

A bright sun is positioned in the upper center of the frame, casting a strong, circular glow that fades into the surrounding sky. The sky transitions from a pale yellow near the sun to a clear, light blue at the top. Below the horizon line, the ocean is depicted in a deep, vibrant blue. The overall composition is simple and serene, emphasizing the vastness of the sea and the brightness of the sun.

JOHN BAROSS & FRED JOHNSON'S
THE OCEAN KNOWS
A MELODIC NARRATIVE

Organized by Cultural Programs
of the National Academy of Sciences
In collaboration with members
of The Ocean Memory Project

SUPPORTED BY

the National Academy of Sciences Kenneth R. Fulton Fund
and the generous contributions of Jody Deming and John Baross.

SEPTEMBER 10, 2026, 7 P.M.

Fred Kavli Auditorium, National Academy of Sciences
2101 Constitution Ave., NW, Washington, D.C.

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Performing Arts, Tampa, Florida, for its support of a shared vision to
bring art and science together in service to the community.



The Ocean Memory Project is fiscally sponsored by Shunpike

SHUNPIKE

The Ocean Knows is a one-of-a-kind performance blending live music, storytelling, and marine science, drawing inspiration from the West African tradition of the **Djali—a musician, storyteller, and keeper of memory**. Created by National Academy of Sciences Performing Artist-in-Residence Fred Johnson in collaboration with marine biologist John Baross, the work asks what becomes possible when ancient traditions are brought into conversation with contemporary science. How might they deepen our understanding of the ocean and help that understanding resonate with audiences today?

ORIGINS OF THE OCEAN MEMORY PROJECT

Ocean Memory is a concept born in 2016 at a transdisciplinary conference of the National Academies of Science, Medicine and Engineering devoted to the Mesopelagic (or deep ocean). At that workshop, a group gathered to explore concepts around biodiversity and the microbiome came up with a question: “Does the ocean have memory, and if so, what form does it take?” The Ocean Memory Project, born from that early seed, seeks to bring together researchers from across disciplines in science, the humanities and the arts, as well as from diverse cultures, to explore and develop this question through a trans-disciplinary lens.

PROGRAM

OLD WOMAN OCEAN

THE OCEAN REFLECTING ON ITS MEMORIES

SINGING WITH THE OCEAN'S CHORUS

OCEAN'S HEART BEAT

A TESTAMENT TO OCEAN'S MEMORY

WAVES

THE OCEAN-IT IS CHANGING

THE ENSEMBLE

Fred Johnson, Lead Vocal

Jennifer Samuel-Chance, Narrator/Vocal

Sara Villa, Vocal

Eric Barney, Vocal

Hasan Bakr, Organic Percussion

Tim Conwell, Bass and Percussion

Victor Y. See Yuen, Organic Percussion

John Parks, Choreographer

Esophia Higgins, Dancer

Jonah Perez-Lopez, Dancer

Talia Ashlyn Demps, Dancer

Rebecca Rutstein, Visual Artist

Kathie Foley-Meyer, Visual Artist

Meredith Leich, Visual Artist

Anya Yermakova, Visual Artist

Thad Reid, Visual Artist/Videographer

Technical Production: Spark Street Digital

BIOGRAPHIES

John Baross's research specialty is the ecology, physiology, and molecular phylogeny of microorganisms from deep-sea hydrothermal vent and seafloor environments. He has interests in the microbiology of extreme environments and in the significance of early Earth history and submarine hydrothermal vent systems for understanding the origin and evolution of life, and the possibility of life on other planets or moons in similar settings. The ocean's memories of early life and its origin, viruses, and the evolutionary process deeply influence his thinking across these many areas of interest.

Fred Johnson, a community engagement specialist at the David A. Straz Center for the Performing Arts in Tampa, Florida, has 45 years of experience empowering less privileged communities through creative expression. Mentored by masters of West African oral and healing traditions, Johnson reexamines the healing power of artistic expression in contemporary contexts. His work with the National Endowment for the Arts' Creative Forces initiative, supporting military personnel suffering from PTSD, exemplifies his commitment to social justice and transformation. He is the inaugural NAS performing artist-in-residence.

OLD WOMAN OCEAN

(inspired by my Native American heritage)

BY JOHN BAROSS

We stare at the ocean seeing and feeling,
our minds dancing to the sound of the waves and their splashing rhythms.
The rhythms are more than their sound.
They are the very pulse of what it is to be alive,
reminding us of our original nesting home.
The ocean remembers and celebrates,
four billion years of the launching of life.
The first life form,
a small single cell not content with self.
"What could I become?"
Evolving, forming new life forms, creating interacting communities,
becoming more and more complex,
eventually to one that stares at the ocean seeing and feeling.
Old woman ocean, old woman ocean, can I sit on your lap
and hear your stories of my beginning and evolving.
Tell me old woman ocean, when, why and how did you conceive of love
and are there limits to what love can become?
Teach me old wise woman ocean the ways and future of love.

THE OCEAN REFLECTING ON ITS MEMORIES

BY JOHN BAROSS

Memory, reflecting, rejoicing, projecting and crying
Remembering my beginning, my formation, my earliest bathing
My rocky self, exploding with water
Oh, I was so very transformed and shaking with excitement
My rocky water planet-self became dynamic
A never-ending ballet of water and rock
Pulsing with water circulating,
creating the rocky organs,
the source of carbon compounds that led to life.
I reveled at this beginning to see what I could become
A mystical womb that will never stop birthing
new life forms, always changing, getting more complex
What a marvel to foster the birth of cells that harvested light
using colorful pigments, creating a rainbow ocean
and the foundation for complex life with many cells,
then came organs, limbs and brains

forming novel interactive communities and tribes
that made me revel even more
wondering about the infinite possibilities of relationships
My earliest memories of imagining love.
Attachment and affection.
I remember the first adventurous ocean life exploring
my interface with land finding plentiful prey,
returning home to me at first,
but never stopping exploring and searching,
the quest for a world of personal ascendancy.
Personal dominance, becoming a keystone species.
I watched as mammals evolved,
some returning to me
adapting, integrating and contributing.
I blushed with affection and satisfaction.
Other mammals eventually evolved into humans.
Some harvesting my plentiful sources of food,
others transiting my seas to new lands.
Always, it seems, without thoughts of endangering my world.
Now the time has arrived where I am startled, even frightened.
Humans are changing my world.
Many of my faithful and vital residents are endangered.
What next? How shall I respond?
Can I coast my world towards love?
Or do I have to find love and crash it
rhythmically, repeatedly with the waves.

SINGING WITH THE OCEAN'S CHORUS

BY JOHN BAROSS

The ocean directs and conducts a chorus
Complex harmonies filled with different sounds
Sounds from multiple instruments unique to oceans
Standing on the shores
floating in the ocean's vast open spaces
At first, I hear the tuning of ocean's different instruments
Then I hear chants and hymns
All from a chorus of beautiful, unique voices
The voices charge all my senses and natural rhythms
I can't just listen, I can't just stand still
Arms and legs in motion, my voice joins the chorus
I now know
The ocean is my spirit and my soul
A feeling of deep humility
and a uniquely, broader appreciation of love
the many wonders of singing with the ocean's chorus

OCEAN'S HEART BEAT

BY JOHN BAROSS

The heart beat
The sound and rhythm of being alive
Its early mysteries
The center of feelings and emotions
Becoming a symbol of love and the soul
The heart beat
Cycling blood, renewing its bond to oxygen
Keeping cells and the brain alive
A source of vital energy
And creative endeavors
The ocean's heart beat
Cycling of seawater into the
Earth's core
Reacting with hot magma
Extracting vital life-maintaining elements
Erupting at the seafloor
Cycling the vast ocean
Maintaining photosynthetic communities
The source of ocean's oxygen
And the core of the ocean's food chain

The ocean's heart beat
Four billion years
Ocean's memories
Creating and maintaining life
Life forms mimicking the ocean's heart beat
Bringing new understanding of the heart
As a symbol of love and the soul
The sacred heart of the ocean

A TESTAMENT TO OCEAN'S MEMORY

BY JOHN BAROSS

Nature and human impacts on the ocean
Never to be forgotten
Whether the lessons be learned, ignored or repeated

Before humans, many planetary forces
Drastically changed the ocean's properties
There were extinctions
The end of some of nature's most creative life forms
The beginning of evolutionary opportunities
The emergence of novel life forms

Humans arrived after the demise of the dinosaurs
Their extinction from a giant asteroid slamming the Earth
Should we thank our lucky stars for our existence?

Humans evolving, forming tribes, and nations
A passion to dominate and control
Yet facing death from ocean's natural forces

Tidal waves, earthquakes, tsunamis, hurricanes
Then humans at war, battling on and in the ocean
Human bodies, sinking
Joining dead whales and fish
Their elements recycling, entering ocean's food chains
The ocean holds their memory

Then, one of humans' most evil, conscious acts
Capturing, transporting and selling human slaves
Thinking back to the Middle Passage
That horrific slave journey across the Atlantic
From Africa to the Americas
Four centuries of human cruelty
Death to more than two million at sea
Some by suicide, disease or forcibly drowned
The ocean holds their memory

Reminding of our capacity for prejudice and hate
Always repeating the actions of Judas
Ocean's memory is always ready to teach us
What we could and should become
Showering all life with love
This would be our redemption

WAVES

BY FRED JOHNSON

The Sound of.....Waves
The Song of.....Waves
The Dance of.....Waves
The Rush of.....Waves
The Whisper of.....Waves
The Playfulness of.....Waves
The Residue of.....Waves

The Surprise of.....

I remember when first I played with the Waves

Ha! The Ocean is always a willing playmate. Sometimes upping the
game too quickly, too

Swiftly! But forgivingly and joyfully ebbing and flowing with glistening
reflections of sunlight and liquid possibilities for water's edge
playtime....

and moments of beautified remembrances.

A willing masseuse, you touched, tickled, cleansed, tossed and purified my ankles, toes and torso as I rolled with you toward the shoreline, and rose to gleefully repeat our water dance.

A dance forever etched deep in my memory of yesterdays.

Now. Again, I seek to submerge and lovingly surrender to your rocking and swaying bobbed embrace.

Teach me please to truly know you. Reconnect me to you. You from which thy womb released me forth!

Make my remembrance into a breath that gives me the buoyancy to truly

FEEL

BE

One with you.

One with you... In Love.

THE OCEAN—IT IS CHANGING

BY JOHN BAROSS

The emergence of humans
Learning to survive, explore, discover and invent
And then engage in endless, diverse endeavors
Including a quest for dominance and power
Throwing aside an appreciation and respect
For all that makes life possible, beautiful and sacred
Our ocean with its land and sky
Humans emerged
Climate change, abusive behavior
Now, the ocean—it is changing
Water getting hotter
Becoming more acidic
Ice caps melting
Shorelines submerging
Plastics polluting and killing
Now, the ocean—it is changing
Animal diversity dwindling
Already some near or extinct

Deep-sea mining, other
exploitive activities

Destroying unique ecosystems

Now, the ocean—it is changing

What can we do to change our behavior?

Believe that we are responsible for endangering the ocean

Understand that our survival depends
on a healthy ocean

Know that now, the ocean—it is changing

Now is the time for us to change

Embrace love of the ocean, as it has loved us