and the Environmental Protection Agency (EPA) estimates a higher rate at 34.5%. Organic waste consists primarily of everyday items such as paper product packaging, animal and plant-based materials, food scraps, newspapers, cardboard and other paper-based material.

In response, the RCAP Solid Waste program funded by the United States Department of Agriculture Rural Development (USDA RD) in Florida has the goal of reducing the amount of organic waste destined for landfills by using worms to vermicompost. RCAP’s partner in the southeast, the Southeast Rural Community Assistance Partnership (SERCAP) has a robust vermicomposting program that is supporting this effort and helping to build capacity for similar programming in other regions of the country.

What is Vermicomposting and How it Helps

Vermicomposting or worm composting is the biological breakdown of organic wastes using specialized earthworms--red wigglers (Eisenia Foetida). After the worms eat and digest the kitchen scraps and other types of organic matter, they leave behind vermicompost (their poop) which is also referred to as worm castings, vermicast or Black Gold.

Red wigglers are especially good composters. Given ideal conditions, red wigglers may consume 25% – 35% of their body weight per day, reach maturity in 9 weeks, and live 4-6 years. Their basic needs can be met by only a box with holes drilled for ventilation, shredded paper or coco coir for bedding, and food scraps. A red wiggler population can double in about 60 days! They are hermaphroditic, which means that each worm has both sexes. But, a worm must mate with another worm to reproduce. They produce “cocoons”, a tiny lemon-shaped capsule that will contain 3 baby worms on average. Typically, red wigglers thrive in temperatures between 65 F and 80 F (18 C – 27 C) (http://www.wormfarmfacts.com/). Red wigglers are photosensitive and only work in the dark, making a stackable worm tower a perfect home for them.

Landfill waste has a significant environmental impact. Waste decomposes very slowly, which leaves the land useless during the time in which a landfill is being utilized. Organic waste in landfills also undergoes anaerobic decomposition because of the lack of oxygen and generates methane. When released into the atmosphere, methane is a greenhouse gas that is 25 times more potent than carbon dioxide (https://unece.org/). In addition, areas near landfills have a greater possibility of groundwater contamination from leachate originating from the landfill (https://blog.idrenvironmental.com). We could and should do more to divert organic waste from the landfill and instead vermicompost it!
Supporting Vermicomposting in Florida Schools

In October 2020, SERCAP reached out to PJ Duncan, Director of the Office of STEAM (Science, Technology, Engineering, Art and Math) Standards and Instructional Support, Division of Public Schools with the Florida Department of Education, seeking guidance on aligning vermicomposting activities to state STEAM standards. Duncan and her colleague, Nancy Narvaez-Garcia, volunteered to and are currently working on aligning those standards so that SERCAP may use them moving forward to work more seamlessly with teachers. In addition, Duncan would like to highlight SERCAP’s vermicomposting program through their current state efforts such as: STEAM Update, the Florida STEAMposium and the Florida Association of Science Supervisors. Duncan also put SERCAP in touch with Project Learning Tree (PLT).

PLT is an award-winning environmental education program designed for teachers and other educators, parents, and community leaders working with youth from preschool through grade 12. Jessica Ireland, Coordinator, Florida Project Learning Tree at the University of Florida, School of Forest Resources and Conservation reached out through her network of teachers and found several individuals who were keen to participate in SERCAP’s vermicomposting program starting immediately. PLT has a presence in every state and is a good partnership to potentially explore for mutual benefit.

Current vermicomposting projects in Florida include Lake Butler Elementary School in Union County, Williston Elementary School (WES) in Levy County, and Riversink Elementary School and Wakulla Educational Center (WEC), both in Wakulla County. The classroom teachers involved are all part of PLT and seek hands-on learning experiences for their students, some of which are in the STEAM program. The WEC is a pre-K school, offering the Exceptional Student Education (ESE) Program, Voluntary Prekindergarten (VPK) and Head Start. There are 3-5 year-olds vermicomposting in Wakulla County! All these schools met USDA eligibility guidelines and were keen to show their students that organic waste can be diverted from the landfill and repurposed in a beneficial manner.

Educating Students on Vermicomposting During a Global Pandemic

By the middle of October, SERCAP had a worm tower mailed directly to each school from Uncle Jim’s Worm Farm. Last year SERCAP...
used a large, 3 tray worm tower at project schools. This year, SERCAP purchased smaller, 2 tray worm towers. Given only 6 months of instructional time due to the COVID-19 pandemic, a smaller bin was chosen to enable students to see the whole vermicomposting process and get to harvest vermicompost at the end of the school year. A smaller bin allows for a quicker turnaround and consequently a better opportunity to harvest vermicast. A smaller tower is also better for smaller hands, such as the students in Head Start and VPK at WEC.

The next step was getting the red wigglers mailed to the project schools successfully from Our Vital Earth in Apopka, FL. The initial push was to have them mailed out during the first week of November 2020. However, with the presidential elections occurring, the shipper decided to wait until the following week to avoid delays through the United States Postal Service (USPS). Unfortunately, despite thoughtful planning, delays still occurred due to Veteran’s Day closings and then Hurricane Eta. For these reasons, the worms were not released into their worm towers until later and spent almost a whole week traveling. Thankfully, all the worms survived!

SERCAP went to the first two schools and set up the bins in the classrooms with the students. Because COVID-19 cases in Florida continued to increase, SERCAP decided further site visits to schools was too risky. The subsequent two worm bin setups were conducted via Zoom, a video conferencing tool. These turned out even better than SERCAP had anticipated. The students, the teachers, and SERCAP all adapted to the online platform seamlessly and successfully. All four worm towers were successfully set up by the Thanksgiving break.

Once the worms had settled in, SERCAP conducted the second Zoom class. This session used Ted Talks and other instructional material to discuss landfills at capacity, how worms can help with decomposing organic waste, and time lapse videos of worms eating. The kids loved these videos! SERCAP also always reserves time in each meeting to discuss how the bin looks and how the worms are behaving. It was during this second meeting where Rikki D. Richardson, a teacher for STEAM 3rd-5th at Williston Elementary School, asked if the tower would need to be taken home over the winter break. After SERCAP explained they would be fine left in the

---

Student Examining Compost
classroom unattended, she exclaimed, “this is the best class pet ever”!

Measuring Results and Looking Ahead
To demonstrate successful conveyance of information, a pretest was given to every student prior to any instruction provided and a post test will be provided at the end of the instruction period. The difference in the score results will determine knowledge gained. SERCAP’s goal is that 80% of the students will have achieved a 10-20% increase in knowledge. The contacts at each school will also be asked to complete a survey on SERCAP’s vermicomposting program in FL. SERCAP wants to improve the deliverables for subsequent years and their input will be valuable for improvement. Subsequent instructional material to all project schools will be conducted via Zoom. SERCAP is creating five different subject training areas to provide over a series of five online sessions that will be conducted during this school year and should be completed by June 2021 when school closes for the summer. SERCAP can educate the students on important environmental concerns such as landfill capacity, food diversion, sustainability, permaculture, ecology, protecting water resources, worm anatomy and lifecycle, improved soil functions, regenerative agriculture and pharmaceutical pollution in our waterways. There is also an opportunity to distribute mailers for RCAP’s Drug Take Back Program [link to one-pager or video] by simply mailing them to the schools in advance in coordination with that specific Zoom learning session. All these subjects will soon be aligned to state STEAM standards by PJ and her team at the FL Department of Education.

Vermicomposting in the classroom has many benefits. The footprint of the bin is small, when managed properly, it is odorless, and it makes for a wonderful class pet. It is a tool for teaching young minds the importance of food diversion and the use of “waste” to feed an organism that will provide an organic fertilizer. In addition, it is meeting Florida’s educational STEAM standards through a hands-on structured experience - helping growing minds understand how to be more responsible, sustainable players in our own ecology. 🌍
What do operators & well owners have in common?

Advocates across the RCAP network and at the University of Illinois!

WaterOperator.org and PrivateWellClass.org are sister programs that serve a unique role by providing training and technical assistance exclusively via the Internet, supplementing the critical work performed on the ground by RCAP network staff.

WATEROPERATOR.ORG
All the best resources on the web for small system operators in one place.

PRIVATEWELLCLASS.ORG
Helping homeowners learn how to care for their private drinking water well.

- 11,000+ events indexed annually
- Exhaustive document library
- Biweekly newsletter for operators
- Free groundwater and well care class

- Free 10-lesson email course
- Monthly live webinars
- Audio and video materials
- Extensive resource library

WaterOperator.org and PrivateWellClass.org are collaborations between the Rural Community Assistance Partnership and the University of Illinois, through the Illinois State Water Survey at the Prairie Research Institute, and funded by the U. S. Environmental Protection Agency.
My indigenous - Alaskan Yup’ik name is Arnariaq. My government name is Evelyn Agnus, and I come from a family as the second oldest of 10 siblings. I grew up in the southwestern community of Chefornak, Alaska during the winter months, and my family migrates to Umkumiut, Alaska during the summers for subsistence. I am the first in my family to graduate from college. My parents are Paul (Nuraug) and Nora (Cagluag) Agnus who were the first to attend boarding school in St. Mary’s, Alaska. My paternal grandparents Simeon (Unaangiik) and Anna (Avegyaq) Agnus, and maternal grandparents Cyril (Kayuungiar) and Agnes (Avegyaq) Alexie all grew up living our traditional native lifestyle.

It has been both extremely important and beneficial to translate source water protection and solid waste outreach materials from English to my indigenous Yup’ik language for Yup’ik-speaking communities. Growing up in the tribal village of Chefornak and Nightmute, my primary language was Yup’ik, until the third grade in elementary school when I started transitioning to English, which felt quite challenging at the time. My teachers were predominantly Yup’ik teachers, who understand the challenges of speaking English for the first time. Elders often visited our school and instructed us that we should only use English in school and work in the future, but speak only Yup’ik when we are among our family. By the seventh grade, we were taught
to record our elders with cassette tapes, and practice translating Yup’ik to English on paper. This was the way our elders wanted us to grow up, so when we started working, we would have the skills to translate the language. Being bilingual is a strength that helps me excel at a high level of thought, multi-tasking, and sustained attention. I found that I have sharper cognitive skills to think, read, learn, remember, reason, and pay attention because I am bilingual in my primary native language and English.

RCAC is currently working with the Tribal Yup’ik Village of Akiachak, under our U.S. Department of Agriculture Rural Development Solid Waste grant. Akiachak is a remote (no road system) traditional Yup’ik community located 400 miles west of Anchorage on the Kuskokwim River. The class III landfill there is unlined, unmanned, and unfenced, and an assessment is needed to determine if any contamination is affecting source water. Only 50 percent of the local households are served with running water. The landfill comingles human and solid waste. As is the case throughout rural Alaska, the cost of “backhauling” waste out of Akiachak makes reducing the waste stream a vital need.

Our grant work objectives include:

1. Assessing any potential contaminants from landfill to source water.
2. Training landfill operators to manage and operate local landfills properly and safely, to protect public health and reduce environmental issues.
3. Reducing honey bucket (a toilet which does not use water and has to be emptied manually) and solid waste commingling.
4. Increasing re-use and recycling opportunities to reduce the waste stream going to the landfill.

Working at RCAC gives me the opportunity to teach the Yup’ik communities about the importance of environmental awareness. Tribal governments are nations within a nation, as they have their own laws and governments. Many tribal communities suffer from financial poverty due to a growing population, limited job opportunities and poor health care systems. Outside projects such as construction and demolition often occur at tribal communities in Alaska, and solid waste is generally collected and placed on the ground in uncontrolled “open dumps,” which are often unlined Class III landfills, or are un-permitted. Since these open dumps are unmanaged, they are disease vectors and the source of unpleasant odors, windblown debris, and other nuisances which can limit tribes’ economic sustainability. The dumps can contaminate groundwater and pollute nearby streams and lakes on the tundra watershed. A highly toxic liquid called leachate is generated from garbage decomposition and precipitation that infiltrates and percolates downward through the volume of waste material. When leachate reaches and mixes with groundwater or seeps into nearby bodies of surface water, public health and environmental quality are jeopardized. The need to understand these environmental challenges is why, I believe I should be translating materials. Doing this translation to support outreach and education in this community would mean I am returning to a skill that I was trained in growing up. And as a technical assistance provider (TAP), I feel that it is my civic and tribal duty to work as an environmental protector and protect drinking water.

The Alaskan Yup’ik cultural language and values demonstrate leadership and integrity that align
simultaneously with the way we genuinely live in arctic conditions. The responsibility to revitalize and preserve my culture is also about the survival and mastery of the wisdom the elders taught us and leads to a complete understanding of the Yup’ik way of life and our place in it. The elders taught us to never forget the unwritten rules and instructions of living a sustained life. A leader must learn by paying attention to other people’s knowledge because we share what we know and use our perceptions to learn from others who specialize in other subjects. This principle is to balance the ability to see situations from multiple perspectives and differing viewpoints to gain more understanding. To find balance means to consider all sides and opinions with an open mind, and to have self-confidence to recognize our own strengths and weaknesses, which leaves room for improvement. One of my favorite values as a leader is humility. I can never forget who I am, and where I came from. Humility keeps life in perspective as I continue to experience success in my chosen career. In addition, it helps me value each person I encounter and treat everyone with respect.

Using geographic information system (GIS) technology teaches communities to visualize source water protection and pollution prevention. The Alaska Department of Environmental Conservation has GIS maps for source water protection in each community with a water system, and it is useful to publish the maps for education and outreach. I use my skills and knowledge to assist communities to protect their inheritance, the environment, land usage, and transportation with those printed maps. GIS tools can be used to map the water and wastewater system and to address environmental issues including the ecological importance of water quality. Using groundwater protection boundaries creates effective land-use planning in a community, including zoning ordinances for development management. Using GIS in my work as a TAP shows that a tribe or community can map, manage, and monitor their preserved land as a tribal sovereign nation. Explaining maps in the Yup’ik language is beneficial to help leaders understand their development needs. As sovereign tribal governments have a responsibility for the health of their tribal members, and
Those who tell the stories rule the world.

Cultivating a sea of innovators in water communication and education.
roguewaterlab.org
to maintain their subsistence way of life, mapping their water, wastewater, and solid waste systems can help meet water quality standards, preventing the destruction of their clean surface or groundwater, so they can make sound governance decisions on how to manage their land.

I face challenges in my ability to translate between the two languages when there are no words in Yup’ik from English, and I try to find ways to make those words understood today. I do my best to translate between the languages and cultures and practice patience when helping Tribal leaders understand I am educating them so that they can make the best decisions to govern their citizens. The result of my TAP work at RCAC is beneficial as I bring together the languages I was taught, the use of GIS technology, and a desire to protect the environment in rural communities.

An example of material translated into Yup’ik is below:

QAILLUN MEQ AARR’CAUCUG’NGASIA?
Tangernarr’patun meq tanger’elluku qaillun arr’caucugngallr’nak, tautuk caliitultim meren tunginun nalluunairarr’kaugut anguuyag tet cali ilakelluki.

Inerrquaitellriit:
- Elitnaurluki yuut naken meren pilarr’ta, cali qaillun meryunairutelalla caarr’elluum akutaqaagau.
- Enem iluanek aamarr’qelrit quyurrelluki – amilleryuicaaqt tuaaam menuen riskata wallu nunaanun egeskunang aarlariitut mer’hun qurr’ellutuameng. Wallu kuik man’a waten paankaalerer-llu cavagnalquq-llu man’a maavet igpakaan neqem amleren itengairutaa, tuaigga meq assiircami.
- Allaamek merrarkamek yuanricuukuvci, assir’aarcuruki egtarrkat piaqel-luki merrarkaci aarcauter’ellainarluki.
- Merrem avaatinni caliiyunaituq, nunam acian meq pitekelluki.
- Paangkallret uqullkumek wallu kalassamek kuivillrukan upingaureluten pikiina, aqulluku ciunerrkaq.

Inerrquimalriit:
- Inerrquimalriit merrem avaatinni aturrarkaunritut aamargelrianeq caarr’elluum/carririsuutu’ugullkuut.
- Merrem avaatinini naparr’cinilnggraameng kalikakun inerrquimalriuke piyunggaaput (kalikat unakusunggaut qill qigaaller’kaaun ADEC-mek).
- Callirrii avaatinni merrem inerrquutangqerr’sunggaut allat merrem avaatintellrii.


Merrem Yurviallerrkaa Nallrunricarkat Caliituliinun Mermem Caliivimiini

Merrtavik Cauga? Cauga Aarnarrqelriit?

Cauga Yurviallerrkaa Merrem?

Cauga ADEC-iim Yurvilarrtatki Meq?

Cauga Meq Nakenqapiaq Tailallra?
Una aperyaraq, naken meq tailallra melartutuk unuaaqanq tamerr. Una meq nunam acian qurrelalarruq, aperumaalun ground water source. Meq kuiigmek, nunvamek, qerrluliramek aperrpamauq surface water source, merrem qaingken merrtarvi pilallrai.
Rural Community Assistance Partnership

A nonprofit network reaching rural and small communities in all fifty states to improve quality of life.