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## 3 CASE STUDIES

## Case Study



## Crab Farm/ Aquaculture 1972-74

### Overview:

A Metaphorical Interpretation of traditional field observations results in a way to trigger reproduction in crabs (and other decapods) in captivity, transforming contemporary research and laying the foundation for new aquaculture industry.

### Guiding Metaphor:

A well-formed environment *is* wellbeing for a crab.

### Story

In 1971 Newton and Helen Harrison asked a deceptively simple question: Can an aquatic species live and mate under Museum conditions? At that point, there was a lot of interest in the commercial exploitation of marine animals for food; however, no one had successfully raised any decapods (crabs) in captivity.

After learning that a common Sri Lankan mud crab, *scylla serata forsskal*, was particularly hardy, they decided to use it as a test case.

Instead of following a traditional marine research protocol, which would have put the species through a wide range of standardized conditions and painstakingly analyzed each one, they asked different questions – what kind of environment would a crab want to mate in? What conditions make crabs reproduce? What would happen if you put crabs into a laboratory version of an idealized environment – would it spur reproductive behavior?

The Harrisons metaphorical planning approach is embedded in this kind of questioning, which leads to the following notion: A well-formed environment *is* wellbeing for a crab. The research implications that emerge from this metaphor suggest that crabs that experience a comfortable (for them) environment will behave normally.

The Harrisons discovered that mud crabs mate after monsoon season in Sri Lanka. A major effect of monsoon flooding is a massive change in the salinity of the mangrove swamps where the crabs thrive. The Harrison's metaphorical insight led them to create an 'artificial monsoon' under controlled conditions. By rapidly adding enough fresh water to the tanks in which the crabs were living to mimic natural rain/flood cycles, they discovered the key to triggering reproductive behavior in *scylla serata*.

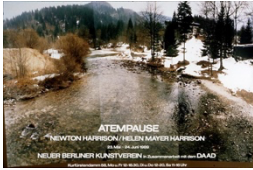


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### **Outcome**

The scientists at neighboring Scripps Institute of Oceanography were so impressed by the effectiveness of their initial results that they awarded the Harrisons two Sea Grants to continue their work, the only artists to receive this prestigious award. Following their decoding of reproductive triggers, they further discovered tools to limit cannibalism in captivity, thus enabling the development of commercial crab farming and a number of related industries.

## Case Study



## Sava River / River Purification- Sustainable River Model 1990-93

### Overview

A request to help an endangered wildlife preserve in Croatia reveals that the reserve is much more resilient than previously understood and that preserving the river not only supports a large sustainable agricultural community but helps clean up the Danube as well.

### Guiding Metaphor:

The wellbeing of the river is the wellbeing of the nature reserve.

### Summary

In 1989, The Harrisons were invited to then Yugoslavia by Dr. Hartmut Ern, of the Berlin Botanical Gardens and asked to help form a nature reserve in the area that had once been a no-man's land situated at the border between the former Austro-Hungarian and Ottoman Empires. The potential reserve consisted of an approximately 800 square kilometer floodplain, the last of its type remaining in western Europe containing not only a wide range of endangered species but also an ancient farming community who lived by a wetland oak forest in oak pin frame homes. An initial river survey revealed that there were a small number of single- point pollution sources (cement and other factories) and a certain amount of risk from industrial agriculture, but otherwise the Sava River was largely self-maintaining ecologically.

The Harrisons' solution worked by not accepting the original premise (that the preserve itself was in danger) and recognizing that they needed to solve a different problem (how to sustain the complex mix of wildlife, sustainable farming, and relatively clean waters that already existed). The region was actually biologically healthier than the planners anticipated. As a result, the Harrisons proposed a second and smaller nature corridor that would run the length of the Sava River from its twin beginnings above Ljubljana to its ending in Beograd at the Danube River, where it supplies the lower Danube with one third of its clean water. The corridor would protect the river from the worst of the single point effluent sources, and support the existing sustainably managed farms and villages by keeping them economically viable.



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The metaphor here was to understand that the wellbeing of the river defines the wellbeing of the entire nature reserve. Thus, following the needs of the river will, generate wellbeing for the nature reserve.

#### **Outcome**

The Croatian water department incorporated the proposal into their master plan. The Harrison's assistant on the site, Martin Schneider-Jacoby, now a prominent ecologist, stayed on the site and continued to evolve the concept for the Sava River. Thereafter, he gained a multinational approval for a thousand square km. nature corridor for the Drava River, the sister river to the Sava, thereby setting up the conditions for the purification of the Drava. The Sava and the Drava Rivers collectively provide the lower Danube almost 50% of its clean waters. These clean waters have the salutary effect of flushing the polluted estuary of the Danube River as it flows into the Black Sea.

The Sava River basin is now managed by the multi-lateral International Sava River Basin Commission, which has integrated many of elements of the initial preserve.

The Harrisons won second prize at the Nagoya Biennale ArtTech in Nagoya, Japan, when their work on the Sava River was exhibited there.

## Case Study

### Green Heart of Holland / Large-scale environmental Master Plan 2000-2006



The Groene Hart  
Wikipedia

#### Overview

An Arts Council reaches out to the Harrisons as a last resort to stop a major development effort to put 600,000 houses in the largest green space in the Netherlands. By revisualizing long-term land use and space, the Artist-led team reorganized the plan, keeping the housing while maintaining the green space, local communities, local farming while providing a long-term solution for sustainable growth.

#### Policy Insight:

The belief that the nation had too many people living on too little land limited clear policy analysis and was leading to an unnecessary sacrifice of vital green space.

#### Guiding Metaphor:

The Green Heart / Randstaadt region is a combined environment where changes in one part impact the whole.

#### Summary

Over the last few centuries, a ring of cities developed on the periphery of a large open area in the center of the Netherlands. By the middle of the twentieth century the area had acquired the nickname the "Groene Hart" (Green Heart). The Green Heart is an area of wet meadows and marshland unsuitable for large-scale building but well adapted to small-hold farming and peat production. In the 1990s a US\$220Bn public/private development initiative proposed transforming the area, by putting in 600,000 house in the 800 square km area, radically impacting local communities, infrastructure and wildlife, effectively urbanizing the last major green zone in the country.

Inspired by the Harrisons' work on the Sava River, The Arts Council of South Holland invited the Harrisons to meet with various Dutch groups, including a group of legislators, to see if artists might be able to come up with a better alternative. The Harrisons' initial analysis found there was sufficient room to put housing in neighboring communities outside of Green Heart, preserving its land, wildlife and farming culture. By distributing the new housing across many communities, the plan also diversified the companies involved, which recycled



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the S220Bn back directly into local economies and provided ongoing income to sustain the project.

The core policy insight that influenced their design was that sufficient land was available for sustainable development, but that it was made invisible by the universally held belief in Holland that the country has too little land and therefore the Green Heart had to be sacrificed. The Harrisons arrived at this insight by taking a large map of the whole area, dropping out all architecture and analyzing what was left. The open lands left in existing urban areas were sufficient to locate at least 600,000 houses. Placing new housing via urban in-fill would deliver advantages far exceeding those of building out the Green Heart.

The core metaphors embedded in this work are:

- nature needs to be continuous and contiguous.
- urban entities needs to be framed for their identity to be maintained
- and finally, large-scale planning needs treat the whole Green Heart / Randstaadt region as a combined environment where changes in one part impact the whole

#### **Outcome**

The urban and ecological design principles in the Green Heart project were incorporated into the Master plan for the province of Holland.

The Harrisons were awarded the Grunewald Prize for their strategic solution that preserved the “Groene Hart” while supporting the need to provide more housing and jobs in the region.