

UMWELT
Ryuta Nakajima

BY CHRISTOPHER ATKINS,
MAEP COORDINATOR

The best way to observe a fish is to become a fish.

—Jacques-Yves Cousteau

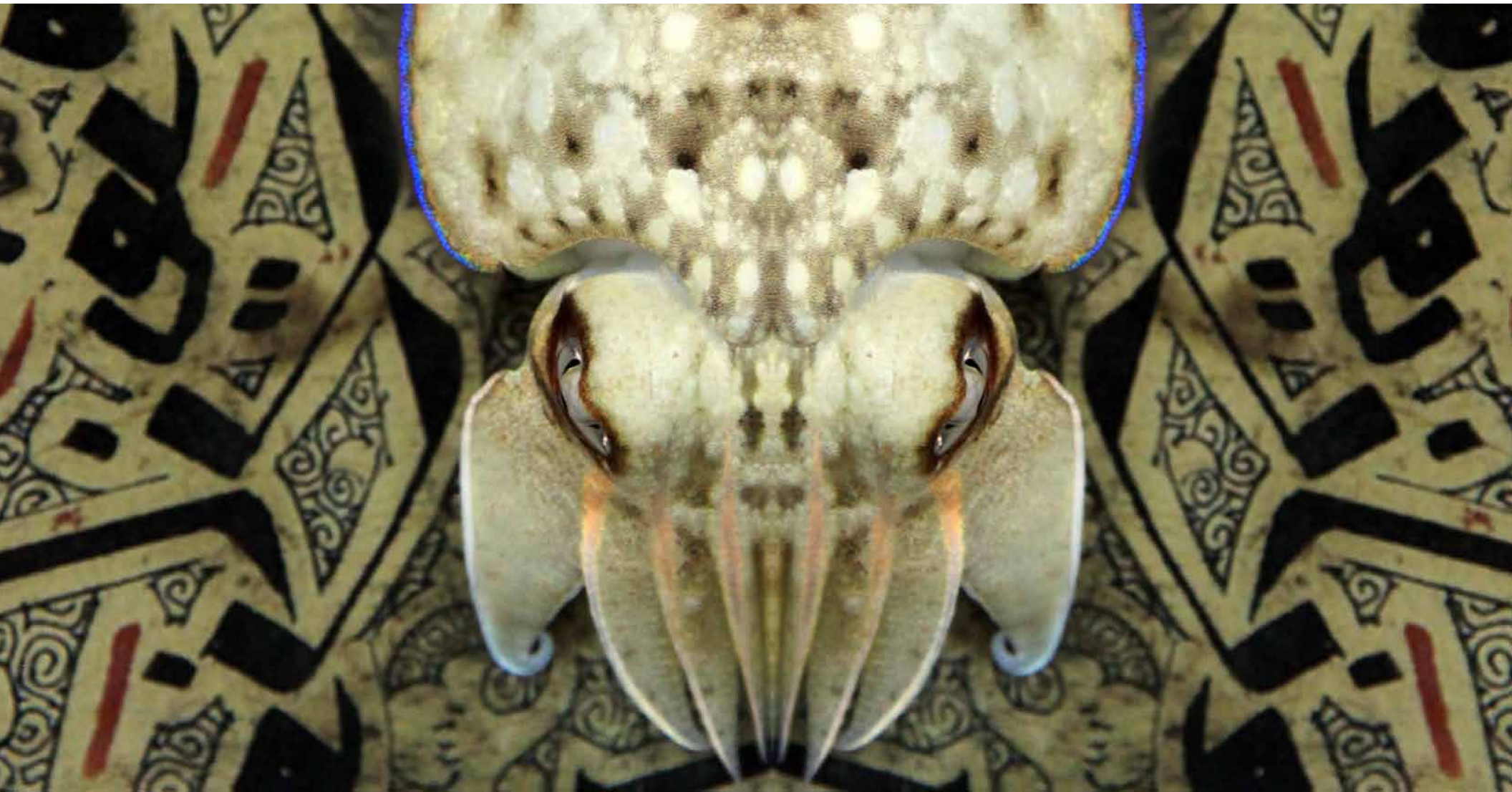


UMWELT IS THE GERMAN WORD FOR ENVIRONMENT, succinctly describing how organisms perceive, interpret, and react to their surroundings, from processing external stimuli to interacting with their own kind. In a word, surviving. Scientists are now deeply immersed in the *umwelt* of many species, simulating their interactions with the hope of truly understanding non-human behavior from an animal's perspective.

Duluth artist Ryuta Nakajima is among these researchers, studying the *umwelt* of cephalopods (the class of marine animals including squid, octopus, and cuttlefish) in the most interactive way possible—getting in the ocean with video cameras. Recently, he and other researchers filmed the schooling patterns of oval squid off the coast of Okinawa, Japan, examining the number of

“schoolmates,” the shapes of the schools, and how they morph over time. The short version of their conclusions is that the schools’ social structures remain remarkably intact while their makeup varies considerably, depending on whether they are migrating or defending against predators. (The long version was recently published in the journal *Marine Biodiversity Records*.)

Detail of *Amburghese di cuore* (no. 4), 2013, digital print



Nakajima's scientific fieldwork is reflected in the photographs, sculptures, and videos comprising his MAEP exhibition *UMWELT*. In his studio, he has created dozens of resin molds of cuttlefish, painting them with various patterns that mimic and stylize cephalopod color-changing properties. Their chromatophores (neurally changed pigmented cells) create complex body patterns of individual responses on the surface of their skin, replicating the colors in their surroundings to protect them from predators, attract mates, and, it is believed, communicate with other cuttlefish. He likens his resin copies, formally and conceptually, to the hyper-collectible figures such as Kubrick bears and *sofubi* monsters that come with hundreds of different pattern and color themes and are sold in collectible "blind boxes."



Details of *Ako Roshi 39+8* (Forty-seven aspects of cuttlefish body patterns), 2013, epoxy resin, Swarovski crystals, metal studs, lacquer, acrylic, enamel print

DECOIKA, for example, is meticulously covered with more than 4,000 individual Swarovski crystals and presented on a jeweler's velvet pillow. It's an almost excessive blinged-out elegance, but Nakajima has stopped just short of that, focusing instead on the beauty of the form and materials. Still, the obsessive energy that drives collectors, for rarity as well as quantity, is exactly what Nakajima is interested in presenting. Arranged in their various cases, Nakajima's cuttlefish installation is meant to recall both a retail showcase and a museum collection, familiar to buyers of Japanese toys and patrons of collections of rare animal species and valuable art objects.

His newest works, the "Amburghese di cuore" photographs, which use some of the same data collection techniques as his laboratory research, began as another experiment in studying marine environments and the color-changing physiology

of cuttlefish. By removing them from their natural environment and placing them in tanks on top of high-resolution images of objects from the MIA's collection, Nakajima can observe how the cuttlefish read, interpret, and respond to their colorful surroundings, then express that response using their chromatophores. The photographs, which record these experiments, are also helpful for understanding the cuttlefish *umwelt*. If each photograph is seen as an individual experiment, Nakajima's photos buttress his hypothesis that cuttlefish can communicate with each other using species-specific multi-layer body patterning and clarify how these animals not only respond to their environments but internalize, then express, external stimuli.

In 2012, Nakajima conducted a mini expedition to Toyama, Japan, to collect underwater footage of bioluminescent deep sea squid, which he compiled into a short video called *キラ キラ キラル* (*Kira Kira Chiral*). Shot with multiple underwater cameras, some segments of the footage were edited to mimic the mirroring effect that is used by scientists to test whether animals have some self-awareness. For humans, this is an important developmental stage—the ability to recognize yourself and your role in a social environment. The abstract soundtrack begins with an electronic stutter then crackles and shimmers, keeping pace with the onscreen movement as schools of fish become effervescent bits of light swimming just below the surface. A plastic squid, outfitted with pulsing lights, is submerged to see how other squid react to it. The only tension in the video comes at the end, when the camera passes through a coral reef valley. Everything we have seen and experienced comes to an end as the camera ascends and breaks the surface of the water. An overexposed sky harshly greets us on the other side of this submarine *umwelt*.

Installation detail of *Ako Rushi 39+8*



These cleverly composed sequences become a metaphor for Nakajima's malleable and open process; as an artist, he can literally swim through the science of marine biology unencumbered by the pressure to collect data. In the process, he can reveal methodological blind spots.

So what can our society learn from Nakajima's artwork and research on cephalopod society? Perhaps more than you'd think. It appears that squid schooling behavior is similar to how other advanced vertebrates form social groups, suggesting long and strong evolutionary links between land and sea animals. In fact, we don't have to look beyond the mirror phase of development to understand that the *umwelt* is a subconscious space contributing to a sense of self. Seeing and responding to what is *not* "me" makes it easier to discern what *is* "me"—which is to say, where "I" stop and "you" begin. ■



Screen shot of キラ キラ キラル (*Kira Kira Chiral*), 2013, HD video



This exhibition is presented by the Minnesota Artists Exhibition Program, a curatorial program of the Minneapolis Institute of Arts, which features work selected by Minnesota artists. MAEP is made possible in part by generous support from the Jerome Foundation and the McKnight Foundation.

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2400 Third Avenue South | Minneapolis, Minnesota 55404 | artsmia.org



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ARTIST'S WEBSITE
ryutanakajima.com

RELATED EVENTS:

Opening Reception: Thursday, July 18 | 7–9 p.m.
Artists Talks: Thursday, August 15 | 7 p.m.
Special Guests: Thursday, September 19 | 7 p.m.

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Cover: *DECOIKA*, 2012, epoxy resin and Swarovski crystals