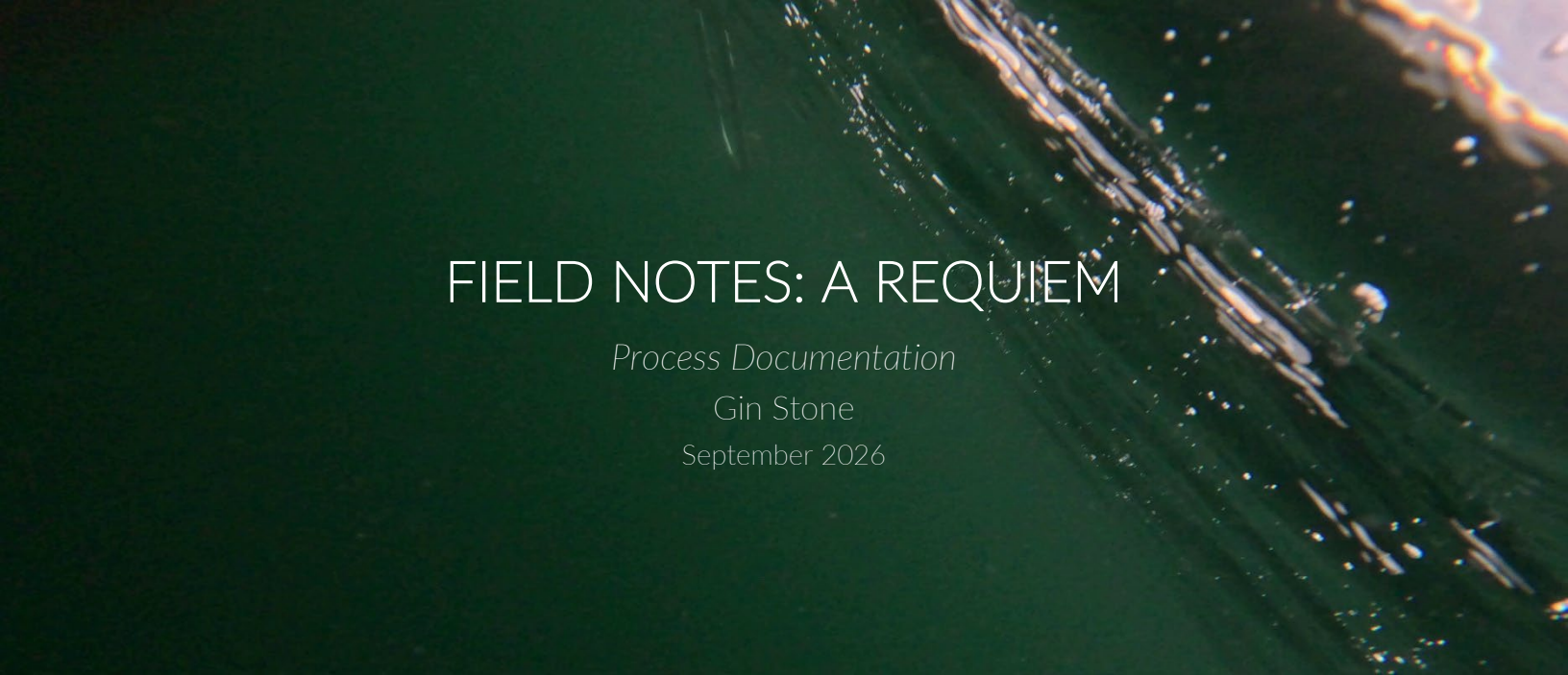




FIELD NOTES: A REQUIEM

Process Documentation

Gin Stone

September 2026

OVERVIEW

Field Notes: A Requiem is an ongoing series of works that translates scientific and environmental data into immersive sound and time-based media. Each work in the series examines a natural system in decline and renders it audible, creating a record of what exists and what is disappearing. Using custom software written for MATLAB and Python, environmental datasets are translated into MIDI files, with each data stream assigned its own instrument voice. All compositions are mapped onto the Gong pentatonic scale, the ancient Chinese five-tone system built on the intervals C, D, E, G, and A, chosen for its resonance with the natural world and its freedom from dissonance.

As curator C. Sean Horton wrote in the *Provincetown Independent* following the premiere of *Lit from Within*: "a requiem is traditionally composed after a loss; Stone's project begins earlier, documenting living systems while they still endure." The series is not an elegy for what is already gone. It is a record made in the presence of what is still here.

METHODOLOGY: HOW SCIENTIFIC DATA BECOMES SOUND

Step 1: Field Work and Data Collection

Each work begins in the field. Original video footage, audio recordings, or scientific datasets are gathered in collaboration with scientists and researchers. Field notes recording environmental conditions, species present, weather, and time are documented alongside the primary data.

Step 2: Data Analysis

Raw data is processed and analyzed. For biological signal data such as firefly flash patterns, custom species-recognition software written in MATLAB analyzes each signal by its timing, duration, and interval pattern, identifying the organism responsible and classifying it against a library of known signatures. For geological data such as sediment core samples, measurements including organic percentage, grain size, sediment color, and carbon-dated age models are organized by depth and converted to calendar years using Bacon age modeling.

Step 3: Parameter Setting

The artist sets the parameters that govern how data values map onto musical properties. These decisions are both scientific and artistic: which variable controls pitch, which controls note duration, which controls dynamics. Each distinct data stream is assigned its own dedicated MIDI track so that in playback each voice can be assigned a distinct instrument.

Step 4: MIDI Generation

Custom code written for MATLAB (a programming language and data analysis platform widely used in scientific research) or Python reads the processed dataset and generates a MIDI file. MIDI (Musical Instrument Digital Interface) is a universal digital music format that stores instructions for musical performance without sound itself. The data determines every note: its pitch, timing, duration, and velocity. No musical decisions are made by the artist at this stage. The data composes.

Step 5: Instrument Assignment

The MIDI file is imported into Reaper, a professional Digital Audio Workstation. Each data track is assigned a distinct instrument voice from the G-Town Church Sampling Project, a Creative Commons library recorded in a church in Grebbestad, Sweden by Tobias Marberger. The choice of instrument for each voice is an artistic decision informed by the character of the data it represents.

Step 6: Visual Component

Each work in the series includes a visual component developed in parallel with the sound. Visual elements may include original field video with digital augmentation, projected imagery, cyanotype monoprints made from field photographs and hand-tinted with watercolor, and material elements including sewn textile components. The visual and sonic components are synchronized and presented together as an immersive installation or looping projection.

COMPLETED WORKS

Lit from Within (2026)

The second completed work in the series. A five-track MIDI composition translating firefly flash patterns recorded in a Harwich, Massachusetts meadow on June 15, 2026 into music. Custom species-recognition software identified four North American firefly species by their flash timing patterns and routed each detected blink to a dedicated instrument track. 2,495 blink events were detected across the 11-minute 43-second field recording, grouped into 161 burst events.

Species identified: Femme Fatale (*Photuris* sp.) 7 flashes | Big Dipper (*P. pyralis*) 8 flashes | Synchronous (*P. carolinus*) 462 flashes | Macdermotti (*P. macdermotti*) 37 flashes | Continuous/Unknown 1,981 flashes

Instruments: Toy Glockenspiel A4 | Bass Drum | Mandolin A3 | Wood Sticks | Mandolin G4

Scale: Gong pentatonic across five octave registers C2 through C6

Presented duration: 5 minutes 30 seconds

Visual component: Video augmented to render fireflies as bioluminescent jellyfish-like forms against deep blue ground. Cyanotype monoprints of firefly and lightning meadow photographs, hand-tinted with magenta watercolor. Hand-sewn linen flag flown at gallery entrance.

Public presentations: Farm Projects, Wellfleet MA, August 9, 2026. Screened on mainsail of Schooner Hindu, Provincetown harbor, 2026.

Critical reception: C. Sean Horton, *Provincetown Independent*, August 2026.

Deposits: Duck Harbor Core III (2026)

The first completed piece in the *Deposits* commission. A six-track sound work translating 1,200 years of sediment core data from Duck Harbor saltmarsh, Wellfleet, Massachusetts into music. Custom Python code generated a MIDI file from Bacon age model data, loss-on-ignition organic percentage measurements, grain size analysis, Munsell color classifications, and a pixel-by-pixel scan of the actual core photograph.

Data sources: DH_VC3_3_42_ages.txt (Bacon age model, 201 depth points), DHVC3_3data2.csv (140 sediment measurements, 1cm to 140cm), core photograph scan

Scientific collaboration: Dr. K. Castagno, Center for Coastal Studies, Provincetown MA

Tracks: Very Fine Sand/Silt (Toy Glockenspiel C#4) | Fine Sand (Egg) | Medium Sand (Mandolin C#4) | Coarse Sand (Bongo Loop) | Organic Percent Melody (Wood Sticks) | Visual Core Scan (Water Bowl B)

Key events: 1635 Hurricane confirmed at 43cm depth, calculated position 2:07 in the piece. Coarse sand track (bongo loop) enters at 1:18. 2016 CE organic bloom in final seconds. Presented duration approximately 3 minutes 10 seconds including natural instrument decay.

Time range: 817 CE (oldest layer) to 2016 CE (most recent layer)

Funding: Arts Foundation of Cape Cod

Public talk scheduled: June 2027, Center for Coastal Studies, Provincetown MA

WORKS IN DEVELOPMENT

Deposits: Duck Harbor Cores 1, 2, 4, and 5

Four additional vibracore datasets from Duck Harbor await age models from Dr. Castagno's student. Once received, each core will be generated using the same Python methodology as Core 3, with one piece per core. The 1635 Great Colonial Hurricane is confirmed present in Core 4 only (in addition to Core 3). Cores 1, 2, and 5 do not extend back to 1635.

Pelagic Field Notes (title TBD)

In August 2026, the artist was invited aboard the American Promise as a guest of the Rozalia Project, a leading ocean research and marine debris organization, for a multi-day research voyage from Kittery Point, Maine to Rockport, Massachusetts to Provincetown harbor, approximately 90 nautical miles. Working alongside their scientific team with access to their hydrophone and a ZOOM field recorder, original acoustic data was gathered from the water column of Massachusetts Bay. This material will form the foundation of the next work in the *Field Notes* series, focusing on pelagic species in ecological decline. Scientific partnership for this work: Dr. Andrea Bogomolni, marine mammal biologist, Woods Hole Oceanographic Institution.

SCIENTIFIC COLLABORATORS

Dr. K. Castagno - Geologist, Center for Coastal Studies, Provincetown Massachusetts. Sediment core collection, analysis, and age modeling for *Deposits*.

Dr. Andrea Bogomolni - Marine Mammal Biologist, Woods Hole Oceanographic Institution. Scientific partner for forthcoming pelagic work in the *Field Notes* series.

Rozalia Project / American Promise - Ocean research and marine debris organization. Hydrophone access and field support, New England coast, August 2026.

TOOLS AND SOFTWARE

MATLAB (MathWorks) - Data analysis platform used for species-recognition code in *Lit from Within*.

Python - Used for MIDI generation in *Deposits* and for direct binary correction of MIDI files.

Reaper - Digital Audio Workstation used for instrument assignment, mixing, and final audio production.

MIDI - Universal digital music format. Generated by code and imported into Reaper for instrument assignment.

Gong Pentatonic Scale (Chinese pentatonic) - The scale built on C, D, E, G, A (semitone offsets 0, 2, 4, 7, 9). Contains no semitones and no tritone, producing no dissonance regardless of which notes sound simultaneously.

G-Town Church Sampling Project - Instrument sample library by Tobias Marberger, recorded in Grebbestad, Sweden. Creative Commons license. Used for all instrument voices in both completed works.

Bacon Age Modeling - Standard scientific tool (Blaauw and Christen, 2011) converting sediment depth to calendar age using radiocarbon dates and statistical interpolation. Used in *Deposits* to map each centimeter of sediment to its calendar year.

PUBLIC PRESENTATIONS

Lit from Within: Farm Projects, 355 Main Street, Wellfleet MA, August 9, 2026. Outdoor looping projection with two-channel stereo speaker system.

Lit from Within: Floating Visions, Sea Dreams and Tell Tales. Screened on mainsail of Schooner Hindu, Provincetown harbor, 2026.

Deposits Core III: Available on SoundCloud and Vimeo. Public talk scheduled June 2027, Center for Coastal Studies, Provincetown MA.

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