

# Kintama Research Services

## Delivering answers

### Where do fish go? Where do they die, and why?

With Kintama, you can examine these questions. With 48 peer reviewed scientific journal papers and reports (and counting), we deliver answers.

Kintama Research Services is the world leader in the design, deployment, and operation of large-scale and cost-effective underwater acoustic telemetry arrays. Telemetry arrays bring vast new opportunities for precise scientific study of the survival and movements of marine animals, particularly populations migrating between marine, estuarine, and freshwater environments.

Being scientists first and foremost, we know through our own systematic research what is required to successfully design, implement, complete and publish large-scale experiments meeting rigorous scientific requirements.

Research using marine telemetry arrays is not easy. We offer a range of services based on techniques that we successfully use for our own research. We can use our experience to take the operational guesswork out of your study and in doing so maximize your probability of getting reliable data and minimize your costs.



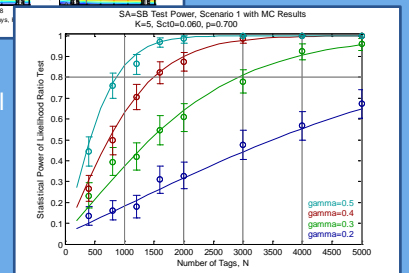
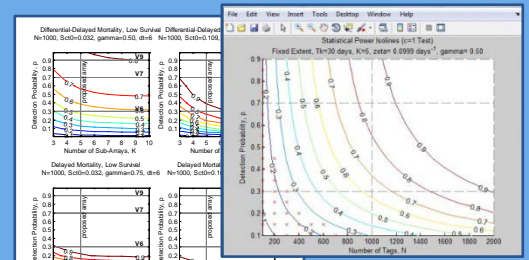
## RESEARCH DESIGN SERVICES

### Study Design

Tell us what you are trying to achieve, where, and what your budget is. We will work with you to identify an optimal study design that maximizes scientific precision and accuracy.

### Array Design

Your Studies and Array designs need to achieve the highest Statistical Power possible. Kintama has developed custom software to identify the lowest cost array designs that meets your scientific goals - the result being that we will maximize both the statistical precision of survival estimates and the yield of biological information for your studies. Our array designs will minimize the number of Receivers and Tags needed by optimizing the array geometry and tag programming.



### Data Analysis & Statistical Methodologies

Acoustic arrays and the detections of tagged animals generate vast quantities of data.

Kintama provides an in-house data management system for both array

and detection data. We also provide tools and expertise around database schemas and data formatting to help you better manage your data,

and time. If you wish to manage your own data, Kintama can help develop or customize your individual database to best fit your needs.



Your capital and scientific investment in your project is too large to not also ensure you have the most professional implementation.

**Take advantage of our experience – *it's what we do!***

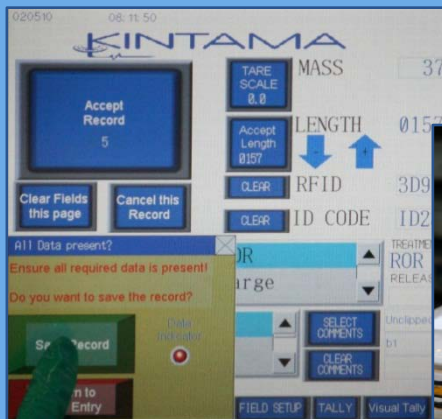
## FIELD SERVICES

### Array Deployment, Recovery, and Data Upload Services

Kintama pioneered the large-scale application of acoustic telemetry equipment in coastal ocean conditions. Our Deployment Services include field trips involving deployment of gear, recovery, or upload of data. No matter where you work, we can either provide a full service operation, including sourcing and deploying all the necessary equipment, or help you with parts of the process.

### Tagging Services

Kintama's methods focus on minimizing surgery times and protecting fish. We supply mobile, field-ready tagging stations, set up to maximize efficient procedures, decrease drug exposure time, and increase post-tagging survival. As part of our focus on streamlining data capturing processes, Kintama has developed an electronic Tagging Data Capture System to ensure the surgery process goes as smoothly as possible and the potential for data capture errors are minimized.



## EQUIPMENT SUPPLIES - Float Collars for VEMCO VR3 / VR4 Receivers

Economics and statistical precision of your study demand that your Receivers are deployed in the appropriate position in the water column and are recoverable at the end of your project. Kintama's float collars, made from syntactic foam, can survive for many years when tethered with the appropriate material helping to ensure a successful recovery process at the end of the field experiment. This saves time, money, and equipment.

### Benefits:

- Compatible with VEMCO VR3 and VR4 Receivers
- Trawl-resistant – lowers chances of getting “caught” by a trawler
- Able to be lifted and moved by one person
- Provides protection to the Receiver while deployed and during transport on both the truck, and boat
- Eases Receiver storage
- Optimally orients and positions Receiver sub-arrays to ensure the highest level of detection efficiency
- Re-usable with a virtually unlimited lifespan
- No degradation of sensor performance
- Resists corrosion - constructed entirely of synthetic materials
- Available with 4 SiAl-Bronze screws or synthetic dowels



### Specifications:

- Colour: Yellow standard, others available
- Weight in air: 27 kg (59 lbs) - with VR3 / VR4: 41 kg (91 lbs)
- Buoyancy in water: 25.9 kg (57 lbs) - with VR3 / VR4: 23.4 kg (51.5 lbs)
- Maximum Depth Rating: 500 meters (deeper rated versions available on request)