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Japan: Islands at Risk

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Jack Moyer, a naturalist specializing in coral reefs, has worked in and around the Japanese islands for half a century.

Many years ago, while doing research related to environmental assessments of the Shiraho coral reef on Ishigaki Island, I witnessed an extreme example of a destructive human impact on a pristine, unspoiled reef.

Beautiful rice fields on Sado Island (top) belie the damage done by agro-chemicals to sheltered inlets nearby.

I was on the island in the south of the Nansei archipelago, which extends about 1,000 km from Kagoshima toward Taiwan, to investigate a sensational fish-spawning site in a reef channel known as Moriyama-guchi. Previously, I had reported in a scientific journal the spawning of more than 20 coral-reef fish species at the site. That time I had returned to record the effects of a massive construction project in which bulldozers were used to carve out huge fields for the cultivation of pineapples and sugar cane from the natural grasslands just behind the coral sand beach.

While I was underwater gathering data on fish-spawning behavior, a sudden thunderstorm brought torrents of rain, darkening the underwater world as the clearly audible roar of wind-blown sheets of rain struck the water above me. I continued my work, but within 15 minutes the visibility had deteriorated alarmingly as tons of freshly bulldozed red soil washed into the coral moat from the nearby Todoroki River. Then, within minutes, I could not even see my hand in front of me. I surfaced and fought hard to return to the boat as the rapidly ebbing tide surged through the reef channel.

It was three days before the underwater visibility cleared enough to permit further research. Then I was shocked to see that roughly two-thirds of the corals at Moriyama-guchi had bleached to snow white -- killed by massive soil siltation from the agricultural fields.

Of course, the thousands of reef fish that had dwelled in the coral branches were gone forever. Somewhere in Naha or perhaps Tokyo, a brilliant plan had been devised to "develop" agriculture on Ishigaki Island -- but the wise, deskbound and distant people responsible for the disaster had been totally ignorant and unaware of the immense environmental damage they would unleash.

I have seen similar scenes many times, before and since -- at Chotaro-ike and Igaya on Miyake-jima Island; at Seragaki Beach on Okinawa Honto; at Kakiroma, Amami-Oshima and Miyako Island etc. -- but only this one time at Shiraho had I actually been underwater on the scene while the disaster was taking place.

Zero visibility while underwater in swift outgoing tidal currents results in immense disorientation and extreme danger but, worse than that, it destroys irreplaceable biological diversity. I remember thinking while still underwater, "What idiots we humans are! We

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destroy more and more of our precious planet on a daily basis, always in the ego-inflating name of 'progress and development.' "

During this past summer, I had the pleasure of conducting in-the-water schools with students from Niigata Prefecture at Sado Island, in the Sea of Japan north of Niigata City. Being a coral-reef ecologist by profession, I was ignorant of and extremely curious about environmental conditions in the Sea of Japan. My first shock was to observe literally tons of garbage, abandoned nets, shoes and other debris -- more than 80 percent of it from the Korean Peninsula -- flowing in with each tide as if on a conveyor belt.

Later, and even more shockingly, I witnessed for the first time the environmental disaster brought about by massive use of *noyaku* (agricultural chemicals).

I had visited the Sea of Japan in the early 1950s to study birds, and I had been impressed then by the large numbers of egrets and herons in the rice fields of Sado Island and across the Echigo Plain of Niigata Prefecture.

But, this past summer, I counted only six egrets from the train window as we crossed the broad plain, and I saw only two *aosagi* (herons) during a 13-day stay at Sado Island.

It's common knowledge that the Japanese ibis (*toki*) has totally disappeared in the wild as a result of "habitat destruction" -- a deceptive term for the effects of noyaku -- but I was depressed to see -- and hear -- that the songbird population had also been decimated.

The Japanese jay (*kakesu*), which was common when I first visited Sado Island so long ago was conspicuously absent, and where brushlands bordering narrow dirt roads had once harbored abundant populations of the Siberian meadow bunting (*hojiro*), only a few pairs remained.

The Sea of Japan side of Japan is the country's "rice bowl." Wide open vistas of beautiful green rice fields are a gorgeous sight for the camera-toting tourist, and the government has tried to boost production with the use of noyaku. During my stay on Sado Island, nearly every afternoon a helicopter flew up and down valleys, spraying noyaku on the paddies.

Traveling up the mountain road to our lodging in an abandoned elementary school, the early-evening valleys were filled with a mist, turned golden by the setting sun. This mist, beautiful to unknowing eyes, was, in fact, noyaku forming clouds of death to songbirds, loaches (*dojo*) and uncounted other forms of life. Who knows what it does to humans? I had snorkeled only once off Sado Island in the 1950s. Then, in a small bay, long brown algae sheltered numerous species of fish. Today the algae remain abundant but fish are hard to find.

The 11 Miyake-jima Island students who joined one of our ocean-school sessions were unanimous in declaring Sado Island's waters to be "lonely" compared to their memories of underwater scenes at Miyake. Offshore, meanwhile, in deep waters where the agricultural chemicals are more diluted, fish life remains abundant, but we really have no data to compare current population densities with those of pre-noyaku days.

So it was that this past summer, for the first time, I became aware of the immense environmental destruction both on land and at sea being wrought by noyaku. I admire the residents of the Sado Island community of Katanoo which, at Ryosu- shi, was the home of Japan's last breeding pair of toki in Japan. Following their great loss, they have greatly cut back or totally abandoned their use of noyaku in the hope that they may again see toki flying over their community at sunset.

As I ponder the noyaku problem, I ask myself again, as I did many years before while viewing

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red soils in the Shiraho lagoon: "Why must we humans insist on exploiting the environment for our own convenience, without giving a thought about the environmental wasteland we are leaving for our grandchildren?"

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