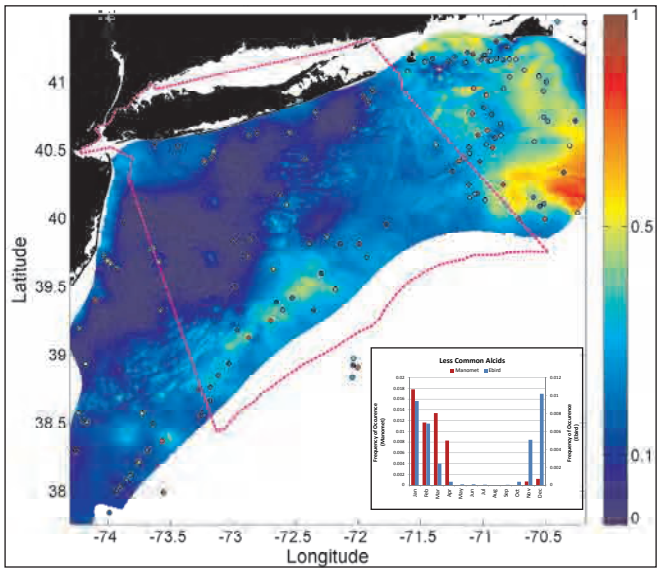
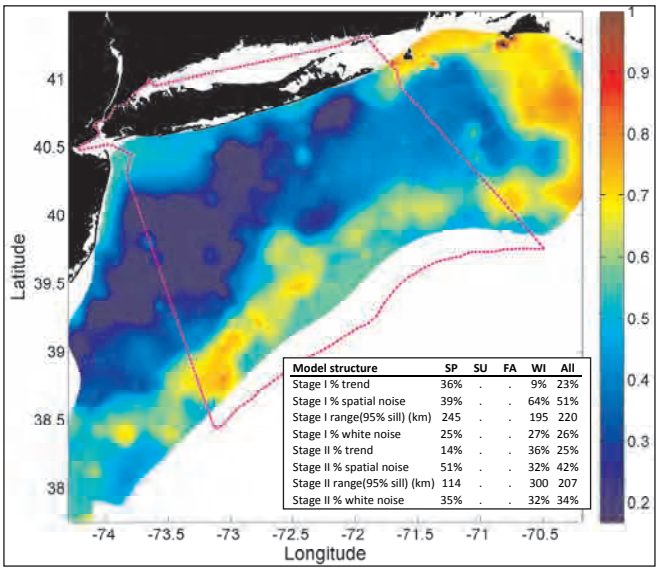
# Alcids, less common

Stage I x II: Relative Abundance Predictive Model

### Annual Predicted SPUE Map

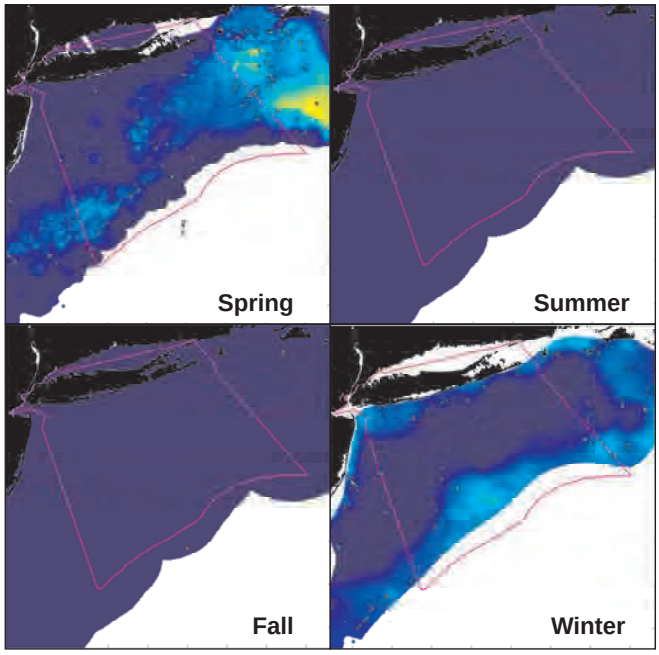



### Annual SPUE Relative Uncertainty Map

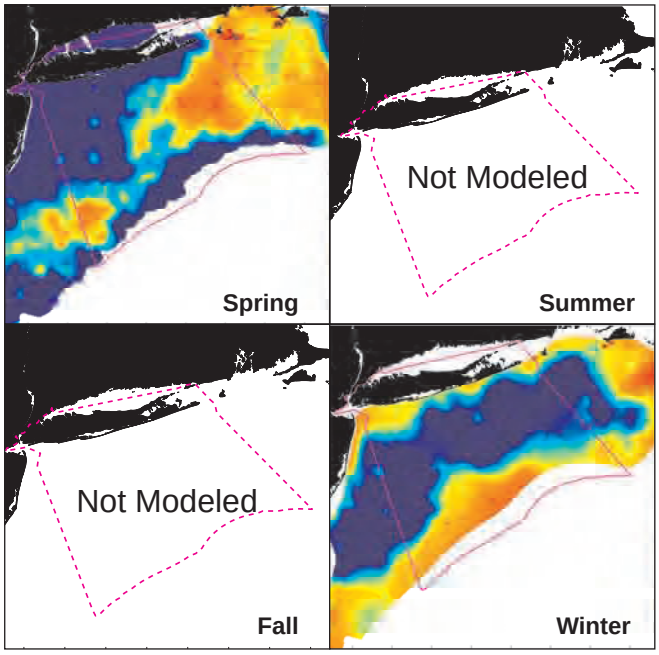



| Model structure | SP | SU | FA | WI | All |
|---|---|---|---|---|---|
| Stage I % trend | 36% | . | . | 9% | 23% |
| Stage I % spatial noise | 39% | . | . | 64% | 51% |
| Stage I range(95% sill) (km) | 245 | . | . | 195 | 220 |
| Stage I % white noise | 25% | . | . | 27% | 26% |
| Stage II % trend | 14% | . | . | 36% | 25% |
| Stage II % spatial noise | 51% | . | . | 32% | 42% |
| Stage II range(95% sill) (km) | 114 | . | . | 300 | 207 |
| Stage II % white noise | 35% | . | . | 32% | 34% |

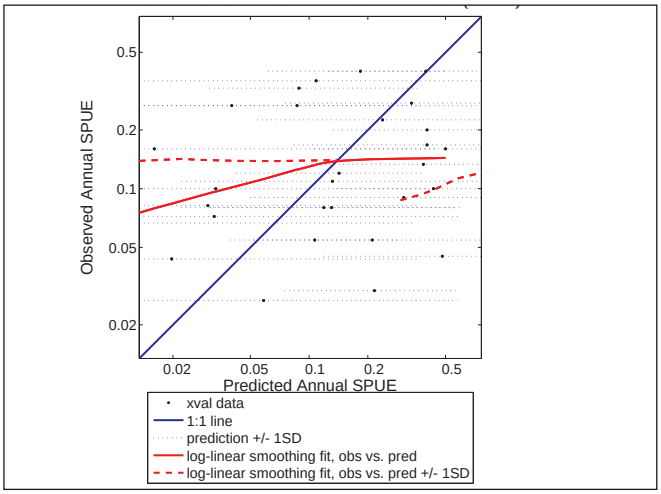
### Seasonal Predicted SPUE Maps



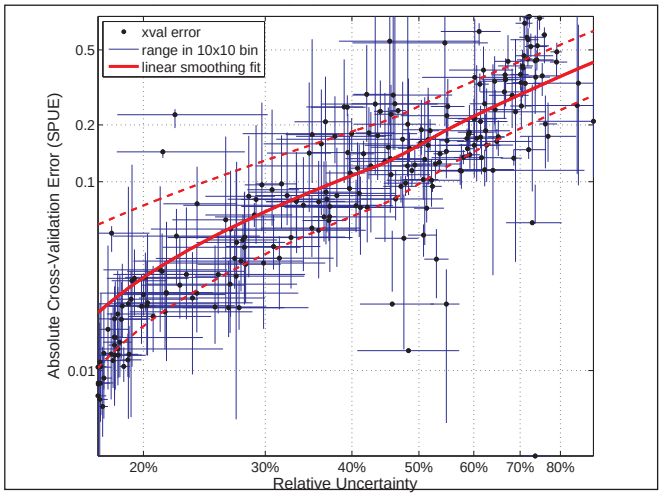

### Seasonal SPUE Relative Uncertainty




### Annual Cross-Val Observed vs. Predicted



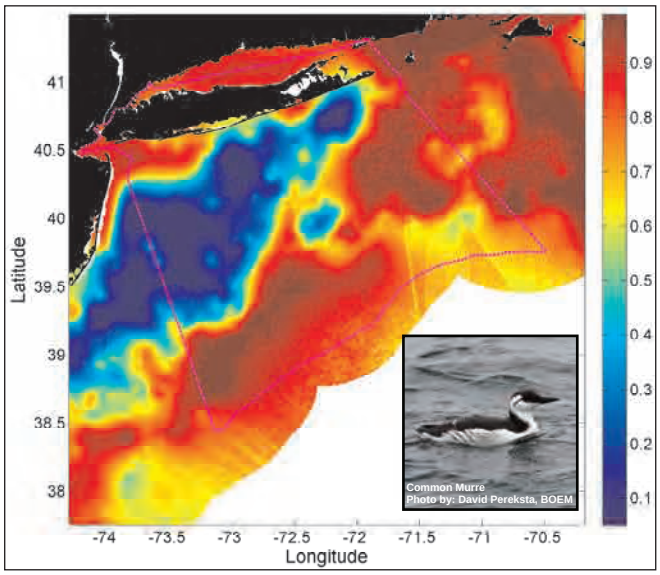

### Annual SPUE Uncertainty Calibration Plot



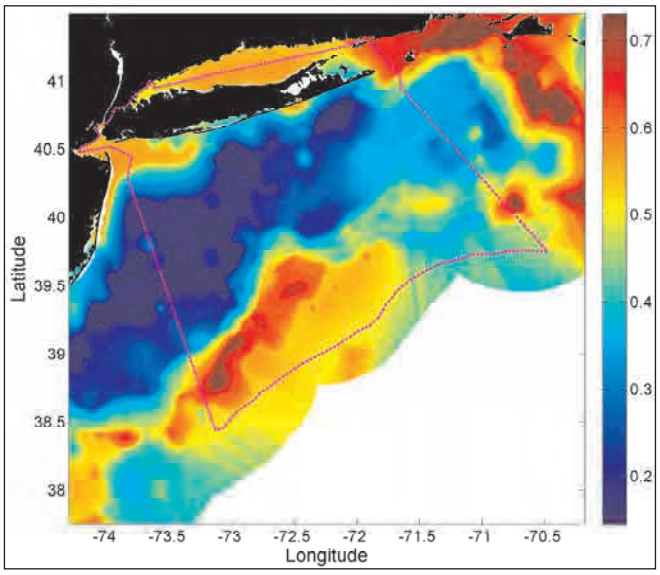
# Alcids, less common



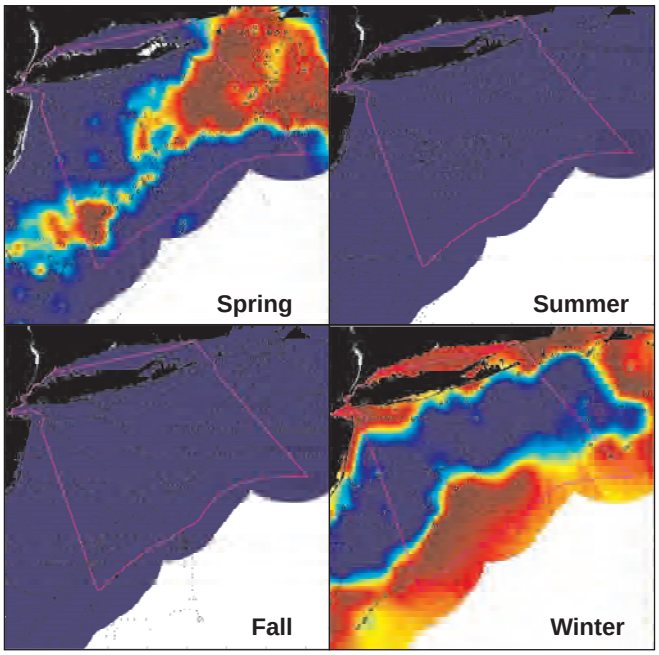
### Annual Presence Probability



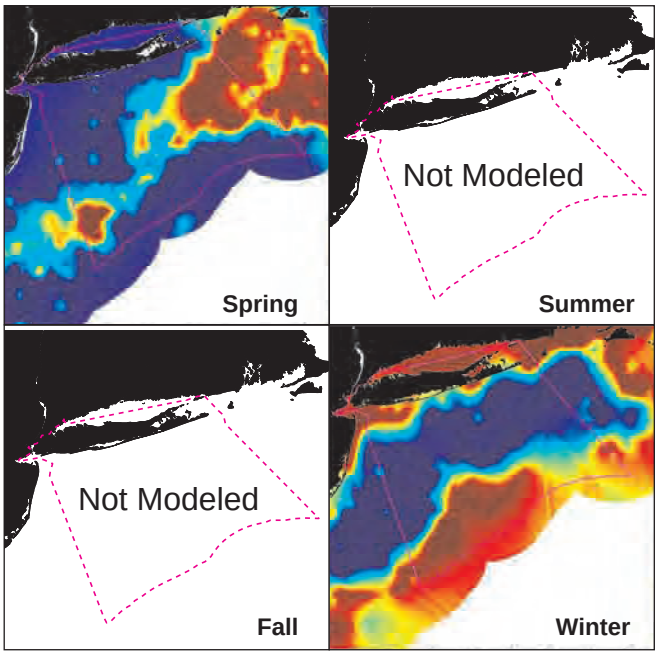

### Annual Presence Relative Uncertainty



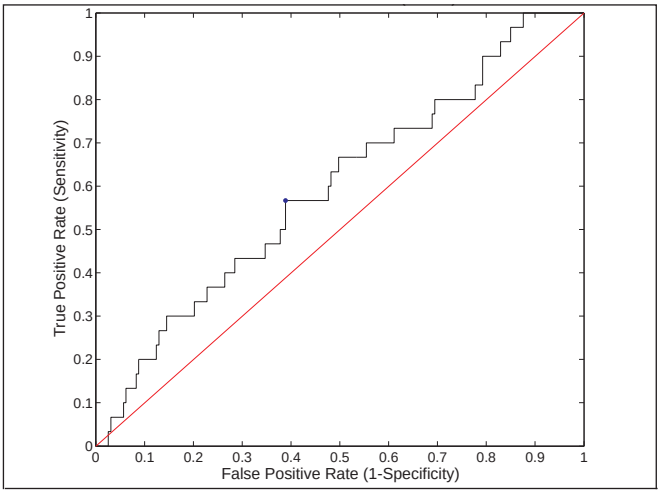

### Seasonal Presence Probability Maps



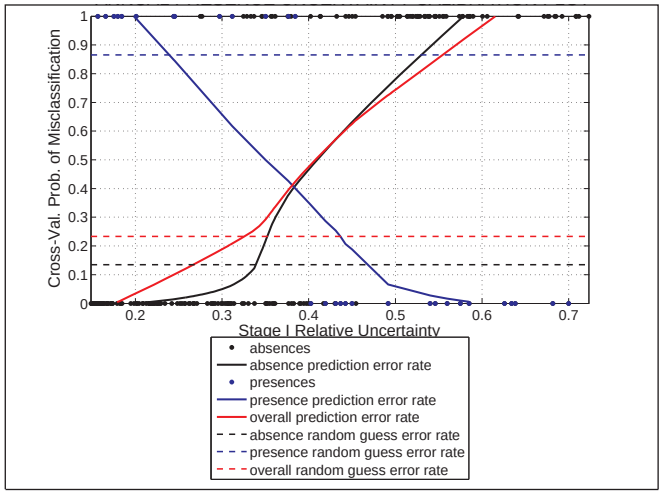

### Seasonal Presence Relative Uncertainty Maps




### Annual Cross-Validation ROC Plot



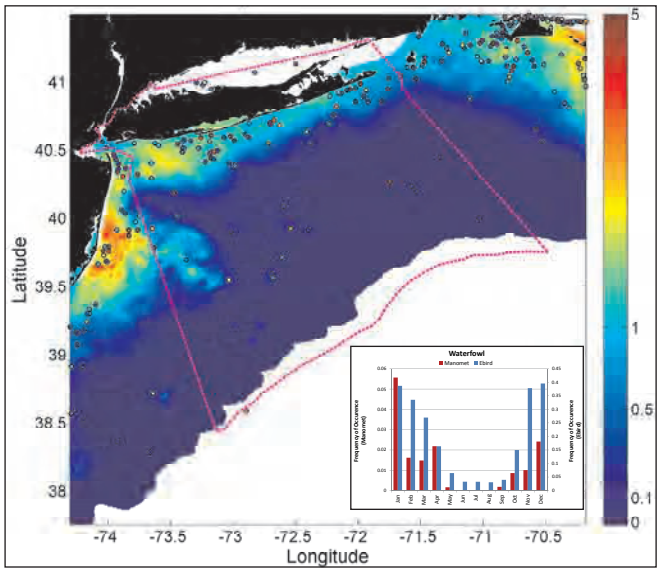

### Annual Presence Uncertainty Calibration Plot



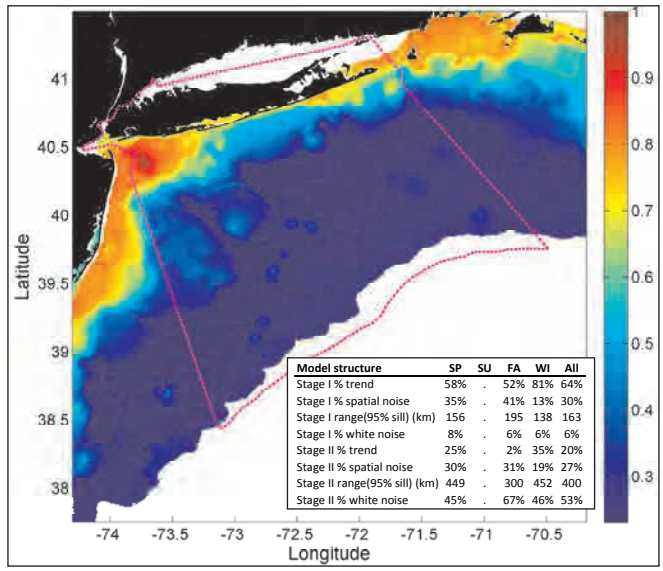
# Coastal Waterfowl



### Annual Predicted SPUE Map

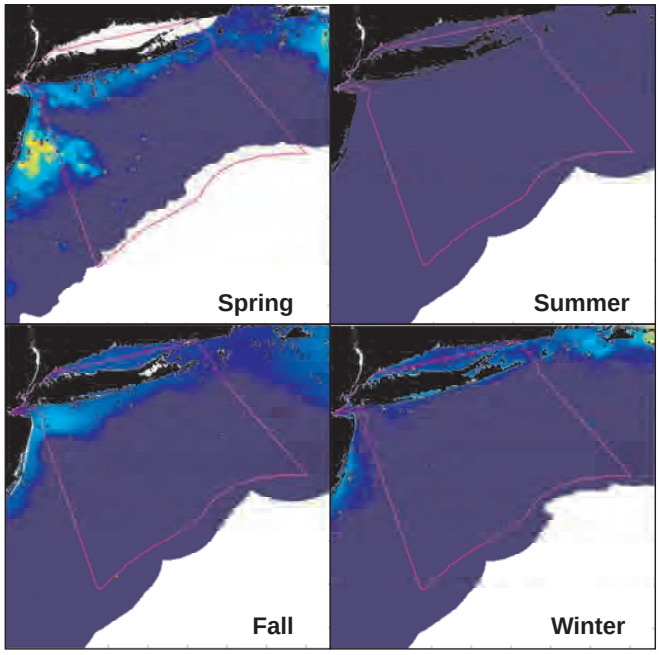



### Annual SPUE Relative Uncertainty Map

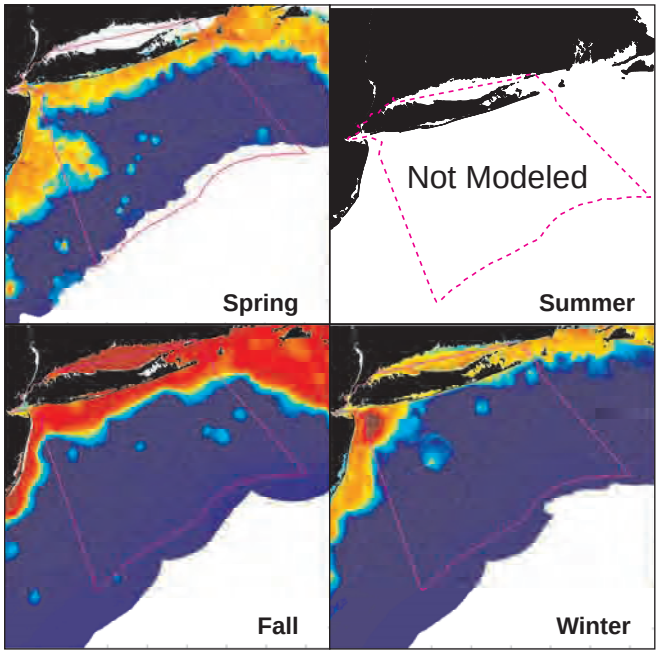



| Model structure | SP | SU | FA | WI | All |
|---|---|---|---|---|---|
| Stage I % trend | 58% | . | 52% | 81% | 64% |
| Stage I % spatial noise | 35% | . | 41% | 13% | 30% |
| Stage I range(95% sill) (km) | 156 | . | 195 | 138 | 163 |
| Stage I % white noise | 8% | . | 6% | 6% | 6% |
| Stage II % trend | 25% | . | 2% | 35% | 20% |
| Stage II % spatial noise | 30% | . | 31% | 19% | 27% |
| Stage II range(95% sill) (km) | 449 | . | 300 | 452 | 400 |
| Stage II % white noise | 45% | . | 67% | 46% | 53% |

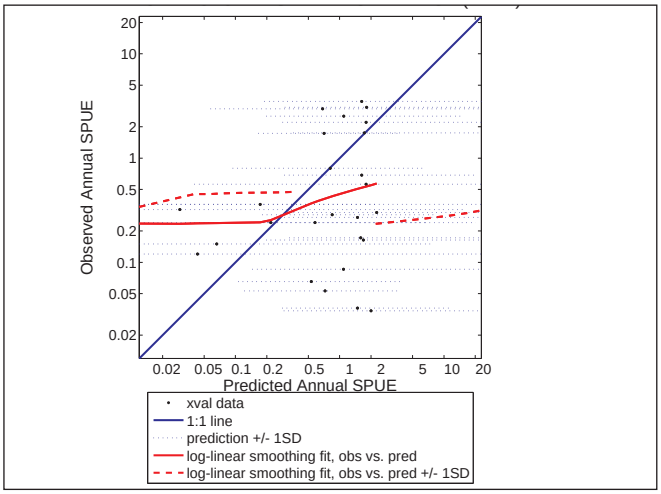
### Seasonal Predicted SPUE Maps



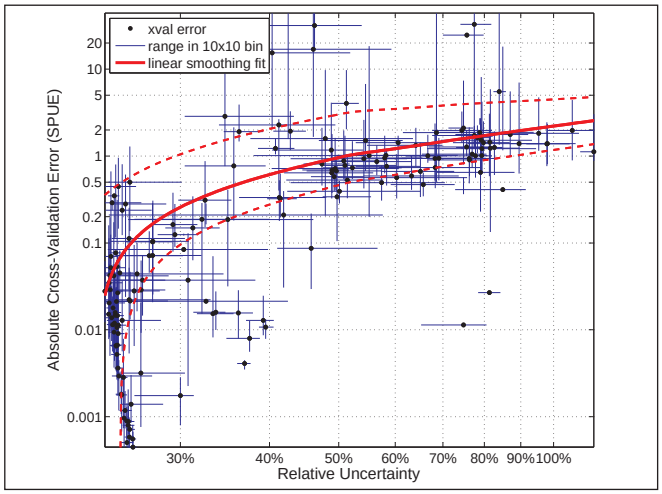

### Seasonal SPUE Relative Uncertainty




### Annual Cross-Val Observed vs. Predicted



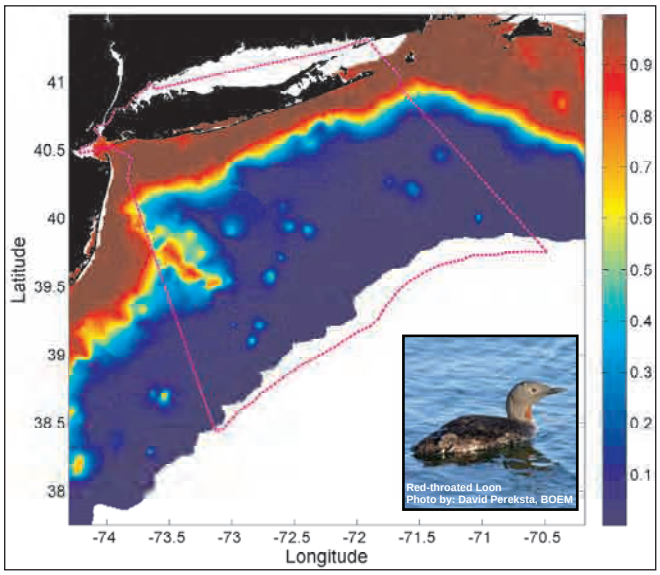

### Annual SPUE Uncertainty Calibration Plot



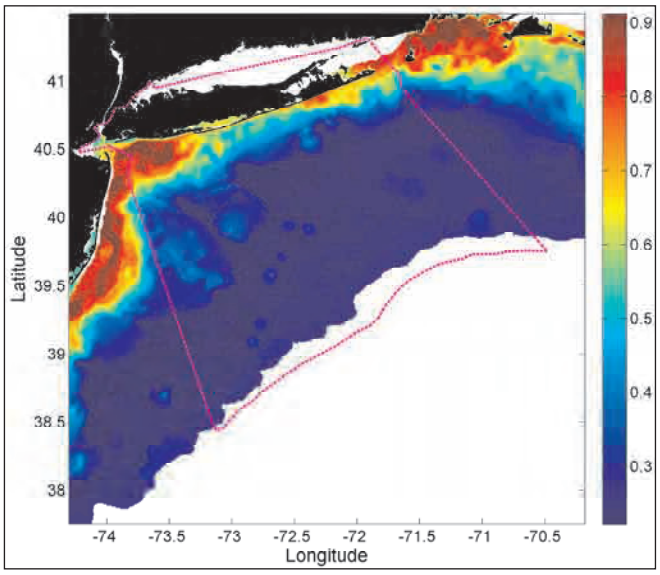
# Coastal Waterfowl



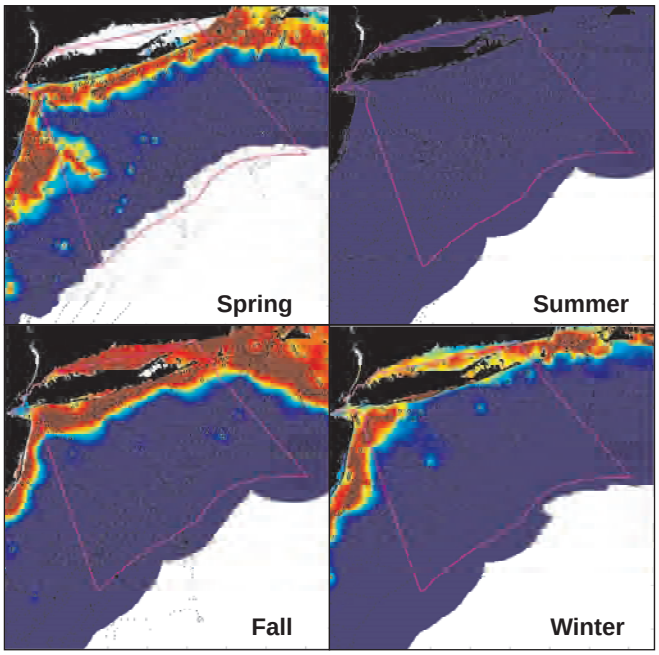
### Annual Presence Probability



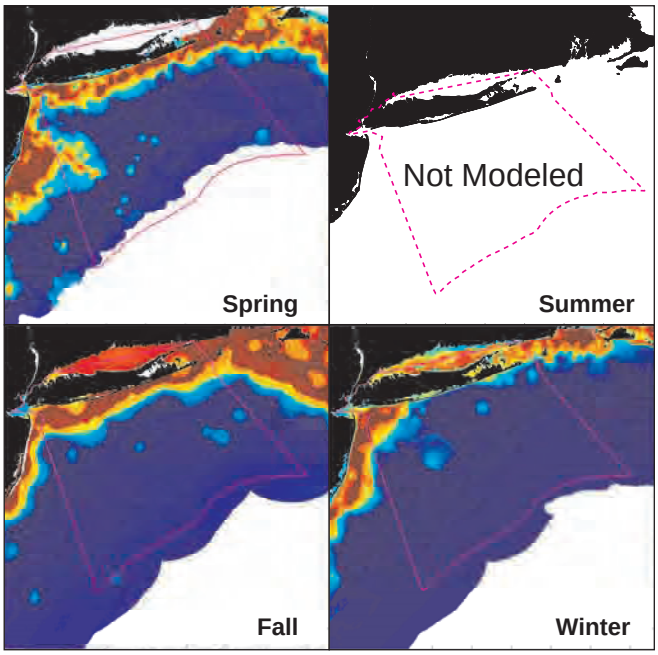

### Annual Presence Relative Uncertainty



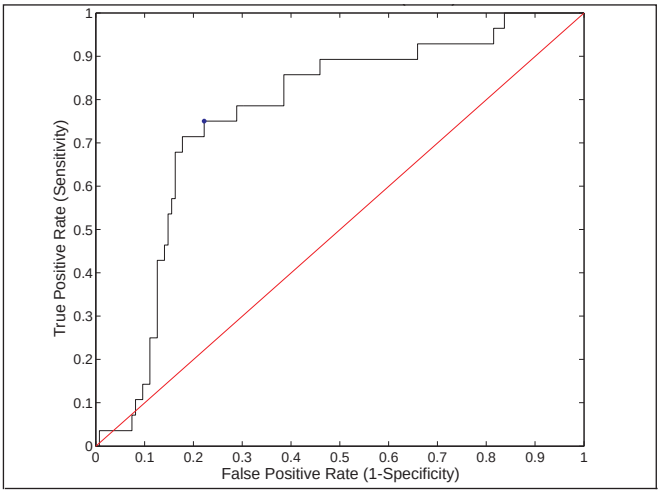

### Seasonal Presence Probability Maps



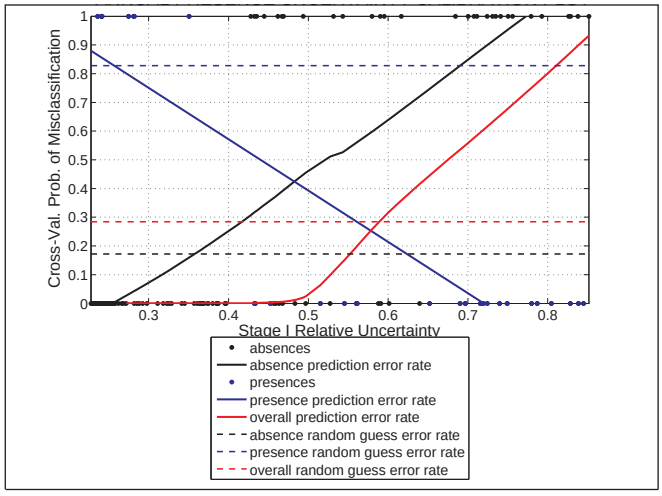

### Seasonal Presence Relative Uncertainty Maps




### Annual Cross-Validation ROC Plot



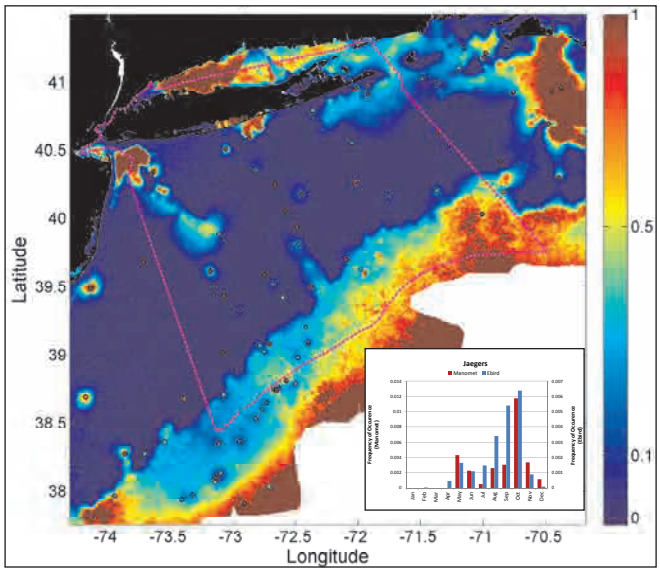

### Annual Presence Uncertainty Calibration Plot



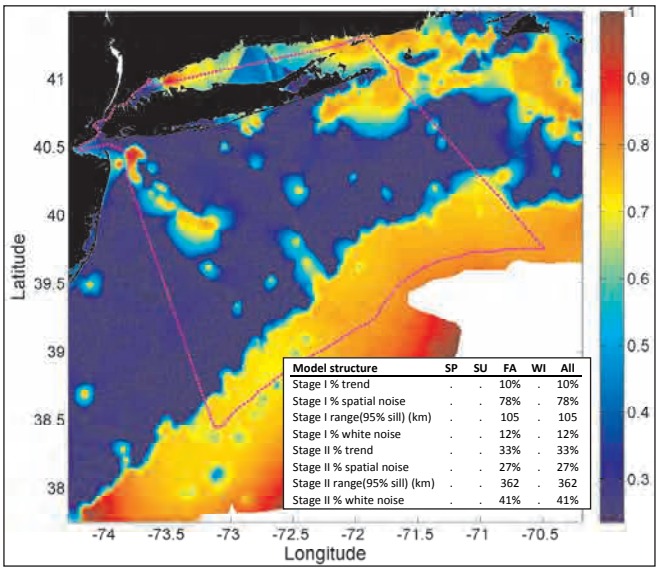
# Jaegers

Stage I x II: Relative Abundance Predictive Model

### Annual Predicted SPUE Map

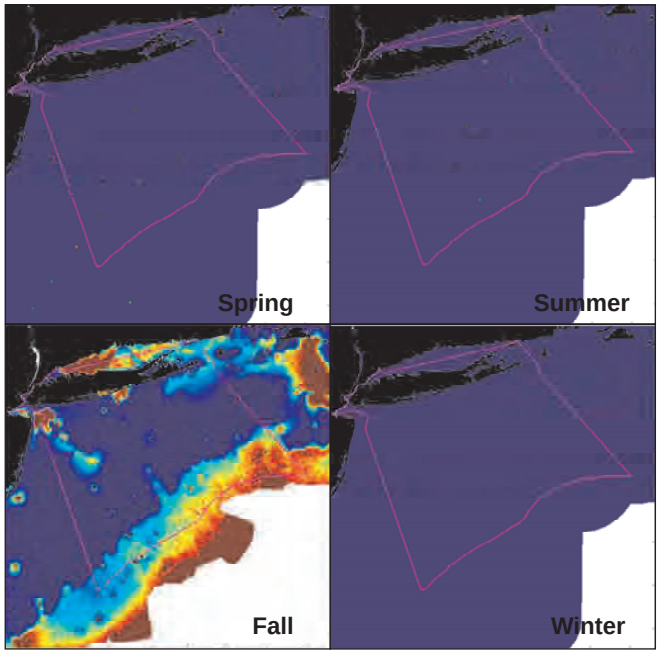



### Annual SPUE Relative Uncertainty Map

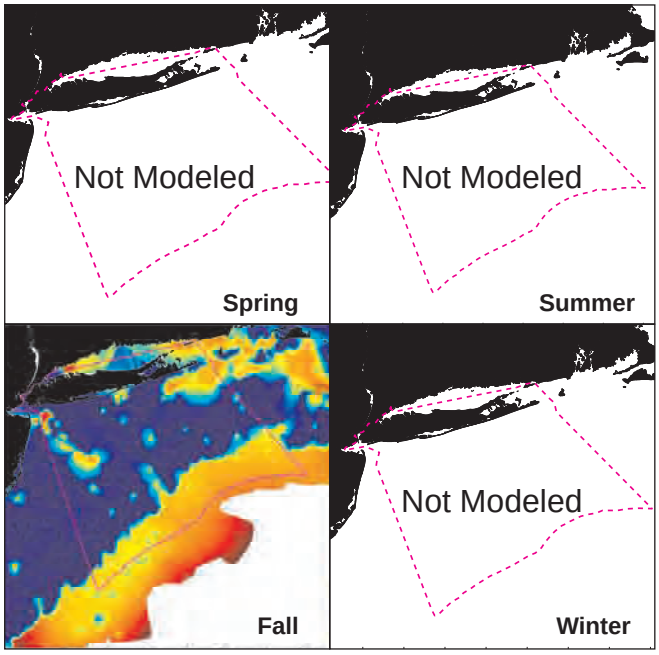



| Model structure | SP | SU | FA | WI | All |
|---|---|---|---|---|---|
| Stage I % trend | . | . | 10% | . | 10% |
| Stage I % spatial noise | . | . | 78% | . | 78% |
| Stage I range(95% sill) (km) | . | . | 105 | . | 105 |
| Stage I % white noise | . | . | 12% | . | 12% |
| Stage II % trend | . | . | 33% | . | 33% |
| Stage II % spatial noise | . | . | 27% | . | 27% |
| Stage II range(95% sill) (km) | . | . | 362 | . | 362 |
| Stage II % white noise | . | . | 41% | . | 41% |

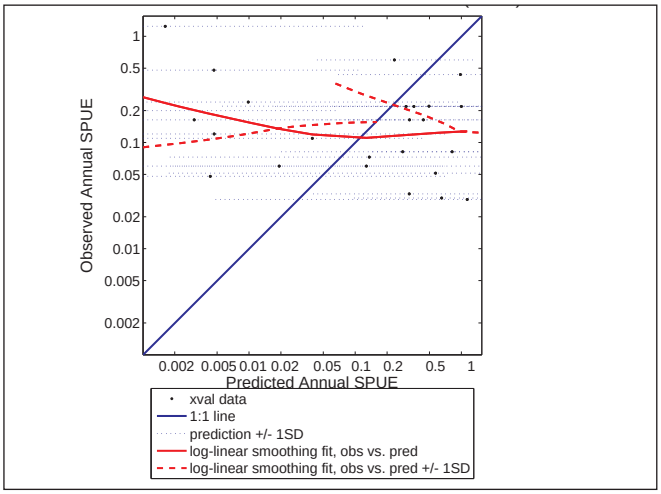
### Seasonal Predicted SPUE Maps



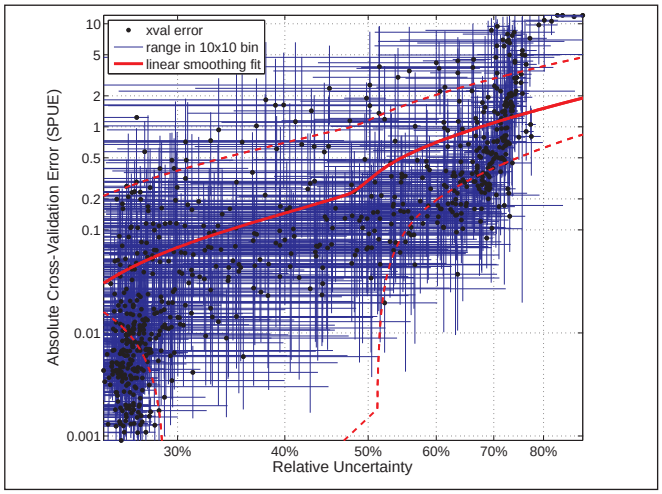

### Seasonal SPUE Relative Uncertainty




### Annual Cross-Val Observed vs. Predicted



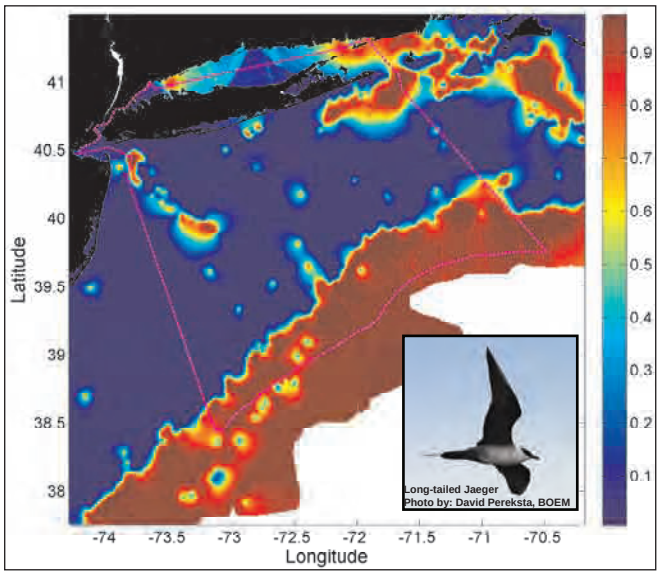

### Annual SPUE Uncertainty Calibration Plot



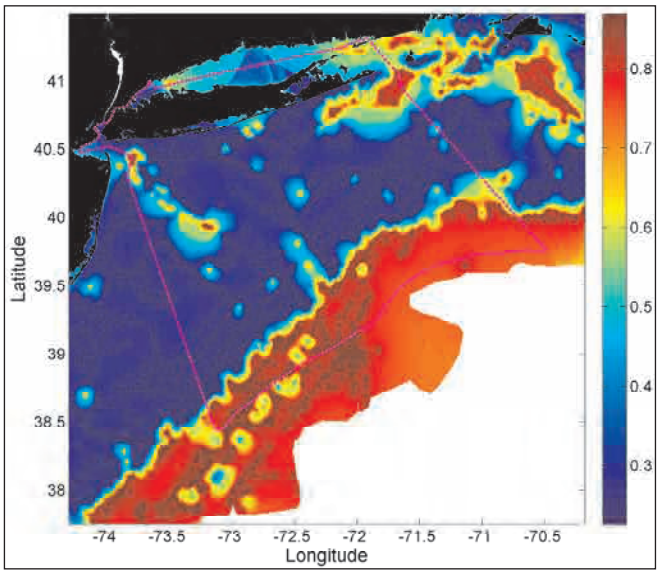
# Jaegers

Stage I: Presence Probability Predictive Model

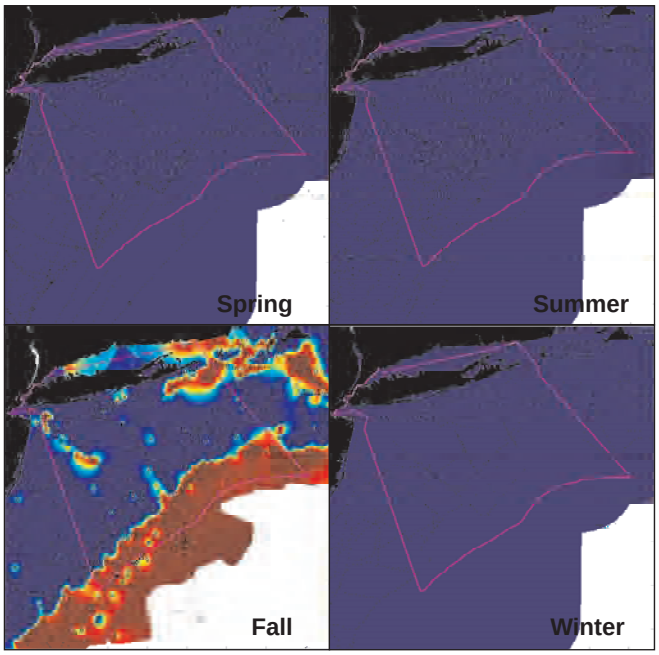
### Annual Presence Probability



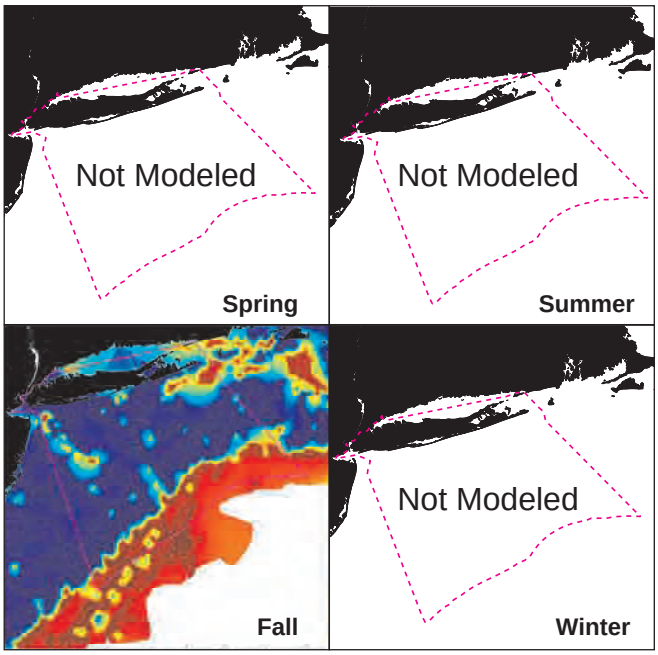

### Annual Presence Relative Uncertainty



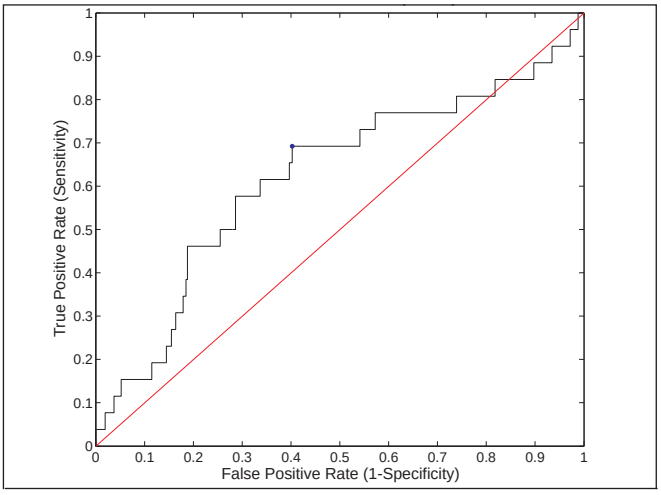

### Seasonal Presence Probability Maps



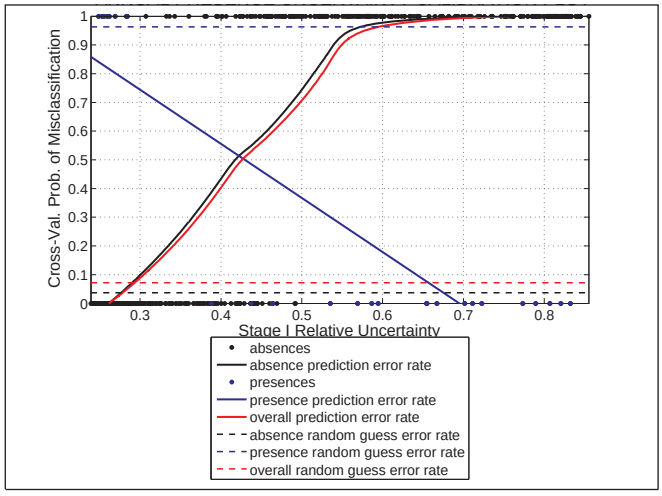

### Seasonal Presence Relative Uncertainty Maps




### Annual Cross-Validation ROC Plot



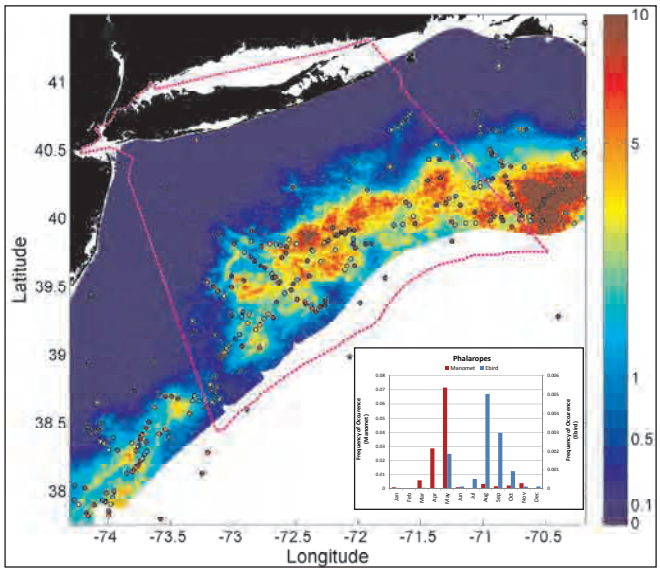

### Annual Presence Uncertainty Calibration Plot



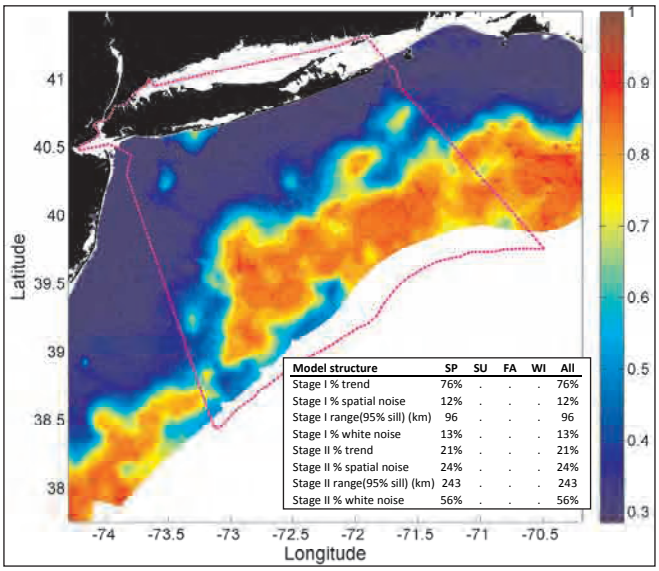
# Phalaropes

Stage I x II: Relative Abundance Predictive Model

### Annual Predicted SPUE Map

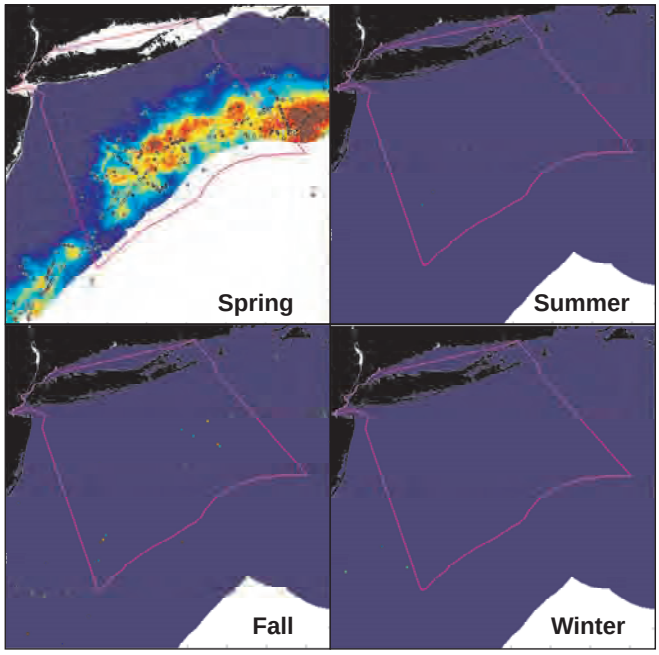



### Annual SPUE Relative Uncertainty Map

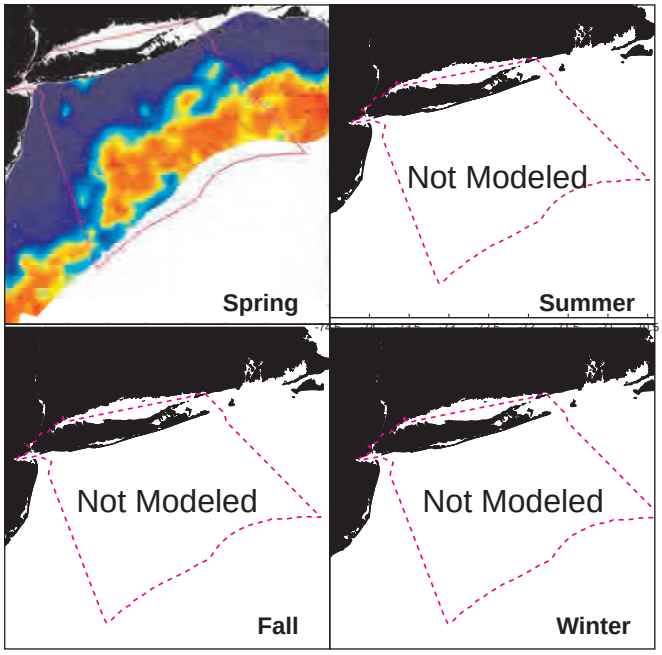



| Model structure | SP | SU | FA | WI | All |
|---|---|---|---|---|---|
| Stage I % trend | 76% | . | . | . | 76% |
| Stage I % spatial noise | 12% | . | . | . | 12% |
| Stage I range(95% sill) (km) | 96 | . | . | . | 96 |
| Stage I % white noise | 13% | . | . | . | 13% |
| Stage II % trend | 21% | . | . | . | 21% |
| Stage II % spatial noise | 24% | . | . | . | 24% |
| Stage II range(95% sill) (km) | 243 | . | . | . | 243 |
| Stage II % white noise | 56% | . | . | . | 56% |

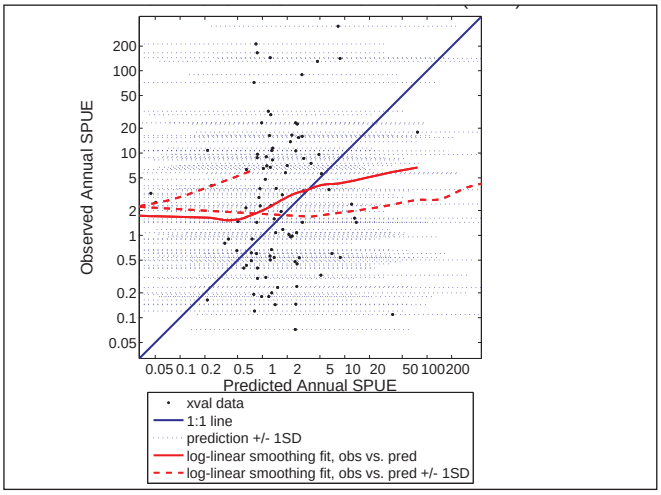
### Seasonal Predicted SPUE Maps



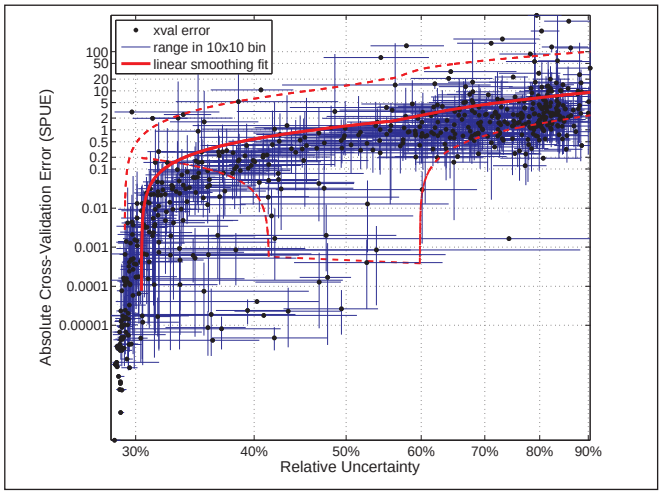

### Seasonal SPUE Relative Uncertainty




### Annual Cross-Val Observed vs. Predicted



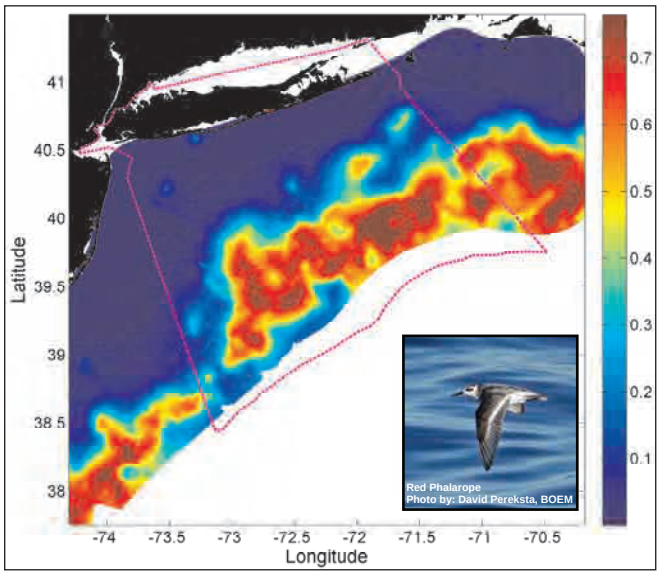

### Annual SPUE Uncertainty Calibration Plot



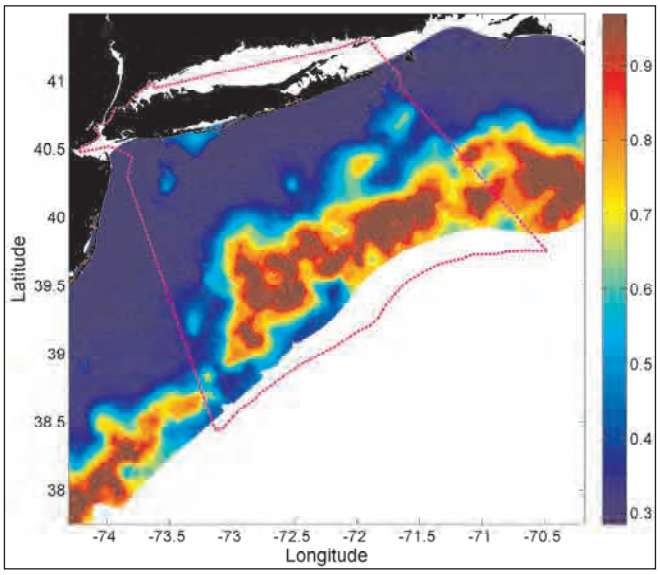
# Phalaropes

Stage I: Presence Probability Predictive Model

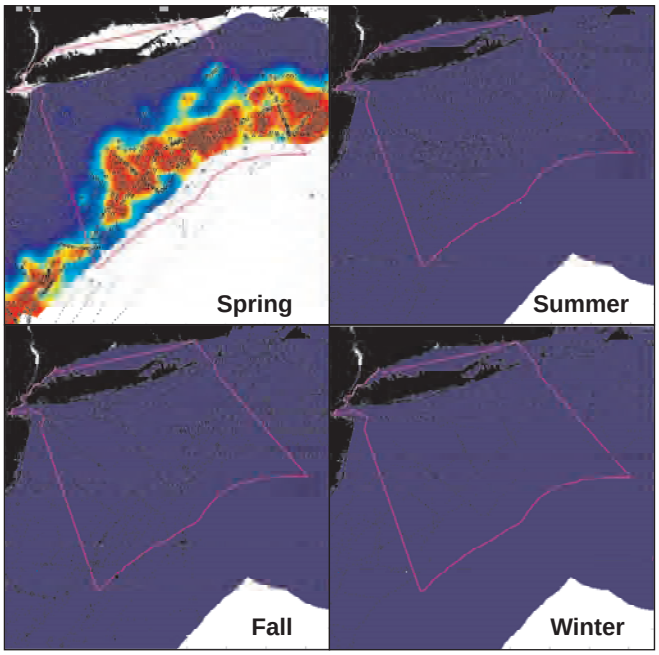
### Annual Presence Probability



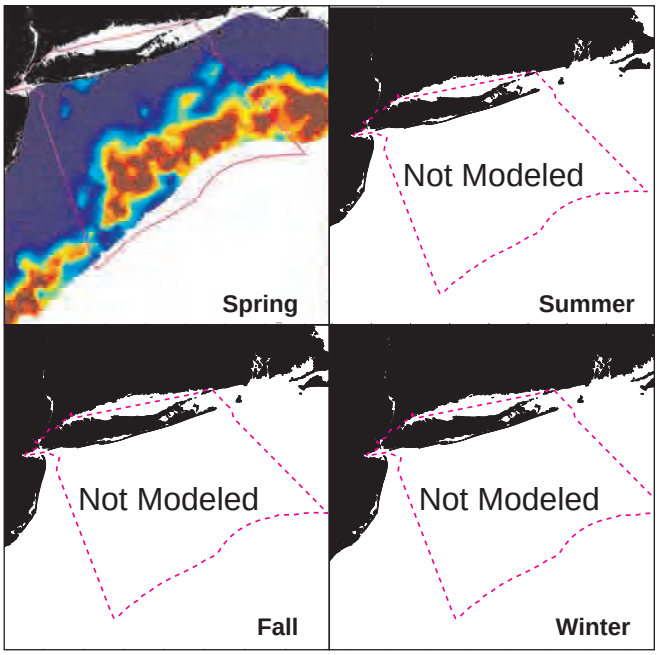

### Annual Presence Relative Uncertainty



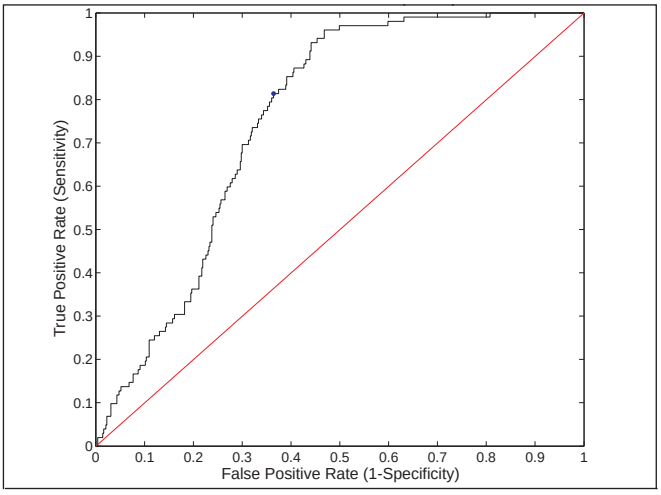

### Seasonal Presence Probability Maps



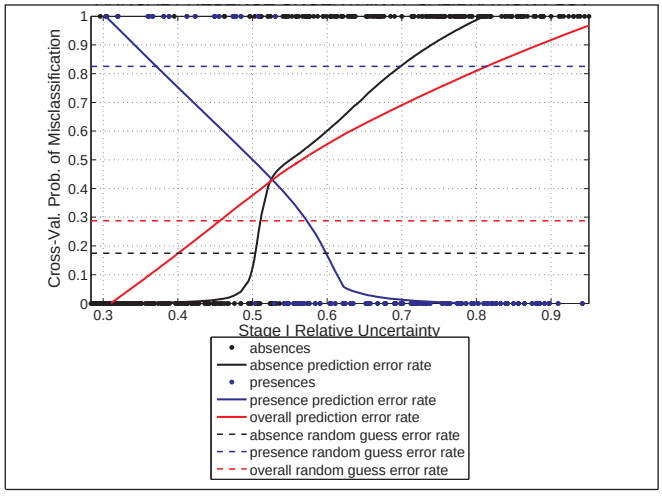

### Seasonal Presence Relative Uncertainty Maps




### Annual Cross-Validation ROC Plot



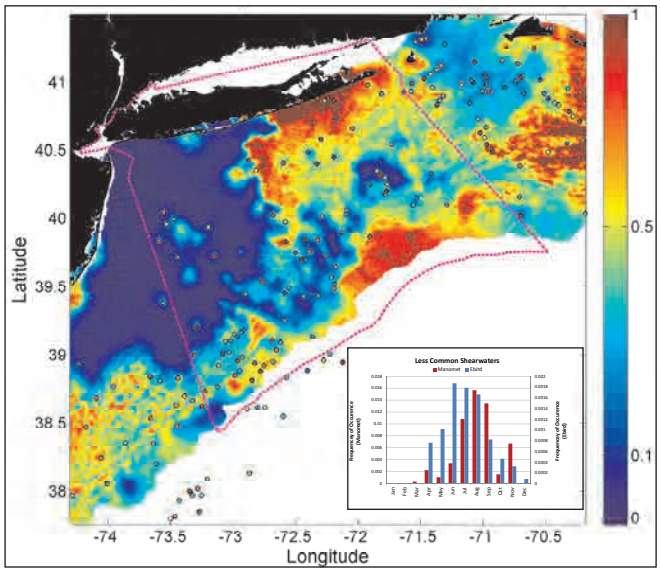

### Annual Presence Uncertainty Calibration Plot



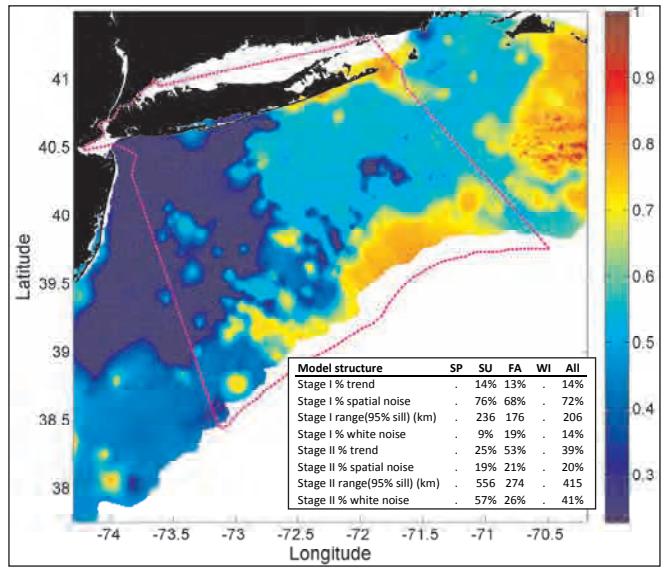
# Shearwaters, less common

Stage I x II: Relative Abundance Predictive Model

### Annual Predicted SPUE Map

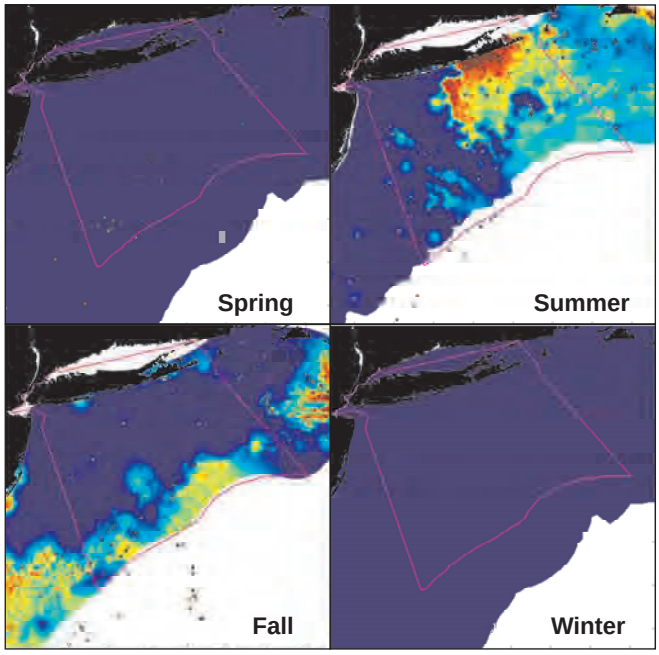



### Annual SPUE Relative Uncertainty Map

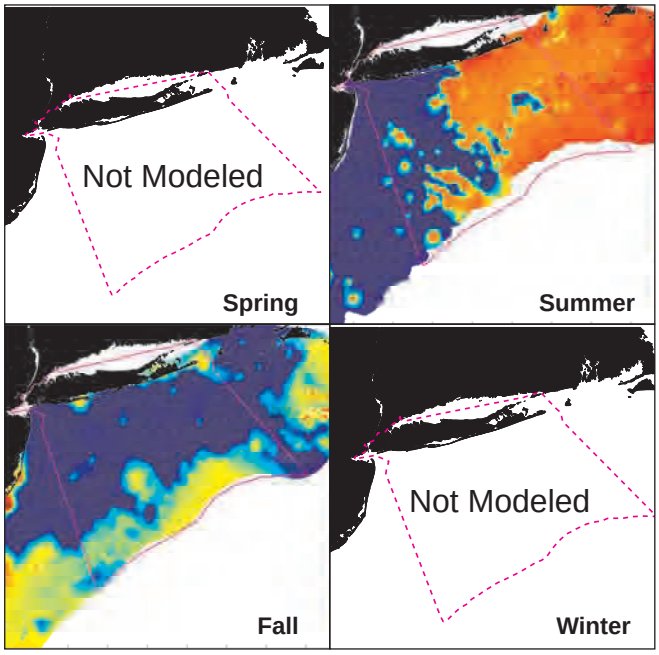



| Model structure | SP | SU | FA | WI | All |
|---|---|---|---|---|---|
| Stage I % trend | . | 14% | 13% | . | 14% |
| Stage I % spatial noise | . | 76% | 68% | . | 72% |
| Stage I range(95% sill) (km) | . | 236 | 176 | . | 206 |
| Stage I % white noise | . | 9% | 19% | . | 14% |
| Stage II % trend | . | 25% | 53% | . | 39% |
| Stage II % spatial noise | . | 19% | 21% | . | 20% |
| Stage II range(95% sill) (km) | . | 556 | 274 | . | 415 |
| Stage II % white noise | . | 57% | 26% | . | 41% |

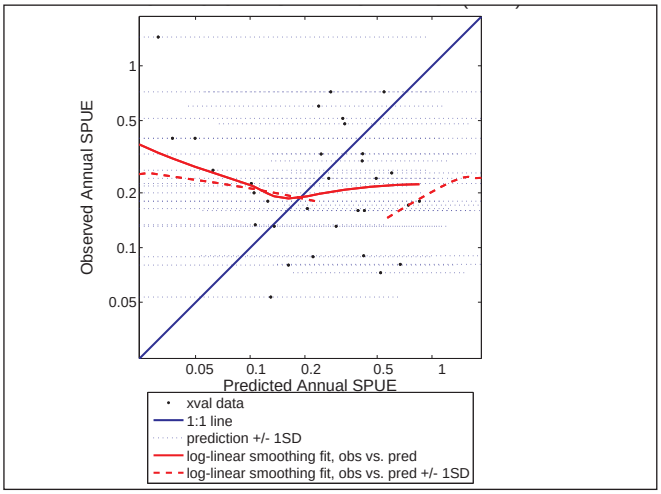
### Seasonal Predicted SPUE Maps



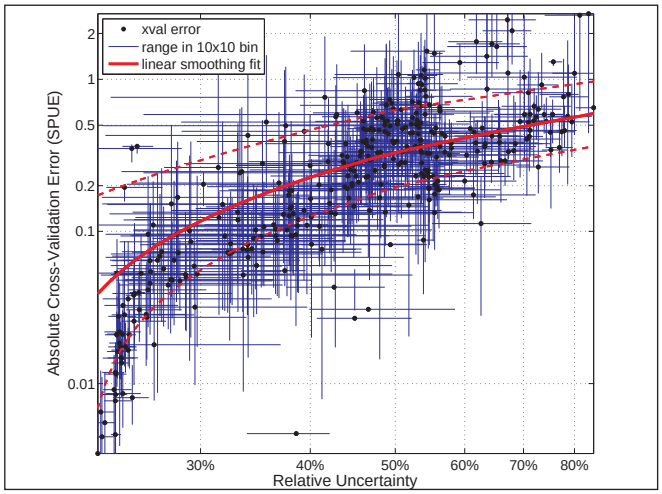

### Seasonal SPUE Relative Uncertainty




### Annual Cross-Val Observed vs. Predicted



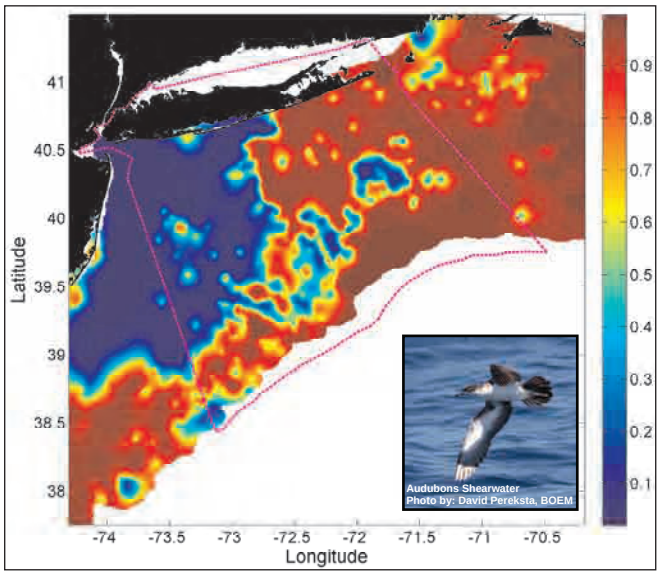

### Annual SPUE Uncertainty Calibration Plot



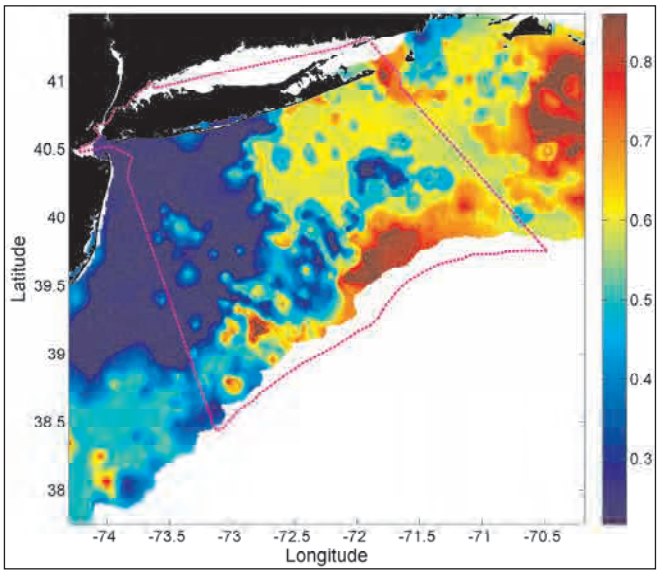
# Shearwaters, less common

Stage I: Presence Probability Predictive Model

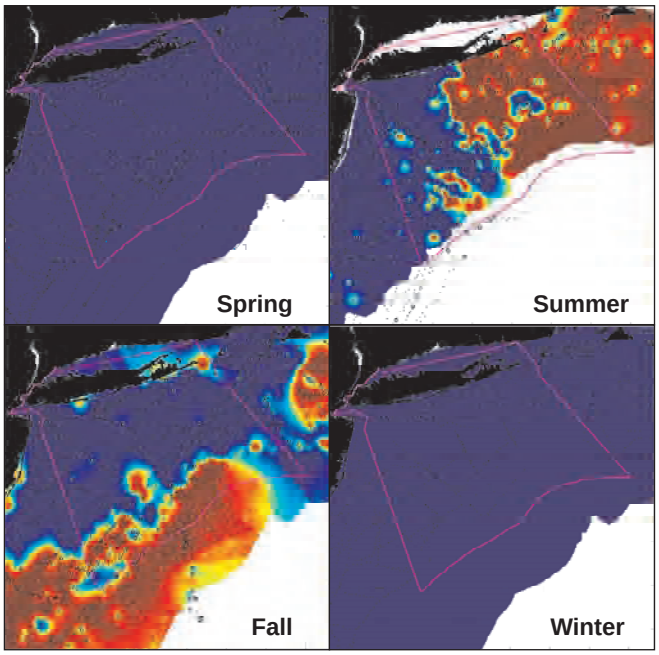
### Annual Presence Probability



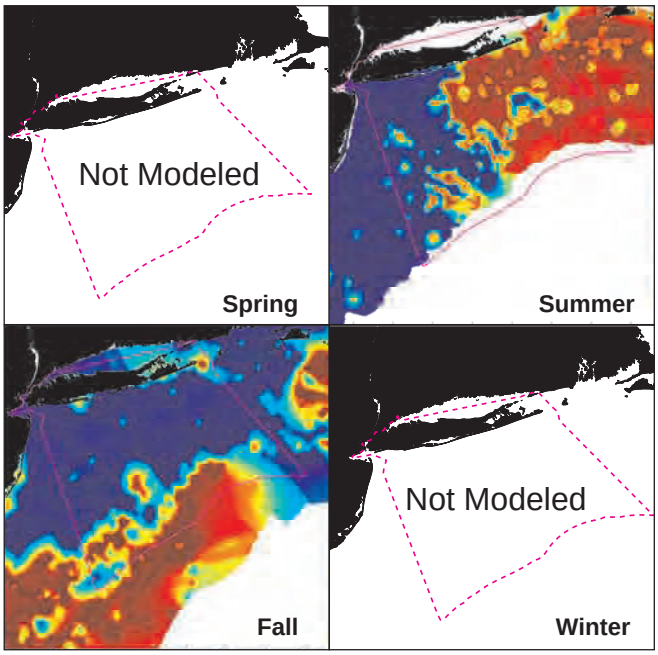

### Annual Presence Relative Uncertainty



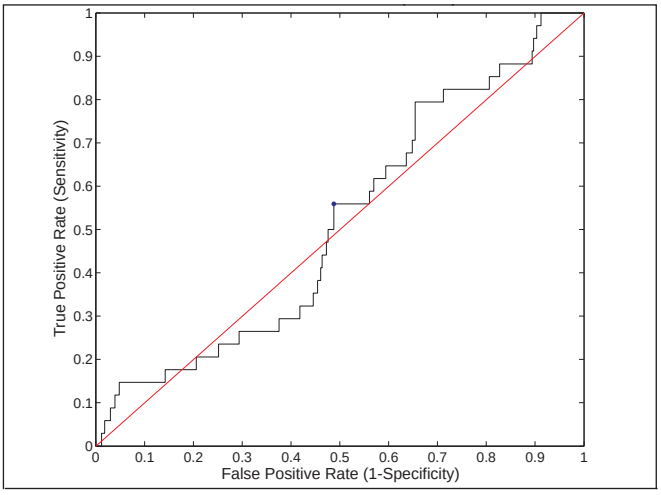

### Seasonal Presence Probability Maps



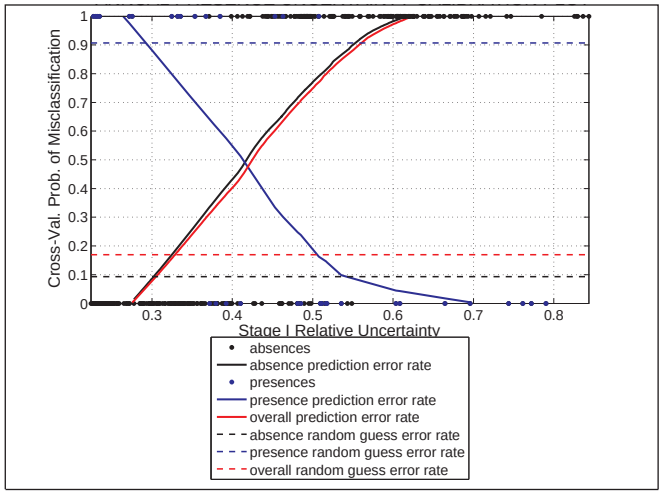

### Seasonal Presence Relative Uncertainty Maps




### Annual Cross-Validation ROC Plot



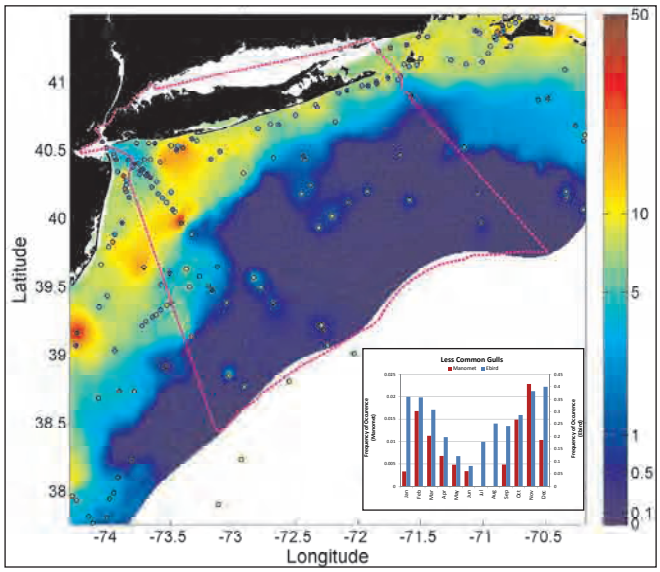

### Annual Presence Uncertainty Calibration Plot



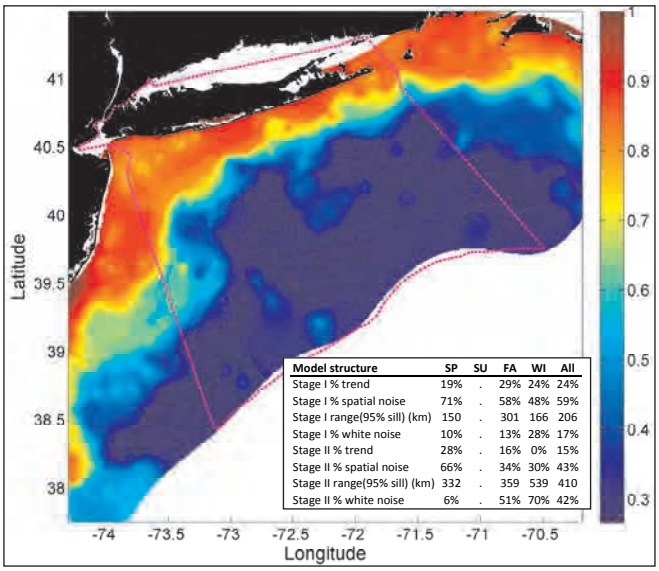
# Small Gulls, less common

Stage I x II: Relative Abundance Predictive Model

### Annual Predicted SPUE Map

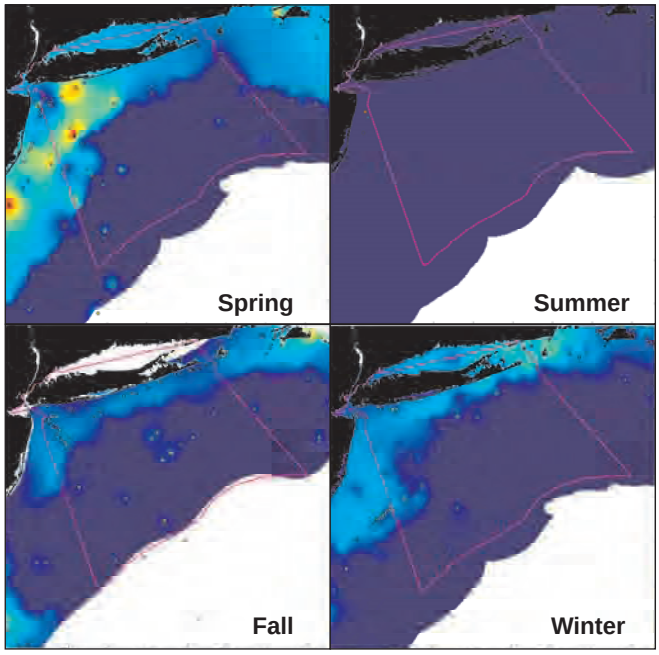



### Annual SPUE Relative Uncertainty Map

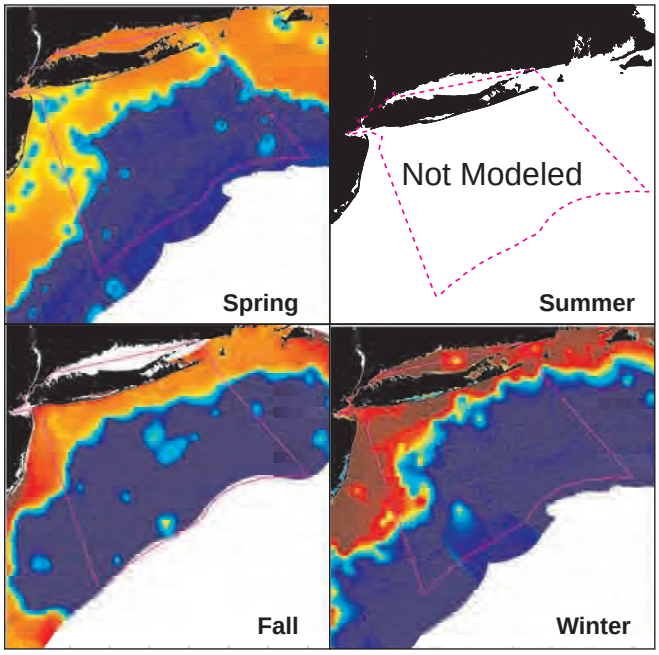



| Model structure | SP | SU | FA | WI | All |
|---|---|---|---|---|---|
| Stage I % trend | 19% | . | 29% | 24% | 24% |
| Stage I % spatial noise | 71% | . | 58% | 48% | 59% |
| Stage I range(95% sill) (km) | 150 | . | 301 | 166 | 206 |
| Stage I % white noise | 10% | . | 13% | 28% | 17% |
| Stage II % trend | 28% | . | 16% | 0% | 15% |
| Stage II % spatial noise | 66% | . | 34% | 30% | 43% |
| Stage II range(95% sill) (km) | 332 | . | 359 | 539 | 410 |
| Stage II % white noise | 6% | . | 51% | 70% | 42% |

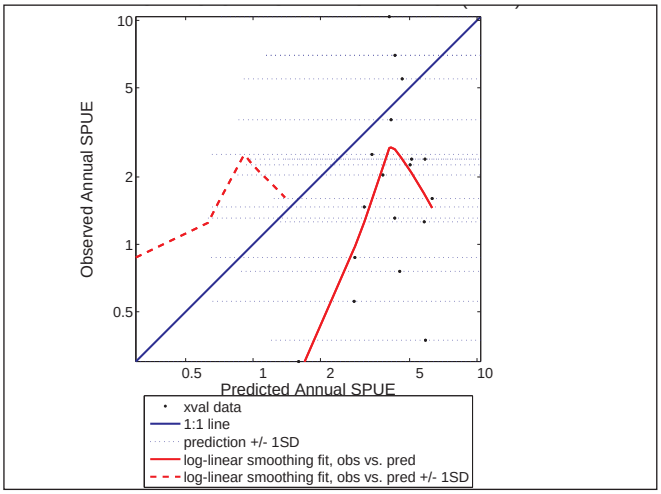
### Seasonal Predicted SPUE Maps



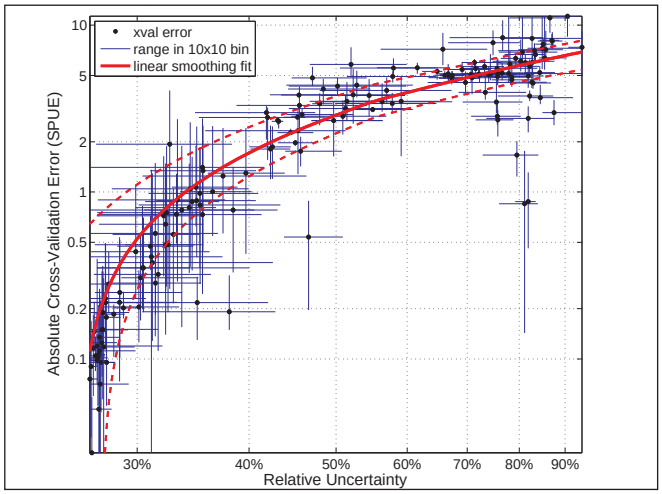

### Seasonal SPUE Relative Uncertainty




### Annual Cross-Val Observed vs. Predicted



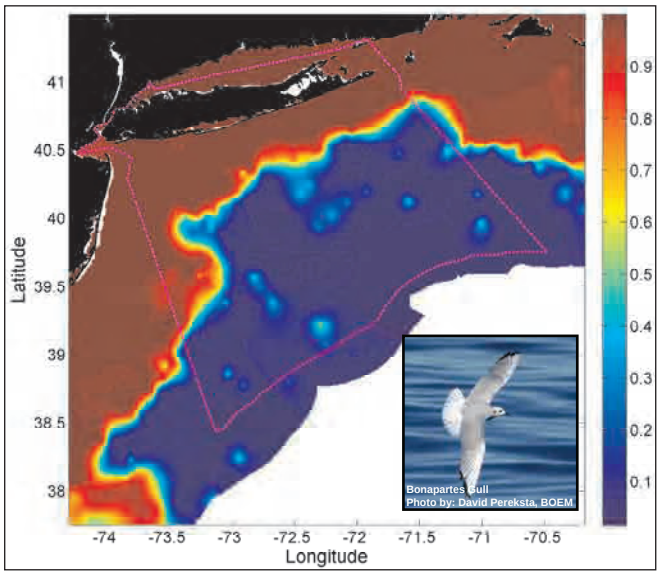

### Annual SPUE Uncertainty Calibration Plot



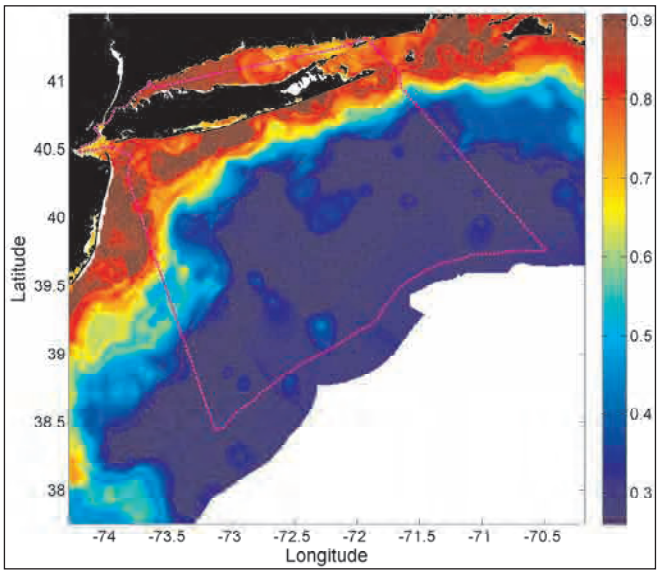
# Small Gulls, less common

Stage I: Presence Probability Predictive Model

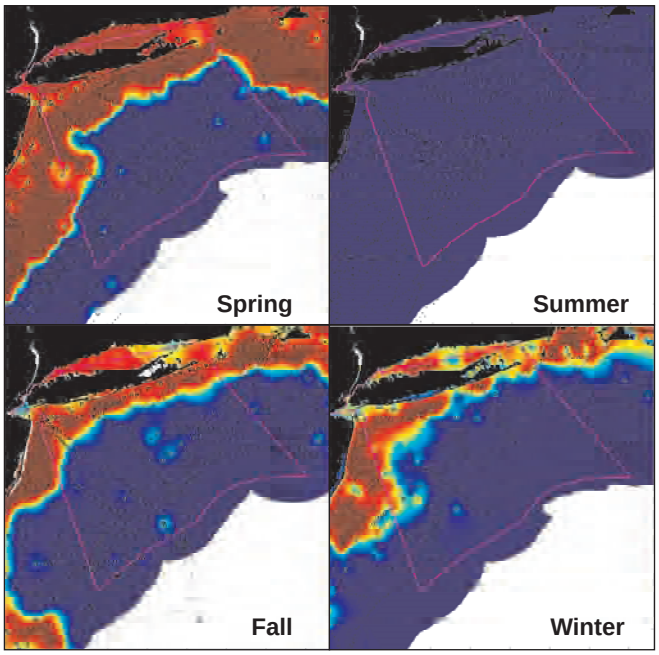
### Annual Presence Probability



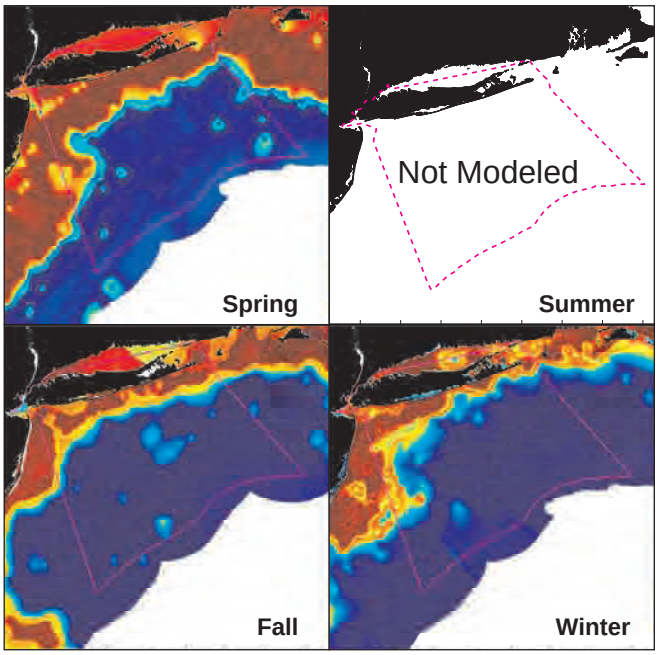

### Annual Presence Relative Uncertainty



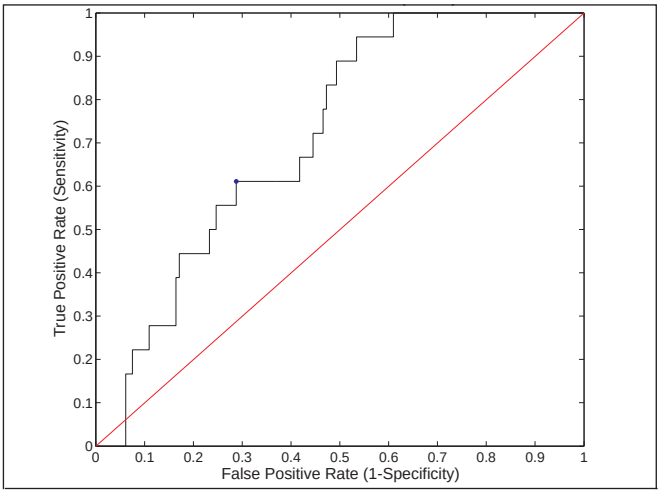

### Seasonal Presence Probability Maps



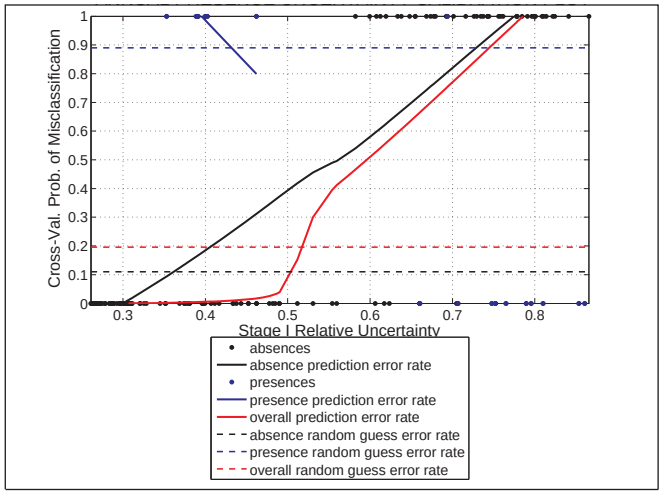

### Seasonal Presence Relative Uncertainty Maps




### Annual Cross-Validation ROC Plot



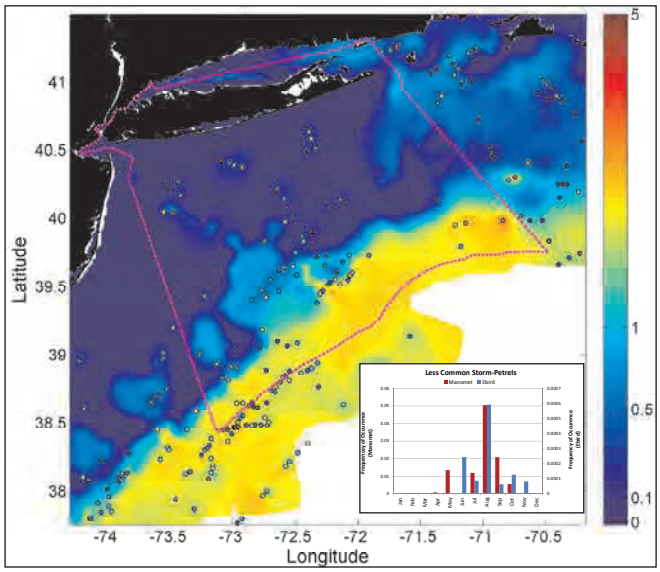

### Annual Presence Uncertainty Calibration Plot



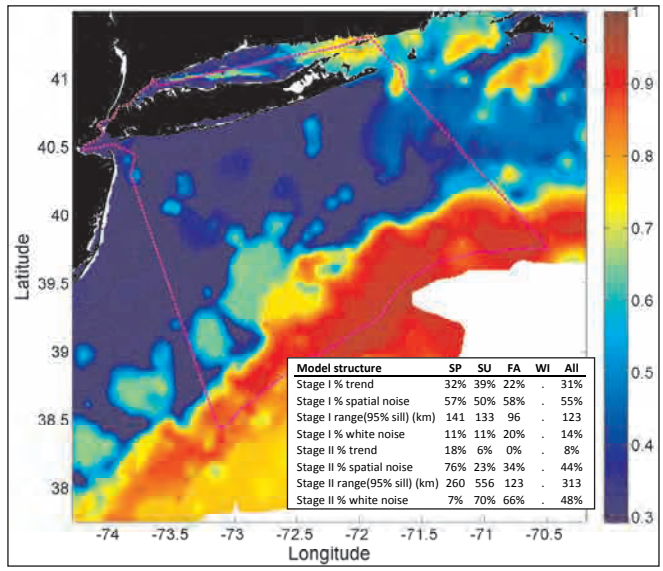
# Storm-Petrels, less common

Stage I x II: Relative Abundance Predictive Model

### Annual Predicted SPUE Map

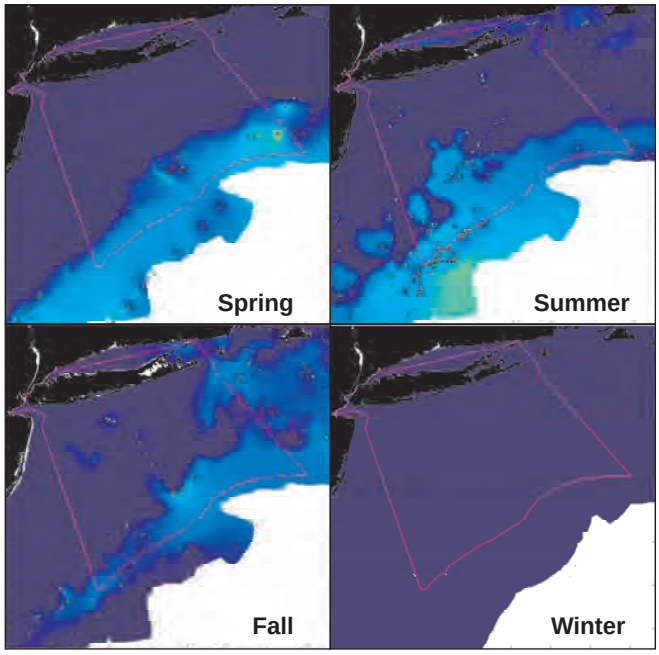



### Annual SPUE Relative Uncertainty Map

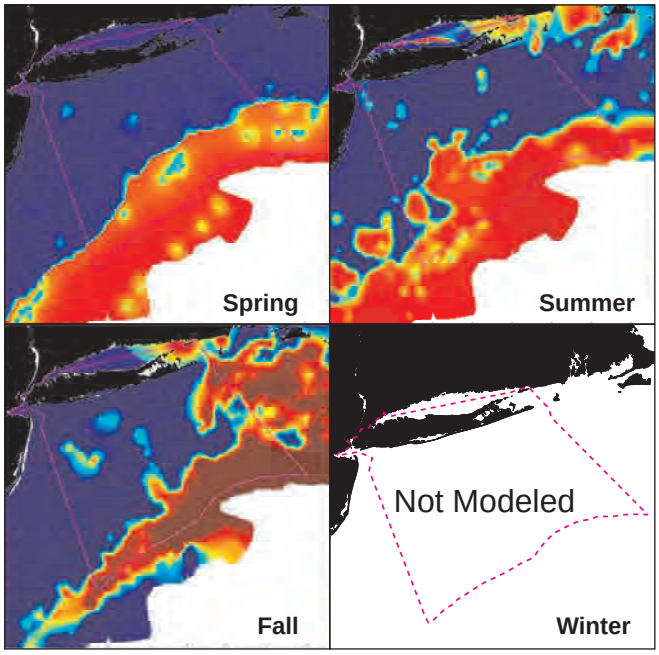



| Model structure | SP | SU | FA | WI | All |
|---|---|---|---|---|---|
| Stage I % trend | 32% | 39% | 22% | . | 31% |
| Stage I % spatial noise | 57% | 50% | 58% | . | 55% |
| Stage I range(95% sill) (km) | 141 | 133 | 96 | . | 123 |
| Stage I % white noise | 11% | 11% | 20% | . | 14% |
| Stage II % trend | 18% | 6% | 0% | . | 8% |
| Stage II % spatial noise | 76% | 23% | 34% | . | 44% |
| Stage II range(95% sill) (km) | 260 | 556 | 123 | . | 313 |
| Stage II % white noise | 7% | 70% | 66% | . | 48% |

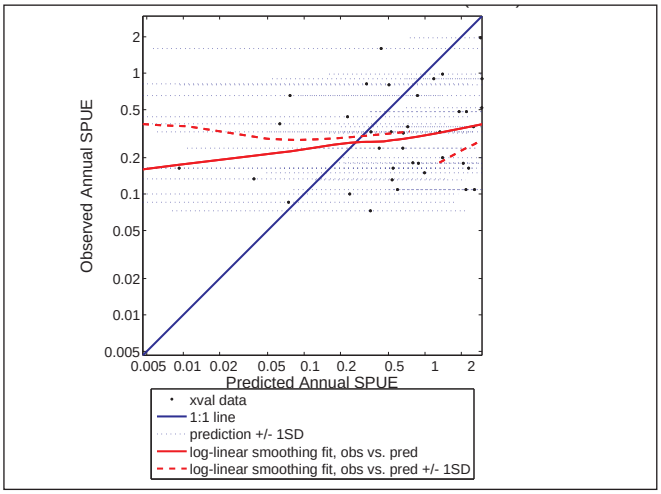
### Seasonal Predicted SPUE Maps



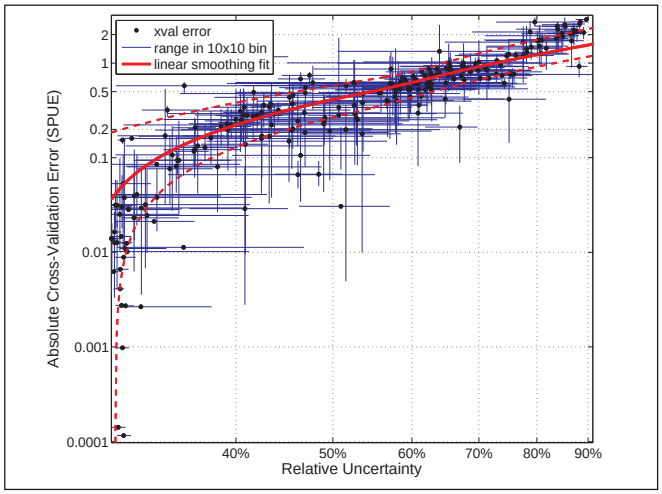

### Seasonal SPUE Relative Uncertainty




### Annual Cross-Val Observed vs. Predicted



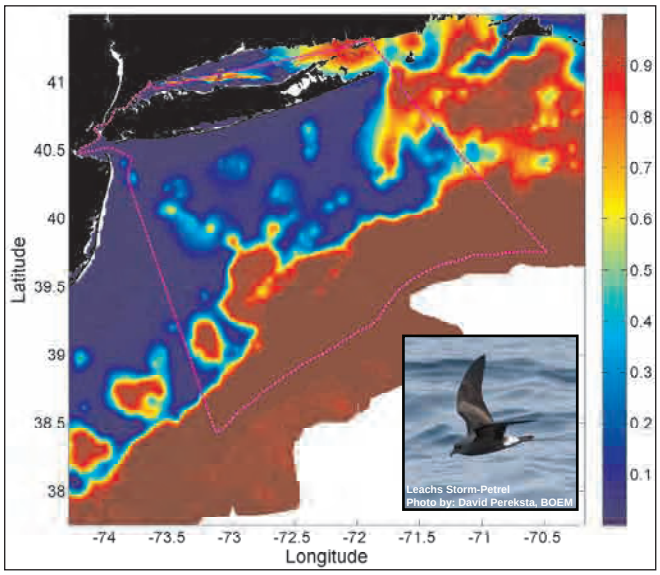

### Annual SPUE Uncertainty Calibration Plot



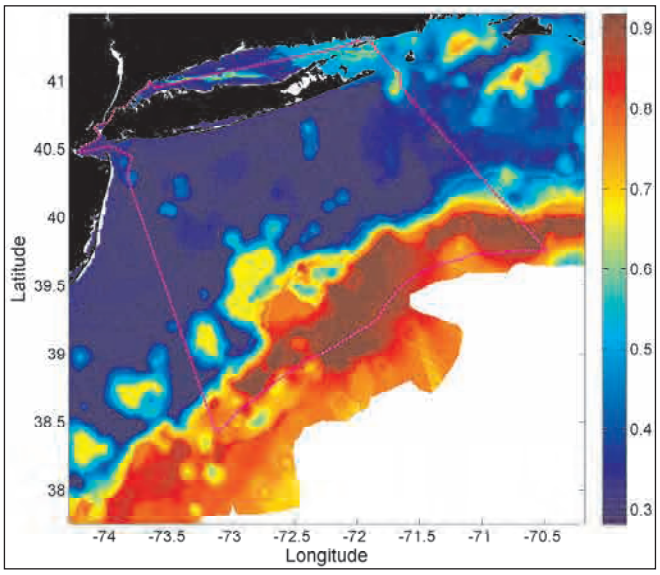
# Storm-Petrels, less common

Stage I: Presence Probability Predictive Model

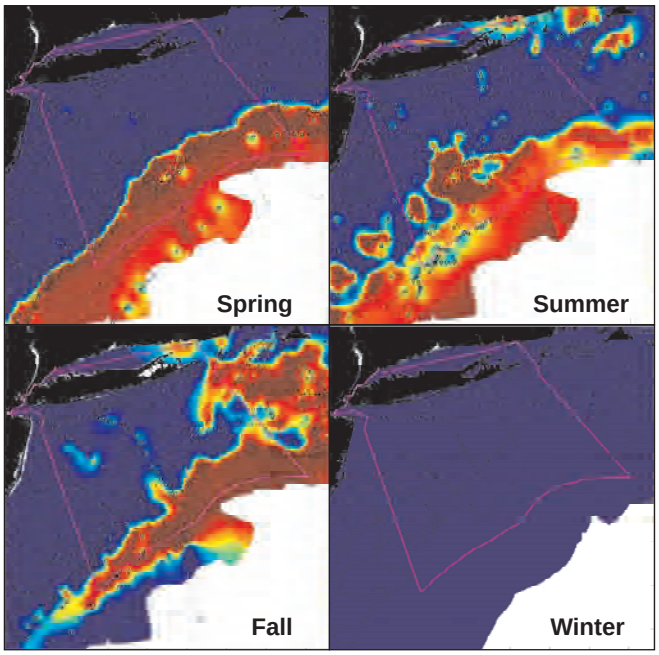
### Annual Presence Probability



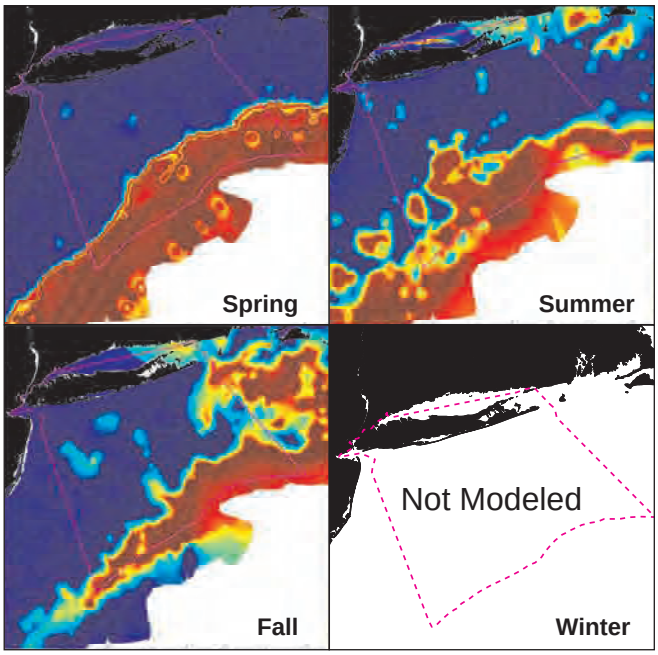

### Annual Presence Relative Uncertainty



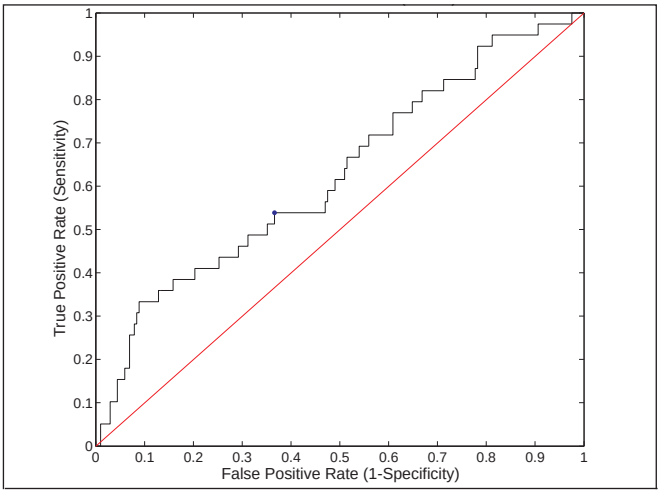

### Seasonal Presence Probability Maps



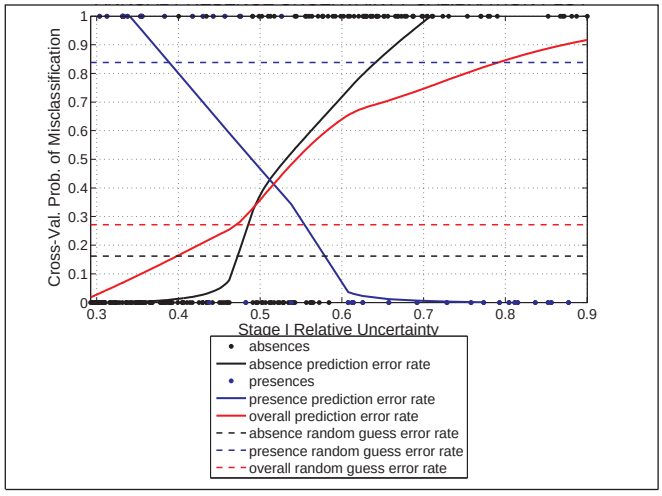

### Seasonal Presence Relative Uncertainty Maps




### Annual Cross-Validation ROC Plot



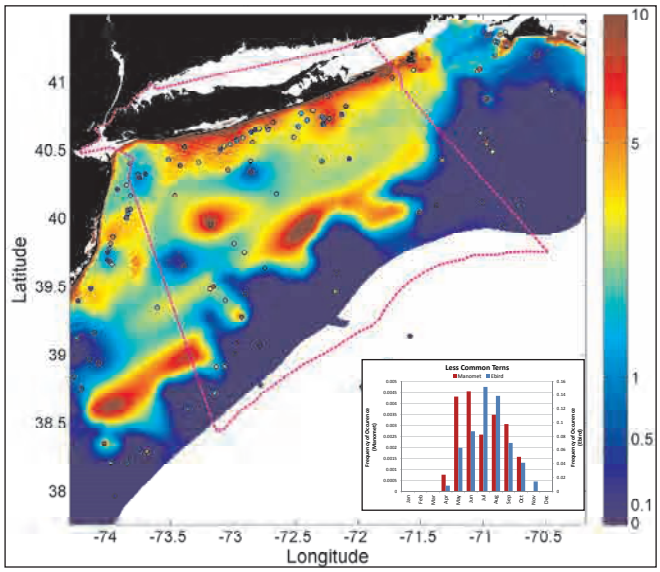

### Annual Presence Uncertainty Calibration Plot



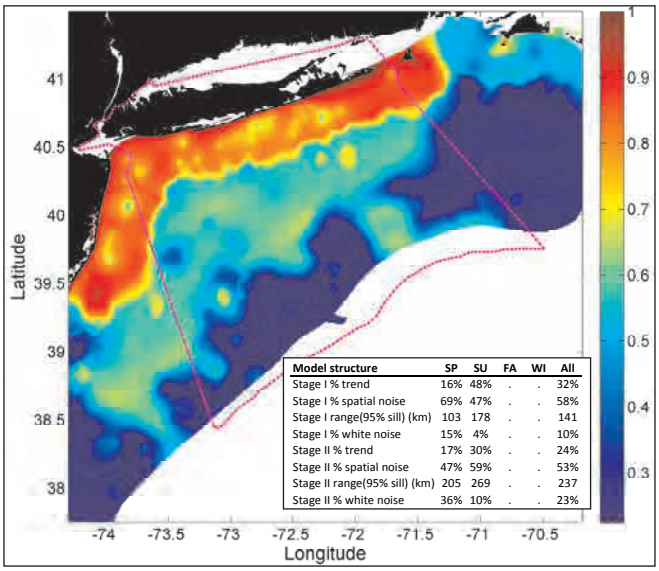
# Terns, less common

Stage I x II: Relative Abundance Predictive Model

### Annual Predicted SPUE Map

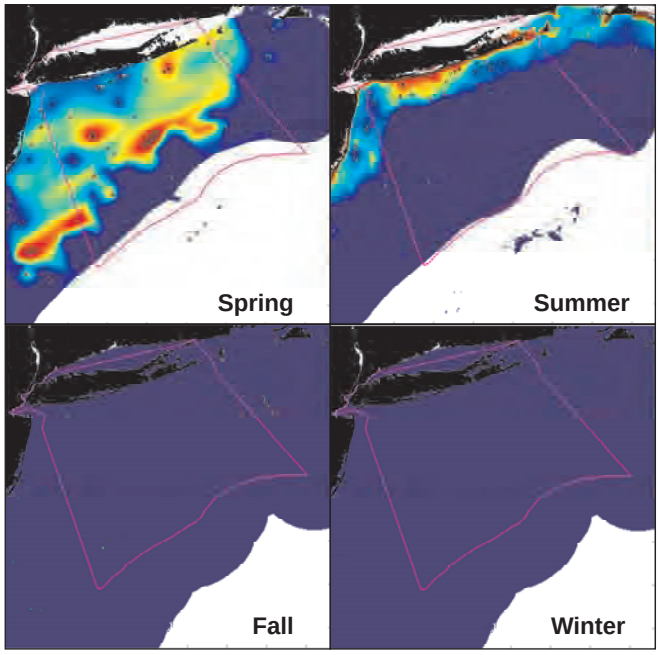



### Annual SPUE Relative Uncertainty Map

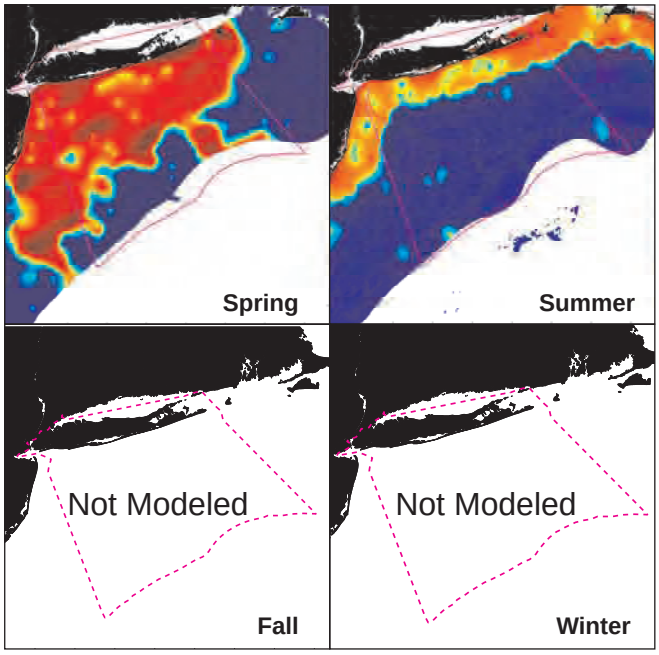



| Model structure | SP | SU | FA | WI | All |
|---|---|---|---|---|---|
| Stage I % trend | 16% | 48% | . | . | 32% |
| Stage I % spatial noise | 69% | 47% | . | . | 58% |
| Stage I range(95% sill) (km) | 103 | 178 | . | . | 141 |
| Stage I % white noise | 15% | 4% | . | . | 10% |
| Stage II % trend | 17% | 30% | . | . | 24% |
| Stage II % spatial noise | 47% | 59% | . | . | 53% |
| Stage II range(95% sill) (km) | 205 | 269 | . | . | 237 |
| Stage II % white noise | 36% | 10% | . | . | 23% |

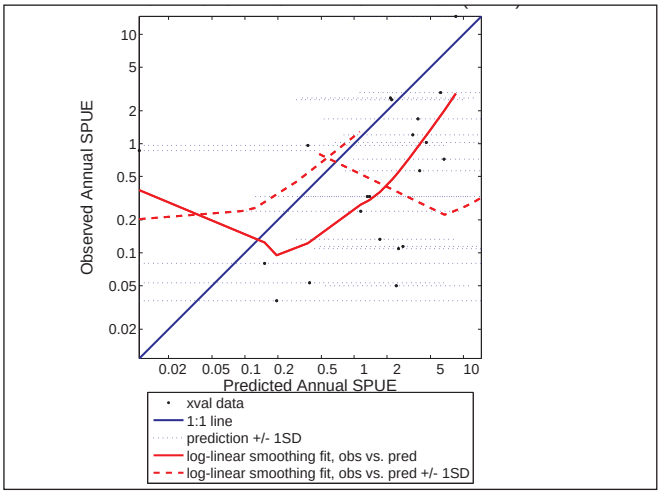
### Seasonal Predicted SPUE Maps



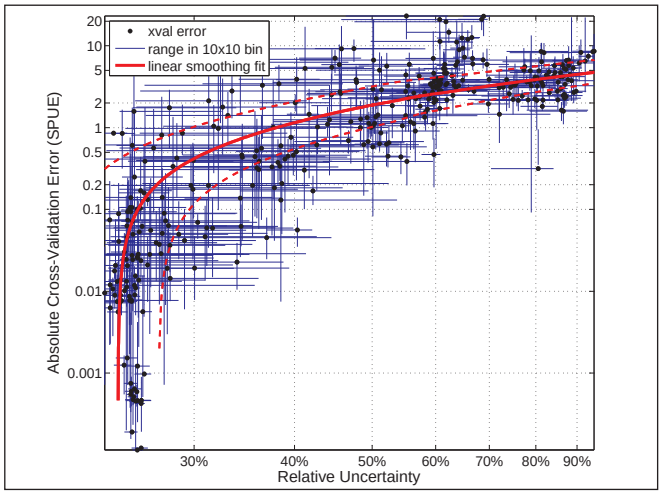

### Seasonal SPUE Relative Uncertainty




### Annual Cross-Val Observed vs. Predicted



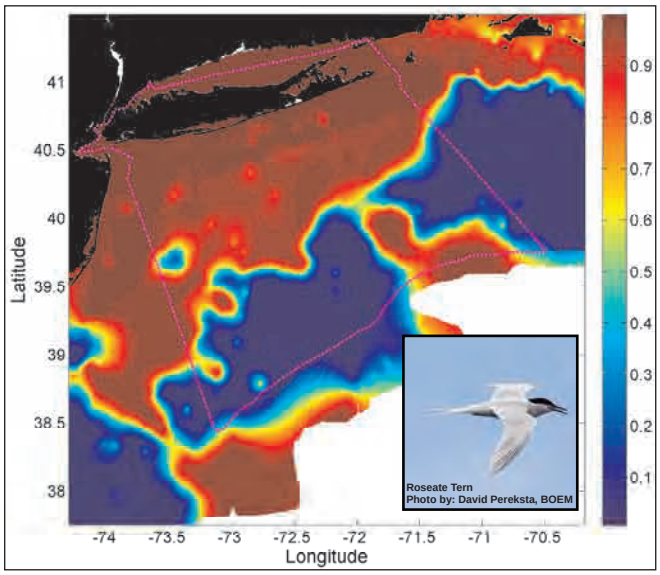

### Annual SPUE Uncertainty Calibration Plot



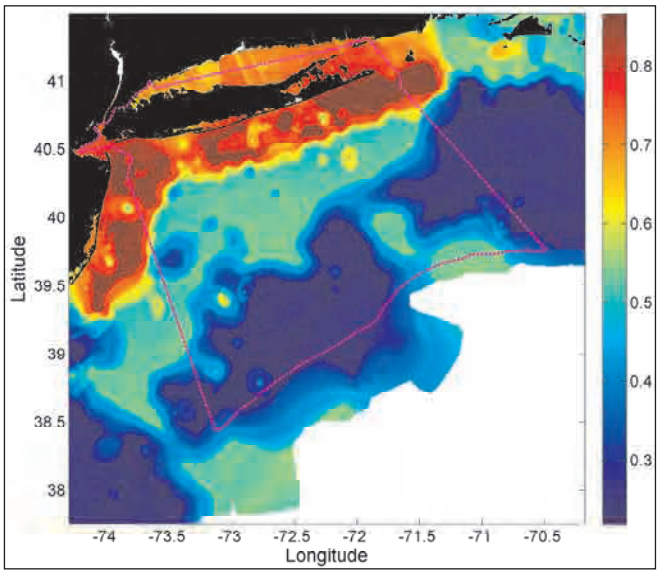
# Terns, less common

Stage I: Presence Probability Predictive Model

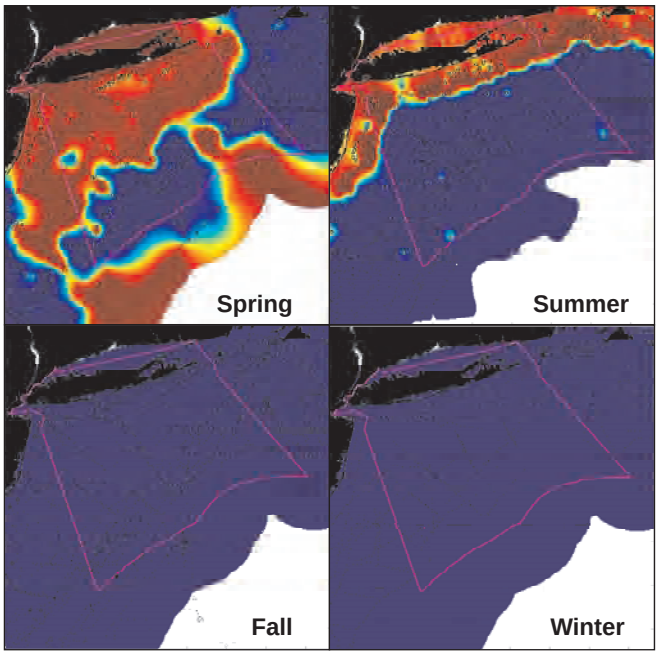
### Annual Presence Probability



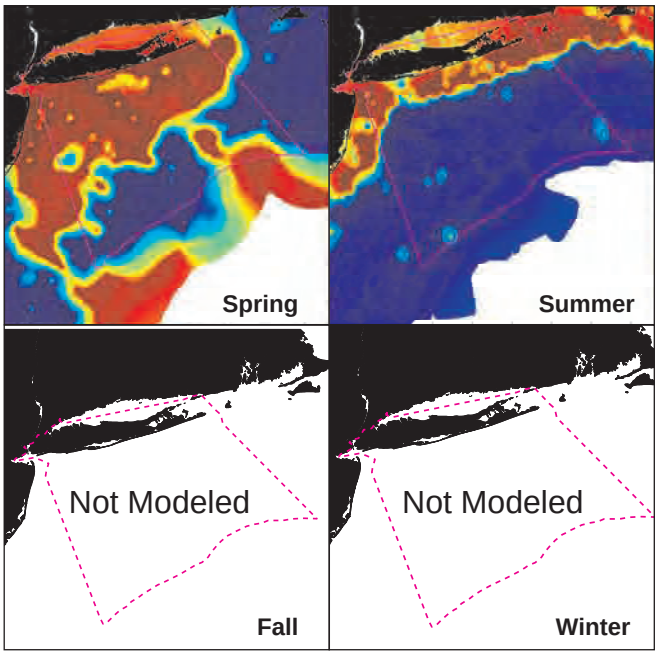

### Annual Presence Relative Uncertainty



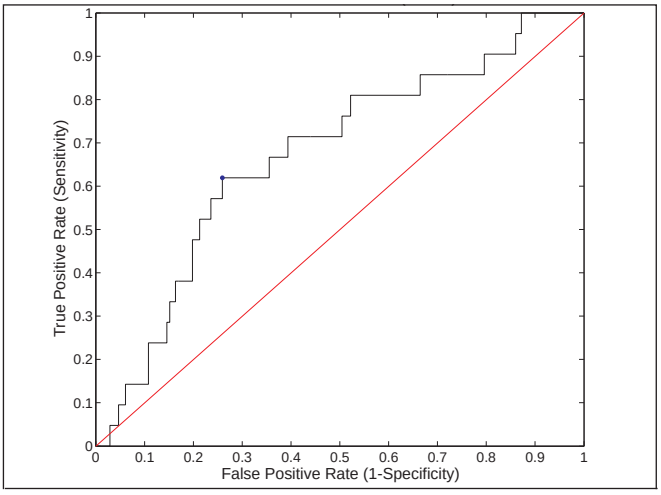

### Seasonal Presence Probability Maps



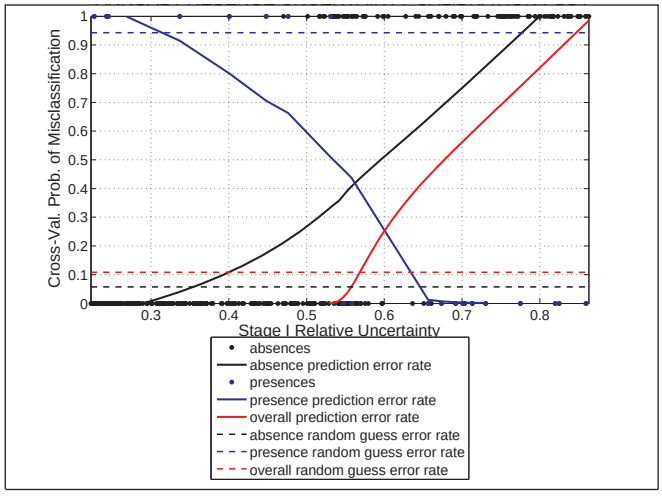

### Seasonal Presence Relative Uncertainty Maps




### Annual Cross-Validation ROC Plot



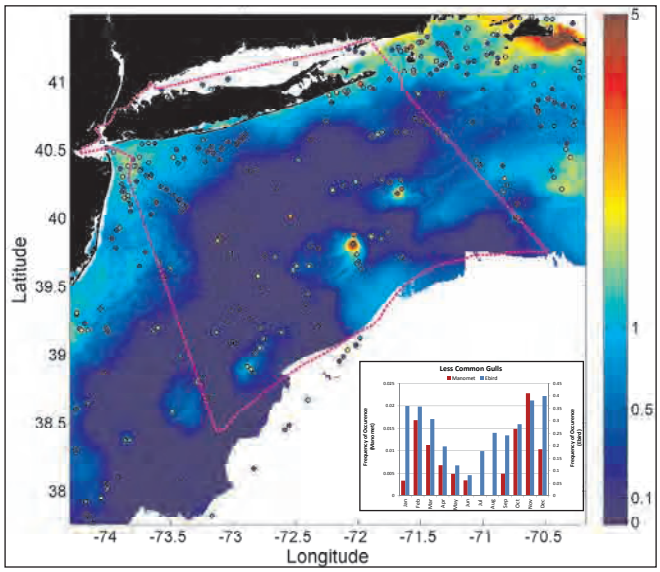

### Annual Presence Uncertainty Calibration Plot



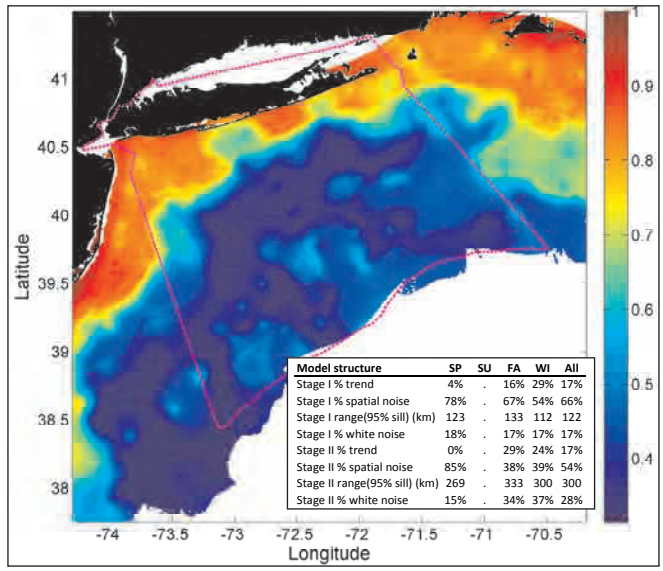
# Unidentified Gulls

Stage I x II: Relative Abundance Predictive Model

### Annual Predicted SPUE Map

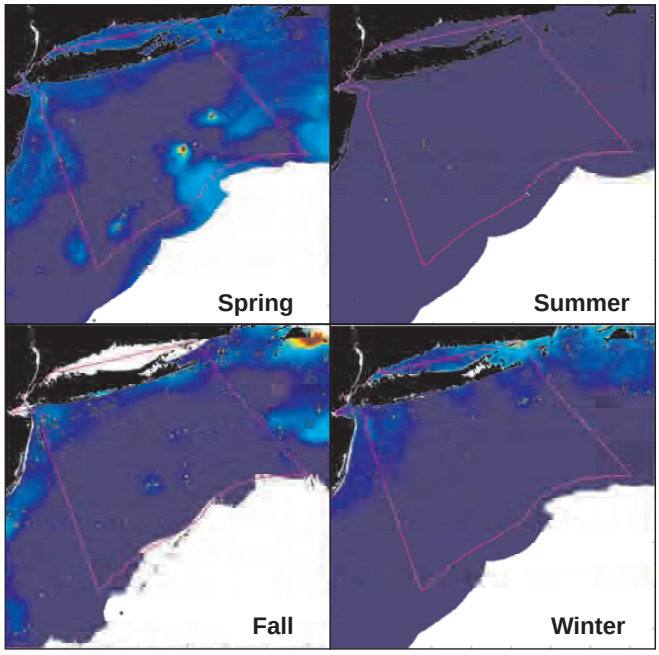



### Annual SPUE Relative Uncertainty Map

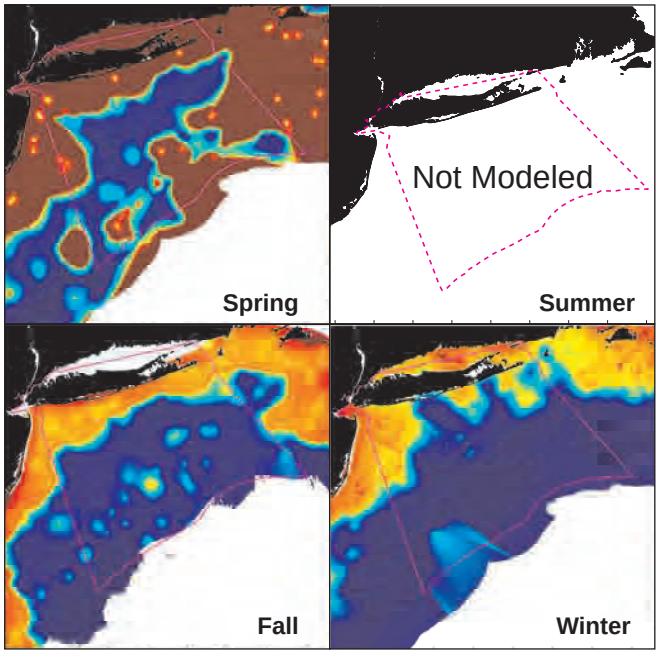



| Model structure | SP | SU | FA | WI | All |
|---|---|---|---|---|---|
| Stage I % trend | 4% | . | 16% | 29% | 17% |
| Stage I % spatial noise | 78% | . | 67% | 54% | 66% |
| Stage I range(95% sill) (km) | 123 | . | 133 | 112 | 122 |
| Stage I % white noise | 18% | . | 17% | 17% | 17% |
| Stage II % trend | 0% | . | 29% | 24% | 17% |
| Stage II % spatial noise | 85% | . | 38% | 39% | 54% |
| Stage II range(95% sill) (km) | 269 | . | 333 | 300 | 300 |
| Stage II % white noise | 15% | . | 34% | 37% | 28% |

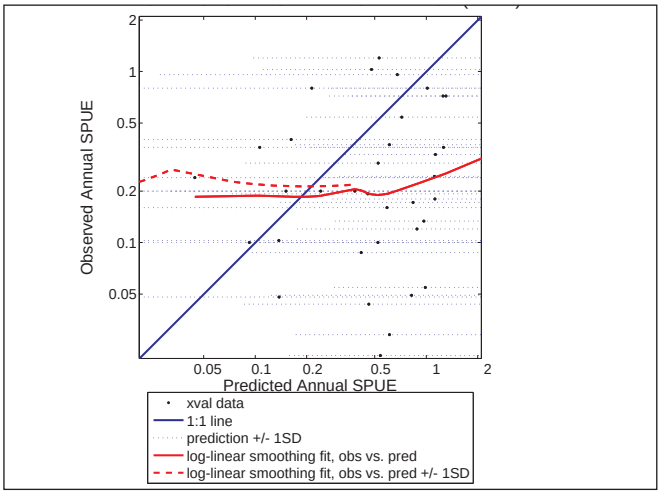
### Seasonal Predicted SPUE Maps



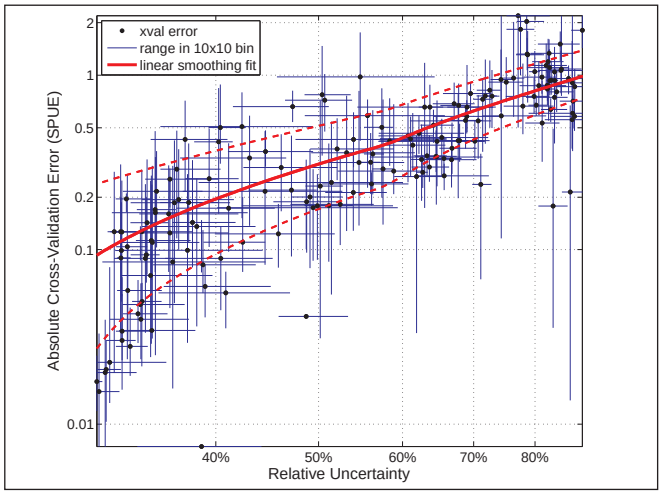

### Seasonal SPUE Relative Uncertainty




### Annual Cross-Val Observed vs. Predicted



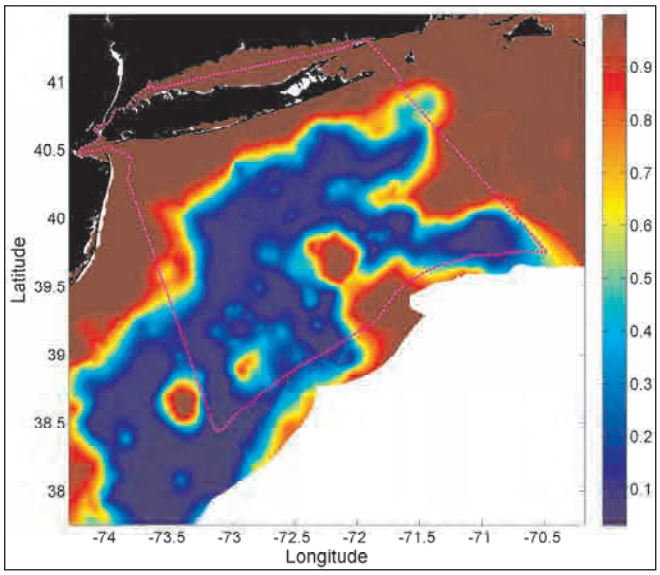

### Annual SPUE Uncertainty Calibration Plot



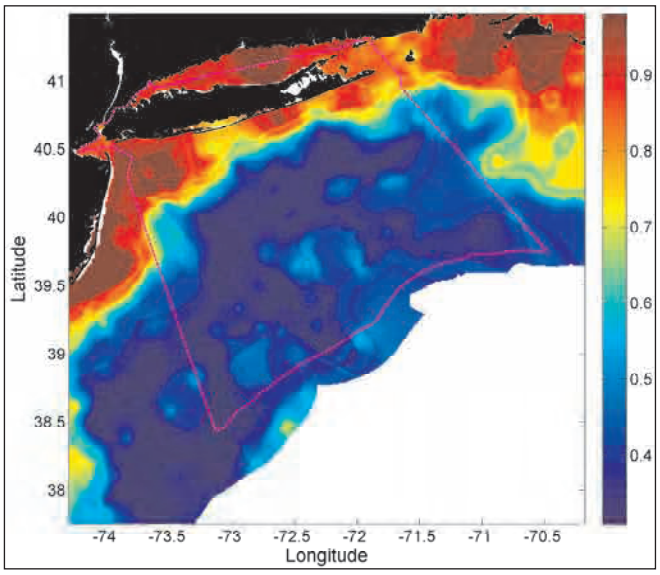
# Unidentified Gulls

Stage I: Presence Probability Predictive Model

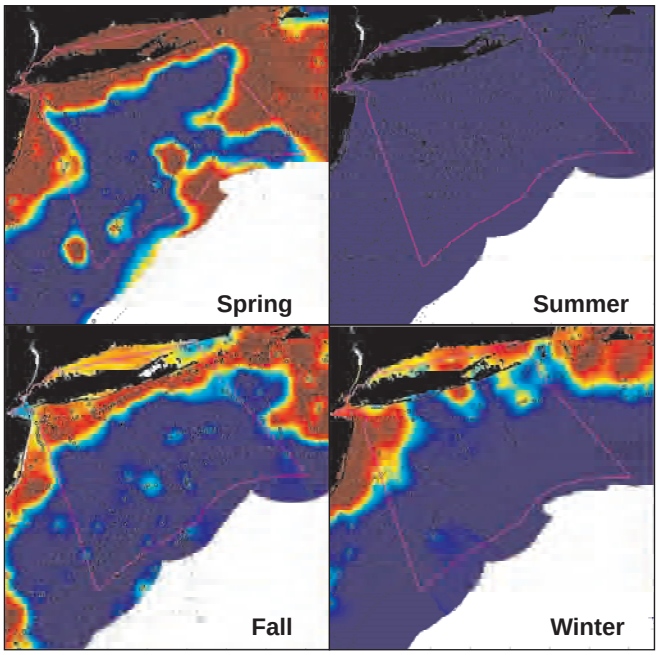
### Annual Presence Probability



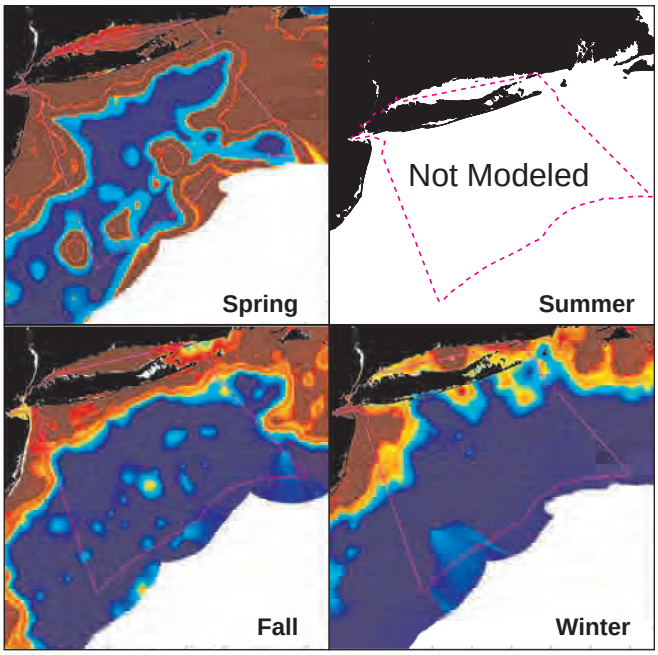

### Annual Presence Relative Uncertainty



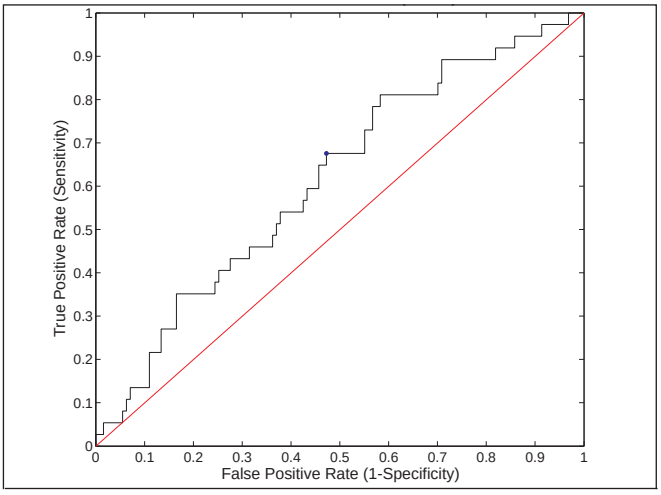

### Seasonal Presence Probability Maps



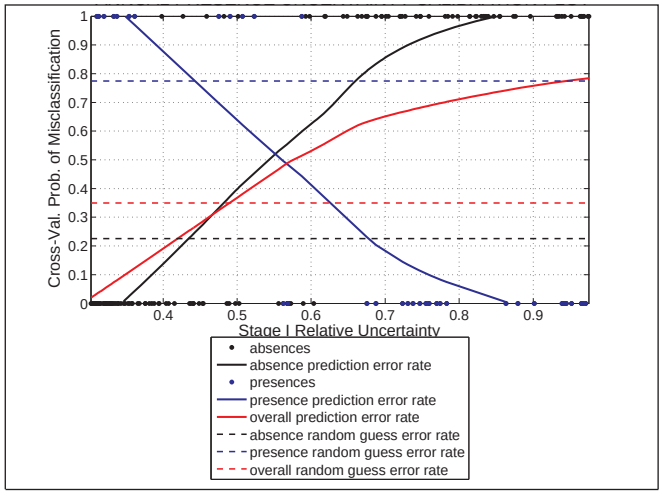

### Seasonal Presence Relative Uncertainty Maps




### Annual Cross-Validation ROC Plot



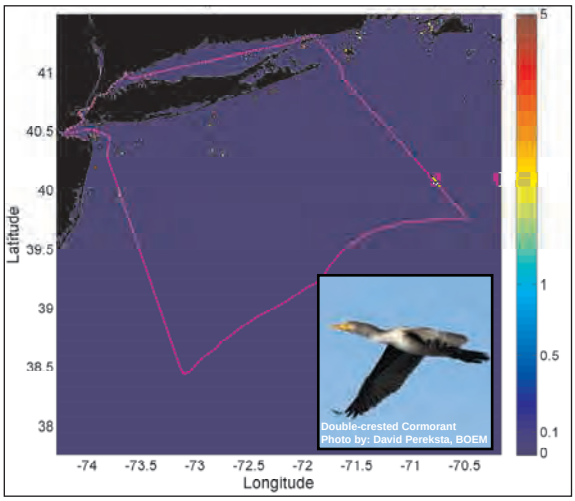

### Annual Presence Uncertainty Calibration Plot



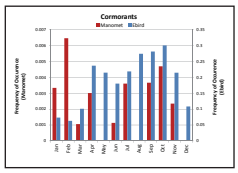
# Non-modeled Groups

## Cormorants (2 species)

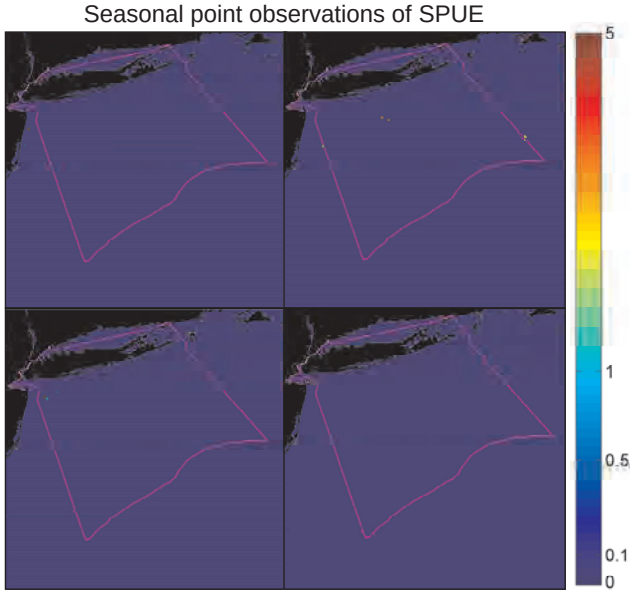
All available point observations of SPUE




Temporal histogram
(Monthly pattern of occurence)

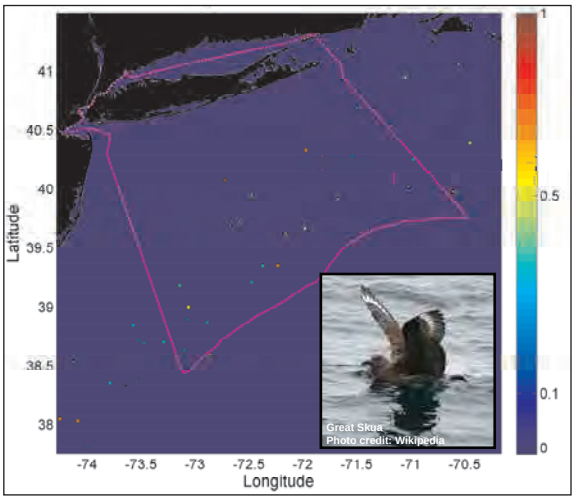



Seasonal point observations of SPUE

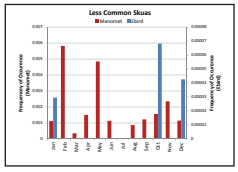


## Skuas, less common (1 species)

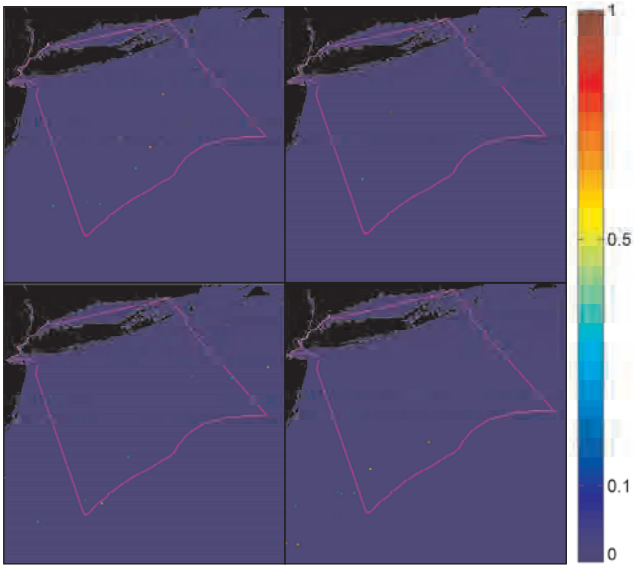
All available point observations of SPUE




Temporal histogram
(Monthly pattern of occurence)

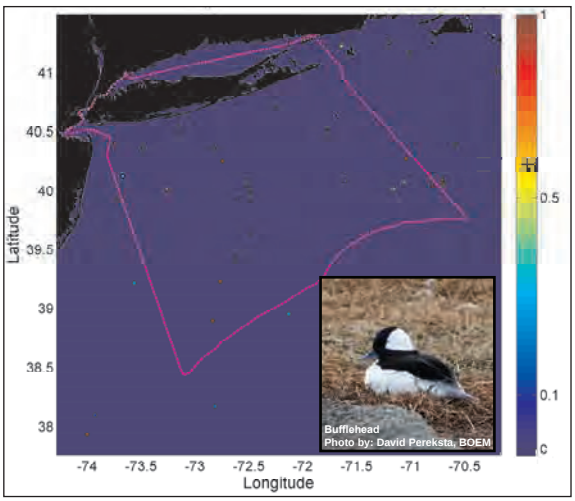



Seasonal point observations SPUE

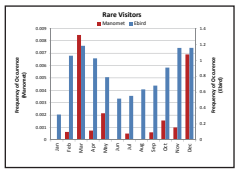


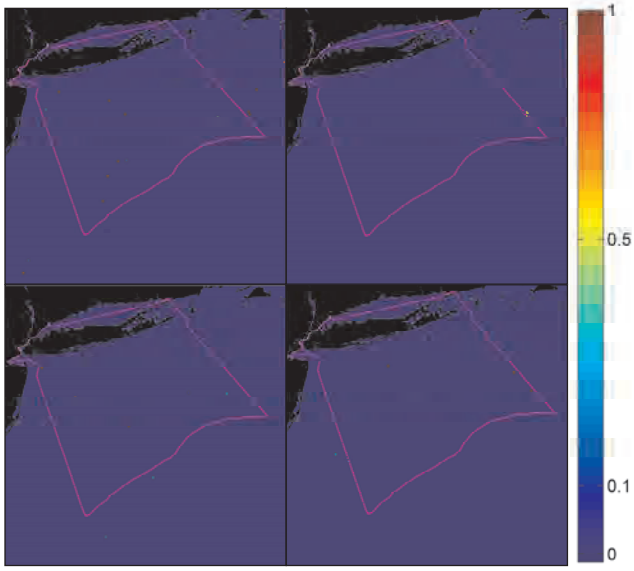
## Rare Visitors (10 species)

All available point observations of SPUE




Temporal histogram
(Monthly pattern of occurence)




Seasonal point observations SPUE