Laurence Anthony
EARTH ORGANIZATION
UNITED STATES CHAPTER

CoEco
Cooperative Ecology

ANNUAL REPORT
2021

Restoring ecosystems to enhance the health and future of all life...

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A MESSAGE FROM OUR PRESIDENT

Barbara Wiseman, Intl. President

It is a demonstrable fact that a human, another life form, or an entire species only brings about a successful life for themselves by actively enhancing the life and things around them upon which they depend.

This fundamental concept is the guiding principle of our organization and is an indispensable tool by which potential solutions can be evaluated as to their actual value. The term we created for this, Cooperative Ecology™ (Co-Eco™), is the study of the cooperative relationship between life forms, and between life forms and the natural world. Whether environmental sciences, for example, bring about a steady improvement for life forms and the material world or whether they create imbalances determines their usefulness in resolving problems.

This approach to finding workable solutions *that help and benefit all involved in one's community and surrounding ecosystem* necessitates considering all parts of the issue: all life forms affected; impacts on the natural world; economic, scientific, and regulatory policies; effects on businesses; and the interdependent relations between each.

By approaching problem solving from this comprehensive viewpoint, we have the highest probability that today's solution will advance conditions towards far greater well-being.

We take on large-scale environmental issues to find CoEco solutions; then implement them or get them into the hands of a group(s) who will competently do so. This CoEco method of problem solving is braided throughout all that we do. The real results we achieve through its approach are what make us both unique and effective in improving environmental conditions.

Heron catching a ride on a hippo.

Despite the many unusual circumstances presented by a world impacted by dramatic challenges, 2021 was a very productive year for our U.S. headquarters. If you have been an active supporter of our work, we hope you'll share the same sense of pride we feel in our progress.

Barbara Wiseman
International President

OUR 5-STEP PROCESS

Understanding how one group can effectively take on such a wide variety of environmental problems becomes clear when our fundamental approach that makes this possible is grasped.

Simply put, when we take on an issue, we are looking for a solution that will bring it back to a healthy condition with no negative "tradeoffs." All too often we hear of an environmental "solution" put into practice that crashed an economy and negatively impacted people, jobs, and businesses. To state the obvious, that is not a real solution. To identify, organize and implement a CoEco solution sometimes takes years. The larger issues are invariably land mined with:

a) assumed-to-be-true information that is, in fact, false,
b) political or other vested interests who somehow benefit by it not being solved or by advocating for other, less effective approaches.

We have a defined set of five steps that we walk any environmental situation through that we decide to take on in order to get it stably moving towards progressively moving towards a restored and functioning ecosystem.

Those standard steps are:

1) Identify an important environmental problem;
2) Research it in depth to truly pinpoint its source;
3) Using logic, common sense, and science-based methods, find the correct technology and/or develop a solution that has no environmental tradeoffs and would work for all involved;
4) Implement the solution or get it into the hands of those who will. As a part of this step, we create educational and training materials, as appropriate;
5) Repeat steps 1 to 4.

While each situation has its own set of challenges, by following the steps above, we are uniquely able to take on a wide variety of environmental issues and bring about healthier conditions for everyone and everything involved.

OUR CURRENT FOCUS

While there are many critically important environmental issues we would like to take on, with our existing resources, **the U.S. Headquarters of The Earth Organization is currently focused on three key issues of critical importance and are walking them through the first four steps above:**

1) RESOLVING WATER ISSUES: clean water supply scarcities caused by severe drought, water contamination, and flawed water management practices that are threatening the health of habitats;

2) RESTORING DYING LAND, SOIL AND HABITAT: faulty technologies and toxic land and soil management practices that are reducing the health of ecosystems;

3) RAISING AWARENESS AND CONSTRUCTIVE ENVIRONMENTAL CHOICES: We conduct education programs that change the underlying cultural attitudes that throw people out of harmony with the natural world.

Following are brief overviews of our progress in these areas this year.

Solutions to the Growing Water Crisis

We made great progress this year intensively working to codify & implement remedies for what we have identified as **the most severe environmental problem humankind currently faces: the steep decline in clean water and healthy soils with ensuing desertification, impacting all life.**

Drought impacted area resulting in desertification.

While many years ago, discoveries were made regarding massive freshwater resources coming up from depths far below the shallow aquifers that the vast majority of water wells traditionally tap into, the existence of this enormous supplemental resource and the knowledge of how to access it has not been broadly known.

And despite living in an advanced technological age, we are still using toxic chemicals in agriculture, killing the beneficial soil microbes that are the driving force behind plants being able to access the necessary nutrients for health and resilience. The runoff from the overuse of these chemicals is contaminating our water and land. Thus, the overall health of these fundamental building blocks, water and soil, continue a rapid decline.

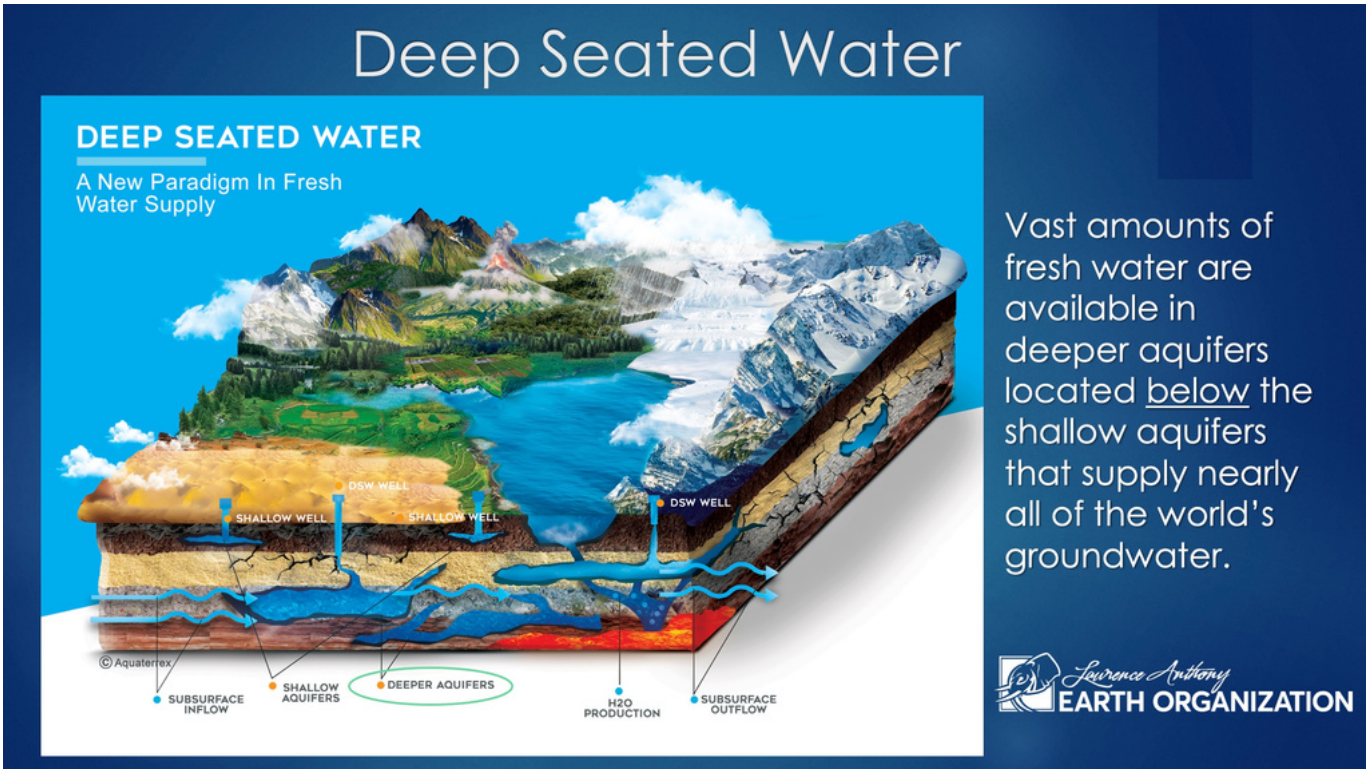
DEEP SEATED WATER TECHNOLOGY™

Our primary focus this year was on our Deep Seated Water Technology. While sections of this tech have been known and used by a handful of other scientists over the last 80 years, no one has adequately documented the full scope of the technology and its results, nor been able to overcome antiquated and fixed ideas in this field that have blocked its worldwide use and even hindered raising awareness of its existence. Thus, it was in danger of becoming a lost tech.

And yet the awareness of this alternative source of water and how to access it is the key to solving devastating drought and deteriorating farms, ranches, and other ecosystems.

What is Deep Seated Water Technology?

Deep-seated water is high-quality groundwater that is typically sourced from deep aquifers that are located below the shallow aquifers normally tapped into with water wells (see chart). Our Deep Seated Water Technology (DSW Tech) is a systematic method utilizing advanced technologies for locating previously-hidden, near-surface access points to these abundant alternative water resources. **DSW Tech is the missing piece in water management strategies, and it includes techniques that help to protect and preserve environments.**



BENEFITS OF DEEP SEATED WATER

Why is Deep Seated Water critically important and such fantastic news?

Locating Deep Seated Water resources offers a variety of benefits:

- It provides an alternative source of fresh water to resolve a looming water crisis in a drought-stricken area.
- As a supplemental resource, when sustainably managed, it can complement existing water conservation measures in each region.
- It provides clean, fresh water that has not been impacted by surface pollution.
- By accessing fresh water from deeper sources, it relieves stress on shallow aquifers and surface waters such as rivers, streams, and reservoirs, enabling them to recharge,[1] which can improve water quality and quantity and restore healthy ecosystems.
- **By adding a supply of deep-seated water to a region's water inventory, we can bolster water, food and general ecological security, as well as diminish political and economic conflict.**

1. recharge: to fill back up to previous water system levels.

KEY MILESTONES

HERE ARE KEY MILESTONES OUR SCIENCE AND TECH EXPERTS ACHIEVED WITH OUR DSW TECH THIS YEAR

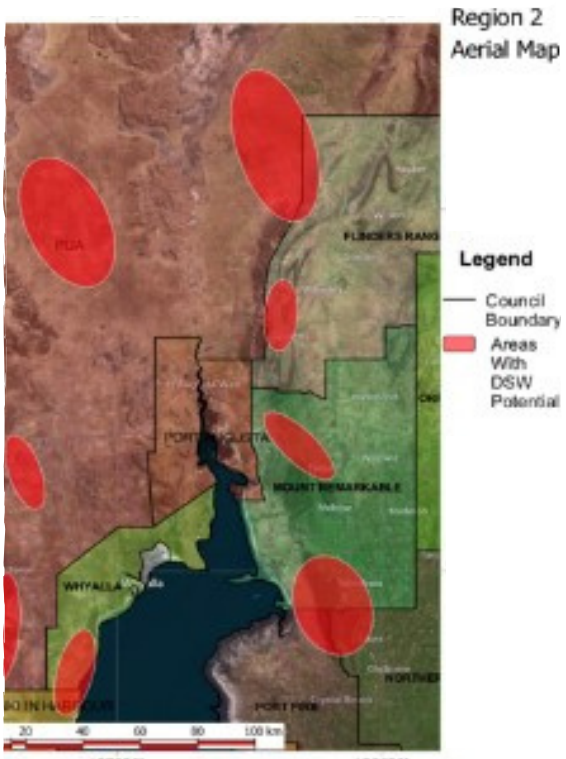
Diane Wagenbrenner-Stivey, Managing Director of Operations

Advanced Regional Water Studies for Australia & Southwest United States

Our hydrogeology team – Dr. Tigran Sadoyan, Arlin Howles, and Clark Carr – worked to improve technical methods by which regional studies are performed to identify the most likely, near-surface areas where deep-seated water can be accessed. This method arrives at the highest probability areas where in-the-field water exploration should be done. This work is helping landowners and regional governing bodies lower the risk of drilling dry boreholes in areas highly prone to extreme water scarcity.

We completed advanced regional studies for most of the province called South Australia, including the Adelaide Region, Port Augusta and the Flinders Ranges Region and mapped out several potential areas for further deep-seated water exploration. We also developed regional mapping for the Murray Basin and several large cattle/sheep stations (Australian ranches) including the Monash Station, Kokatha Pastoral, Roxby Downs, Purple Downs and Andamooka Stations.

We completed regional mapping of the Port Lincoln area and documented the salinity intrusion within the region. A detailed evaluation of the Tod River Reservoir verified that all of the farmers whose land was above the reservoir had built stock ponds that diverted almost all freshwater inflow directly into this reservoir. The water from those stock ponds that was being discharged into the drainage basin contained high levels of salt, fertilizer, and agricultural chemicals. This toxic water accumulated within the reservoir, which then had to be abandoned due to the highly toxic waters.



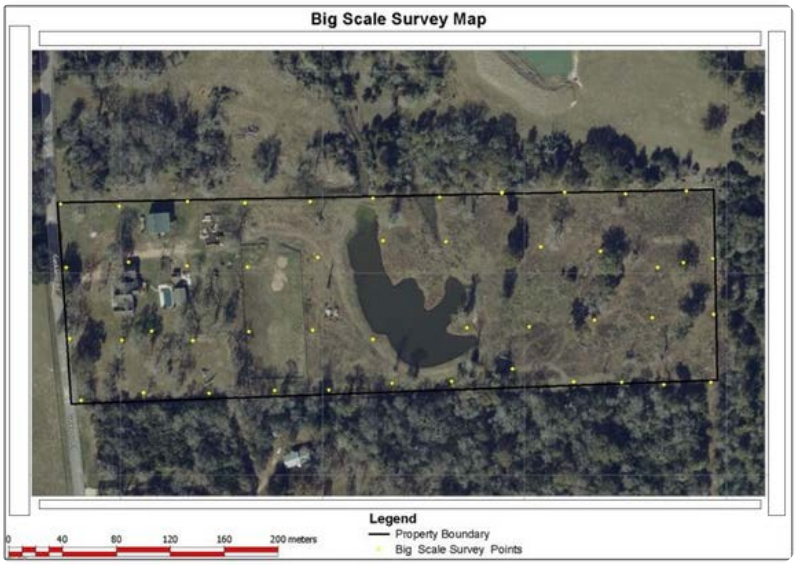
After conducting our first phase regional study of an area in South Australia, we identified Areas of Interest (AOIs) for further analysis (red ovals).

DROUGHT RELIEF SOLUTIONS

Advanced Regional Studies in Drought Stricken Southwest United States

The Southwestern United States has been undergoing severe drought. Individual landowners as well as regional planners are in desperate need of more effective water management strategies. **This year our progress in this region included:**

Conducting advanced regional studies in 12 regions of Texas, Arizona, New Mexico, and Nevada in preparation for more in-depth analysis on projects developing in those areas of interest we have identified.



Through remote analysis, we first identified several areas of interest for further exploration on a property in mid-Texas; then, using our advanced seismic equipment to assess the geology on-site, we detected a fractured rock pathway coming up from deep-water resources. Using the information acquired, we were able to pinpoint, within one yard, exactly where to drill for a likely source of abundant deep-seated water. (As of the writing of this report in 2022, a highly successful water well was drilled with a flow rate potential of between 800 to 1,000 gallons per minute.)

Bettina Koch, Chief Environmental Scientist

This R&D project added to our knowledge and the documentation and codification of our Deep Seated Water Technology including a soil restoration study by our Chief Environmental Scientist, Bettina Koch, for a section of the land that was highly contaminated.

Advanced Equipment for DSW Field Assessment Was Assessed and Acquired

Our advancements in the field of water location equipment utilization this year included the following:

We sent our Chief Hydrogeologist, Dr. Tigran Sadoyan, to Armenia and Russia to acquire a special device enhancing our capability to conduct groundwater field studies.

SPECIALIZED EQUIPMENT

**Dr. Tigran Sadoyan,
Chief Hydrogeologist**

Dr. Sadoyan trained with a top expert in this field on the use of this specialized equipment. Upon his return, we began using the device to narrow down precise drilling locations even more efficiently.

Through several field studies in California and Texas, we customized a process using instruments and specialized software for mapping below-surface geology and prospective DSW locations and documented the information for future training purposes.

As the average reported success rate for most water well drilling operations is about 40%, our advancements in analysis techniques to enable far more precise well drilling operations is an enormous leap forward for the science of water location and drilling. This included the development and integration of different GIS [2] software programs, creating an advanced, one-of-kind proprietary process for identifying water exploration zones.

In line with our 5-step process (page 2) to resolve severe environmental issues – in this case, severe water shortages – we then formalized the processes we developed into technical checklists to enable the training of others.

Using seismic equipment in hard-rock mountain terrain of California.

Water Quality Solutions

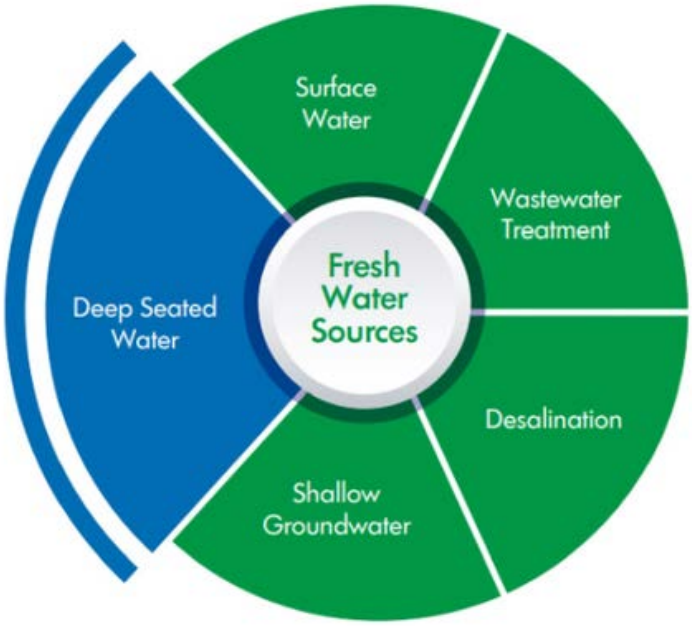
A necessary part of accessing groundwater supplies from any source is ensuring they are free from contamination. **This year we continued searching for best available technologies for cleaning water supplies and assuring that any contamination can be removed without destroying the natural health of the water.** After several years of vetting water filtration and structuring systems, we are now close to having a water testing and treatment protocol for which we can confidently advocate. There is more testing to do but, thus far, our research has had excellent outcomes for improving the quality of groundwater when necessary.

2. GIS: Geographical Information Systems is software through which one can input and layer data to create maps for advanced analysis.

THE MISSING PIECE

Raising Awareness of Sustainable Water Management Strategies

As the global water crisis expands, “solutions” being proposed and implemented are often so extreme that they are more destructive than constructive to economic health and, thus, from a CoEco viewpoint, cannot be considered real solutions – but real solutions do exist. Regional water management plans around the world are missing key elements to truly achieve sustainability and we have taken on the re-designing of current, widely accepted but inadequate water management strategies to bring them into alignment with natural laws and greatly enhance their ability to create truly sustainable water security for their communities.



DSW is the missing piece that will help solve the world's water problems.

AquaterreX is our largest Corporate Sponsor and, as a proud partner of the Lawrence Anthony Earth Organization, has helped support our R&D work to make real environmental solutions available for eco system restoration and water and food security.

This year our experts were presenters at three large groundwater conferences. Additionally, our staff did extensive groundwater and agricultural market research in the Middle East, North Africa, and United States farming regions as part of our study of best ways to overcome any barriers to the implementation of our Deep Seated Water Technology.

Clark Carr, Dr. Tigran Sadoyan, and Arlin Howles conducting water location assessment.

A basic training program was compiled and issued to educate those introducing DSW to others. The educational materials explain the basics of Geographic Information Systems and how our scientific DSW water exploration approach is unique and effective.

RESEARCH

Soil Restoration Solutions

As stated earlier, we are confident that **we have identified the most severe environmental problem humankind currently faces as the steep decline in clean water and healthy soils with ensuing desertification, impacting all life.**

Bettina Koch, Chief Environmental Scientist

"Desertification" is the process by which fertile land becomes desert, typically because of drought, deforestation, and unsustainable agriculture practices. It has been alarming to see the seemingly relentless advancement of desertification around the world. At the time of this writing, over one-third (38%) of the world's land is under threat.[3] Without healthy soil, desertification ensues, and more of our lands become desert and drought-stressed dead zones. Along with ensuring the availability of clean freshwater, restoring soil health is a fundamental factor in rehabilitating healthy landscapes, restoring streams, rivers and lakes and their interdependent ecosystems.

In 2021, our Chief Environmental Scientist, Bettina Koch, began an extensive R&D program to acquire additional technology for the design of a complete soil restoration program based on Cooperative Ecology principles (page 12). This included: soil testing and analysis to determine the extent of contamination; then, precise scientific protocols necessary for full remediation.

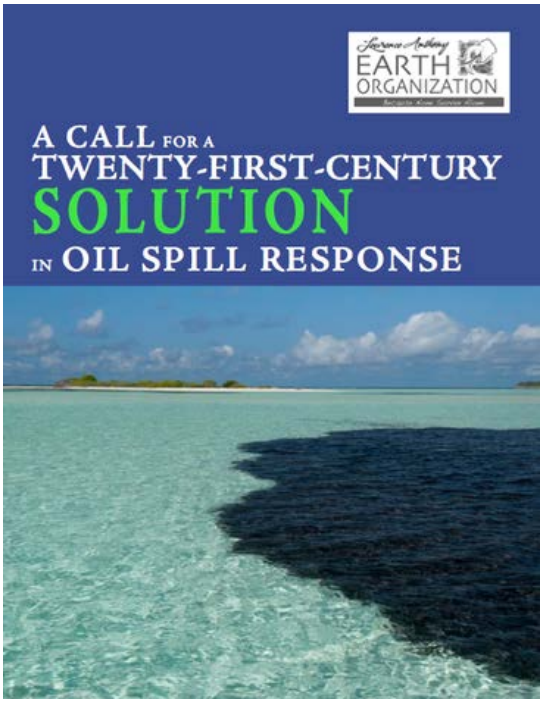
We are currently integrating a range of complementary soil restoration methods and technologies that restore and self-maintain soil fertility and productivity without the use of toxic, synthetic chemicals. We can facilitate the swift and entirely safe removal of many of the most prevalent soil contaminants from Ag chemicals. In addition, we are expanding our research into methods to enhance the activity of a plant's own internal processes.

3. Citation: Núñez, Montserrat; Civit, Bárbara; Muñoz, Pere; Arena, Alejandro Pablo; Rieradevall, Joan; Anton, Assumpció. "Assessing potential desertification environmental impact in life cycle assessment" International Journal of Life Cycle Assessment 15(1): 67-78, January 2010.

Oil Spill Cleanup

Oil tanker on the Baltic Sea.

In 2010, inspired by the British Petroleum oil spill in the Gulf of Mexico, we took on the subject of the standardized but wholly inadequate toxic spill cleanup procedures currently utilized by the spill cleanup industry. This was an example of a destructive solution disguised as 'workable science' that is still, to this day, endorsed by the U.S. Environmental Protection Agency and stockpiled for use on open water ocean spills, despite its official safety data sheet warnings to never use it on surface waters. After in-depth comparison of products officially authorized for use at that time, LAEO identified and recommended an optimum solution for cleaning up oil spills: Enzymatic Bioremediation.[4] This highly effective method has no environmental tradeoffs or other negative impacts and effectively converts oil into benign substances.



Continuing to gain traction in the oil spill cleanup industry, it has now been adopted and used in over 70 countries by parties responsible for the cleanup of spills, including some of the most major oil companies. The effectiveness of Enzymatic Bioremediation (which has the proprietary product name of Oil Spill Eater II (OSE II) and is manufactured and distributed by the OSEI Corporation) was documented and published in our investigative report: "A Twenty-First Century Solution in Oil Spill Response." This vitally important paper continues to be used to raise awareness of real solutions available to all for effectively cleaning up toxic spills.

Left: The publication of *A Call for a Twenty-First-Century Solution in Oil Spill Response.*

4. See page 14-19: https://theearthorganization.org/wp-content/uploads/2021/03/a-call-for-a-twenty-first-century-solution-in-oil-spill-response-.pdf

COOPERATIVE ECOLOGY EDUCATION

Underlying all environmental problems created by humankind is a lack of awareness of each person's vital, but often ignored, partnership for mutual wellbeing with the natural world. Thus, contained in the original directive for our organization was the mandate that, no matter what issues we work to resolve, we must, at the same time, conduct educational campaigns to raise awareness of how to protect and live in harmony with each other and the natural world, starting from a young age. The most fundamental concept that must be imbued into society to truly reverse worsening environmental situations is a deeply held and personal understanding of how one's own survival is interwoven with, and interdependent upon the health and survival of those life forms and things around one. Our trademarked terms "Cooperative Ecology™" and its abbreviation, "CoEco™", embrace this concept and we are creating educational materials, books and courses for schools and homeschools, as well as the general adult public, based on this principle.

This year, we continued to refine and expand our CoEco educational materials, particularly for the ages of 8- to 14-year-olds. Working together with a teacher in Pixley Middle School in the Kern County California Public Schools system, with a school population of primarily underserved migrant farmworker families, we piloted a new study manual and its orientation guide, to very good results with the attending students.

How do you bring about awareness in youth of how the whole world operates on this CoEco principle? We first set the stage by making it personal. 1) We get them to look at what their parents do for them to make their lives better, happier and safer. 2) We then have them look at what they do for their parents to make their lives better, happier and safer. 3) Then we have them actively do something for their parents to make their lives better, happier, or safer, and then 4), observe if their own life got better in any way as a result of doing that. Then we have them practice that same set of steps on their siblings, their home, their teachers, their school, a business in their neighborhood, and something in nature. With that foundation in place, we then expand outwards to gain understanding that the same interplay is true throughout all of nature.

A classroom receiving their CoEco Course certificates.

COOPERATIVE ECOLOGY SUCCESS

The children who learn and apply even the most fundamental CoEco principles are far more cognizant of the world around them, have raised awareness of their impact on the environment, and they realize that those individuals and species who live most successfully are those who actively work to enhance the life and things around them upon which their own life depends.

Here are just a few examples of responses we got from students after completing the CoEco Course:

"I view the world a little bit differently because the project takes your ideas and mind and shines light on a new topic, allowing you to be more open and aware of everyday things in our wildlife and ecosystem."

"I see more the impact of the things we do, and the things we can do to lessen that impact."

"It changed my outlook when I read about those three [conservationists]. If you really wanted to, you can make a difference."

"Now I make sure that I donť waste water and when I am at places I look and see if they have lots of nature."

Additionally, we wrote a basic book for adults called *Cooperative Ecology: How to Live a Successful Life* and conducted a pilot of an extension course for it.

We are now in process of fine tuning the materials based on those results and look forward to their broad publication in 2022. We are currently fundraising to expand our resources in 1) manpower, 2) the creation of digital publications and, 3) the printing and shipping of hard copies of our CoEco educational materials to make it possible to expand this program to an entirely new level by next distributing it to schools and general public through our 12 international LAEO chapters.

LAEO Celebrity Spokesbird, Albert Dishwasher, is an African Grey parrot. "Dish" has the IQ of a 3-year-old child and is an amazing ambassador for the natural world.

Our Celebrity Spokesbird, Albert "Dish" Dishwasher, continues to help us attract the attention and imaginations of children, helping us to forward our CoEco message and interest them in becoming CoEco Ambassadors.

FINANCIALS

2021 Financials for United States Chapter

Total Income for LAEO's U.S. Chapter for 2021 = $ 371,766

Expense Breakdown:

Programs = 74%

Management = 21%

Fundraising = 5%

Deb Schreib,
Deputy Executive Director, U.S.

IN SUMMARY

As we move forward into 2022, we look forward to greatly expanding the positive impacts of our carefully researched solutions. We sincerely thank our dedicated staff, our skilled volunteers, our corporate sponsors and donors, without whom we could not have achieved 2021's results.

There is so much more to do. We ask that you continue your support to enable us to greatly expand our work, speed our progress, and widen our circles of influence in helping to bring about a healthy, thriving, aesthetic world for the benefit of all.

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