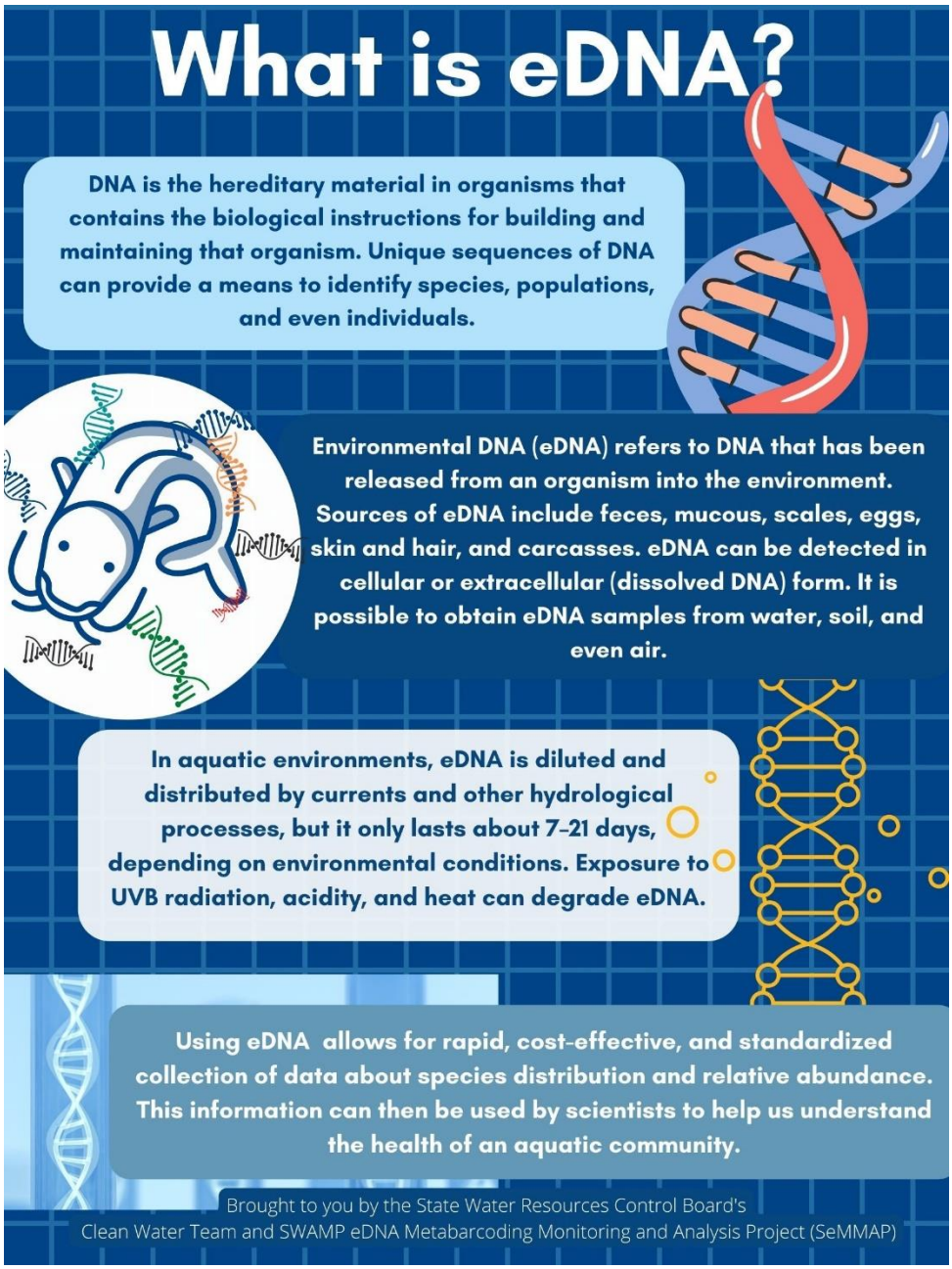
Join us each Monday as the Clean Water Team shares resources on water quality monitoring. Today let's look at eDNA.

Today is National DNA Day, a unique day when students, teachers and the public can learn more about genetics and genomics. National DNA Day commemorates the successful completion of the Human Genome Project in 2003 and the discovery of DNA's double helix in 1953. It is a global movement to mobilize, energize and empower communities, educators, and students to innovate, collaborate and discover the promise of our shared humanity and connection to the natural world. So today let's learn about eDNA.



The State Water Resources Control Board's (SWRCB) Surface Water Ambient Monitoring Program (SWAMP) has launched The SWAMP eDNA Metabarcoding Monitoring and Analysis Project (SeMMAP). The focus of SeMMAP is to discover how environmental DNA (eDNA) can help SWAMP maximize their resources while integrating their monitoring programs. Employing an Open Science framework, they will engage volunteers in the collection and analysis of this relatively new data type. eDNA is a rapidly expanding field of scientific research in aquatic environments that demands research and rigorous testing to understand its application as a water quality monitoring method.

To this effort, they have partnered with a number of community science groups and Tribes. They have also partnered with Jonah Ventures, employing their aquatic eDNA kits to collect and sequence phytoplankton, macroinvertebrate and fish DNA. Since June 2020, they have collected 45 samples from 30 unique sites. This data and more is available for analysis via the SeMMAP Data Resource Hub, a space where the SeMMAP cohort can share and view how they are implementing the eDNA collection kits to advance their monitoring efforts and for the public to follow the trajectory of the project. The past two years sequencing has included phytoplankton and fish communities. 2022 will see the inclusion of benthic macroinvertebrate sequencing. This is especially exciting for SWAMP as studies have shown eDNA data to be complimentary to bioassessment. SWAMP's bioassessment program has been a foundation of our program since SWAMP's inception.

For the 2022 sampling season, SeMMAP will provide approximately 200 kits to 20 regional SWAMP programs, the Bioassessment Program, plus a number of community science and Tribal partners. This is spreading kits a bit thin, but they are establishing roots with which to grow. They believe their external partners can provide insight and analysis that may have been overlooked in the past. The goal is to put the science in the hands of those who serve as stewards. SWAMP scientists will analyze the data and report on eDNA's viability as a biological water quality monitoring method.

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