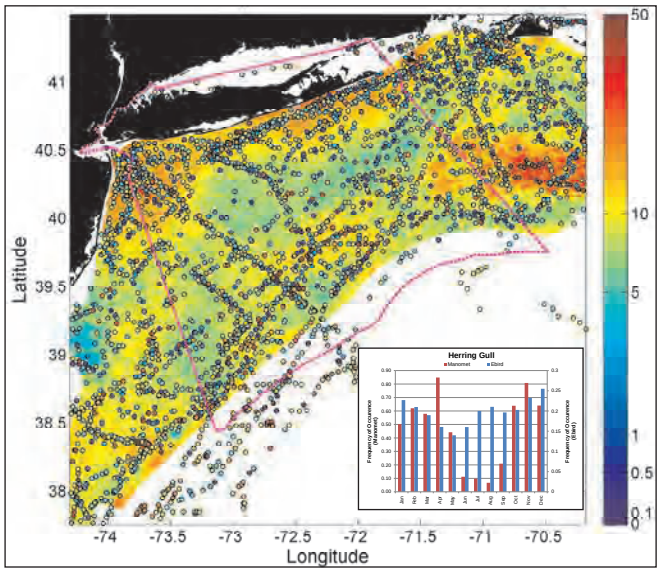
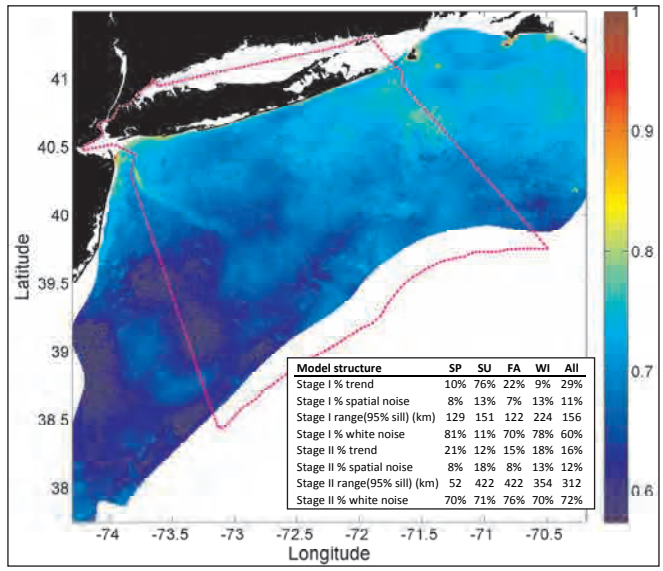
Herring Gull

Stage I x II: Relative Abundance Predictive Model

Annual Predicted SPUE Map

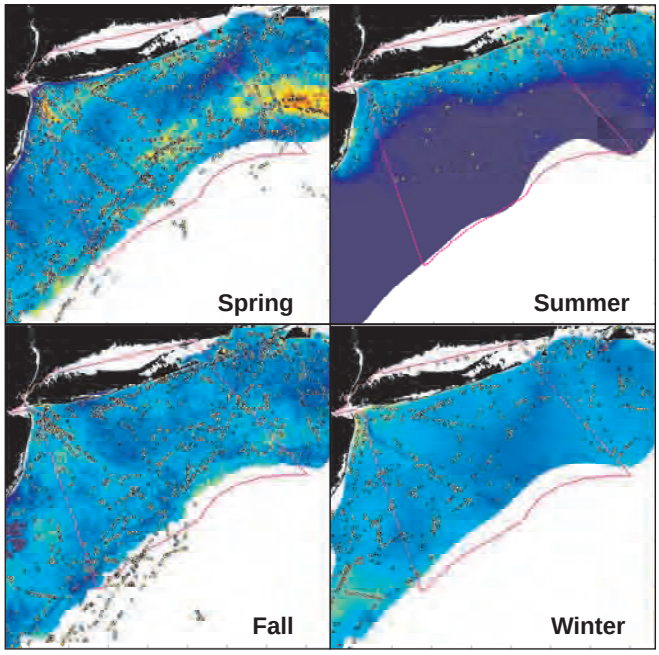


Annual SPUE Relative Uncertainty Map

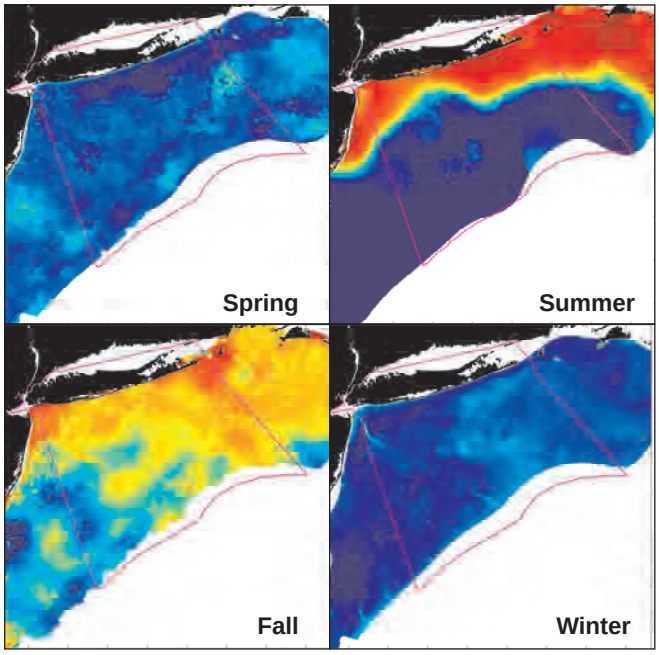


Model structure	SP	SU	FA	WI	All
Stage I % trend	10%	76%	22%	9%	29%
Stage I % spatial noise	8%	13%	7%	13%	11%
Stage I range(95% sill) (km)	129	151	122	224	156
Stage I % white noise	81%	11%	70%	78%	60%
Stage II % trend	21%	12%	15%	18%	16%
Stage II % spatial noise	8%	18%	8%	13%	12%
Stage II range(95% sill) (km)	52	422	422	354	312
Stage II % white noise	70%	71%	76%	70%	72%

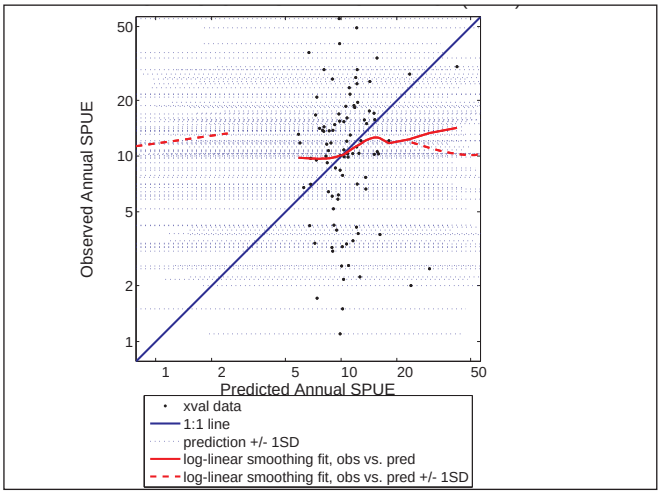
Seasonal Predicted SPUE Maps



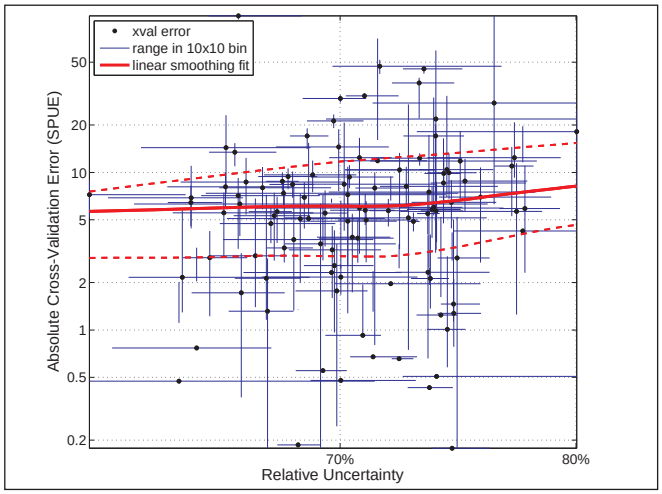
Seasonal SPUE Relative Uncertainty



Annual Cross-Val Observed vs. Predicted

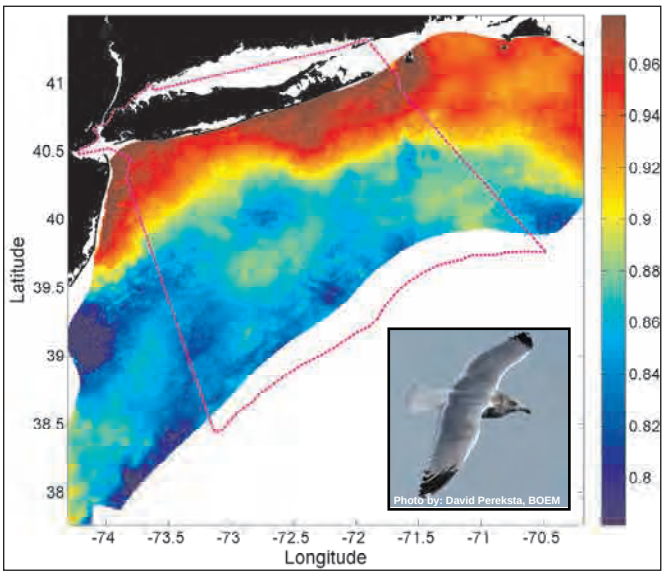


Annual SPUE Uncertainty Calibration Plot

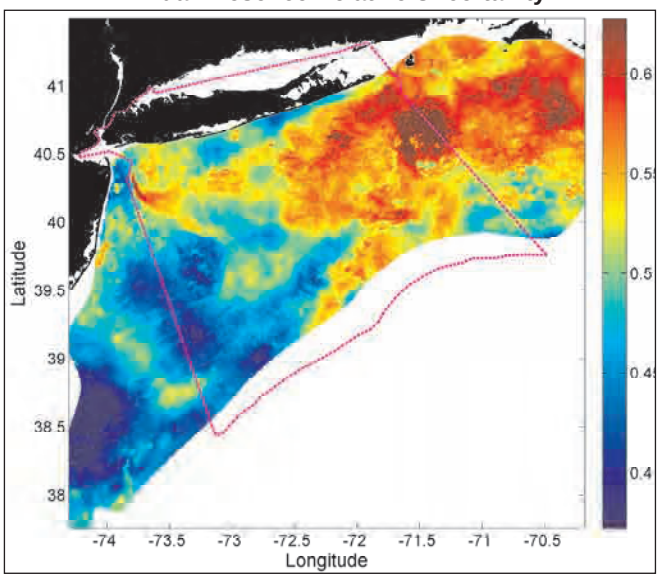


Herring Gull

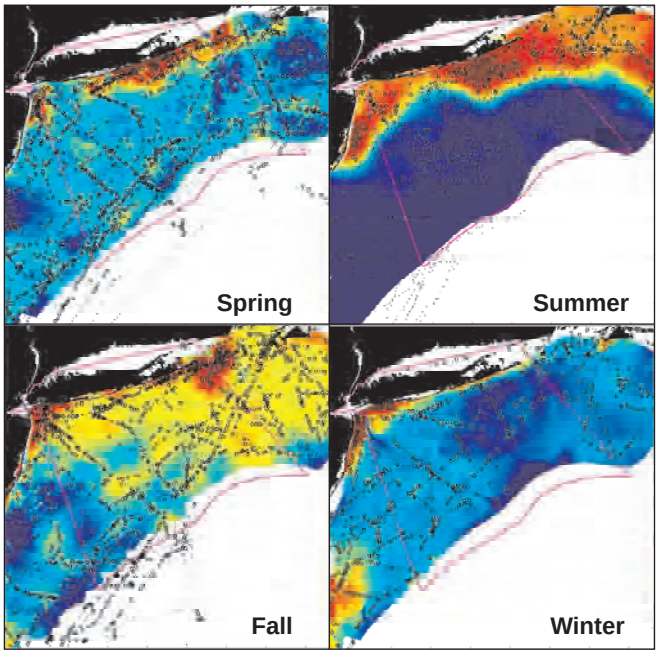
Annual Presence Probability



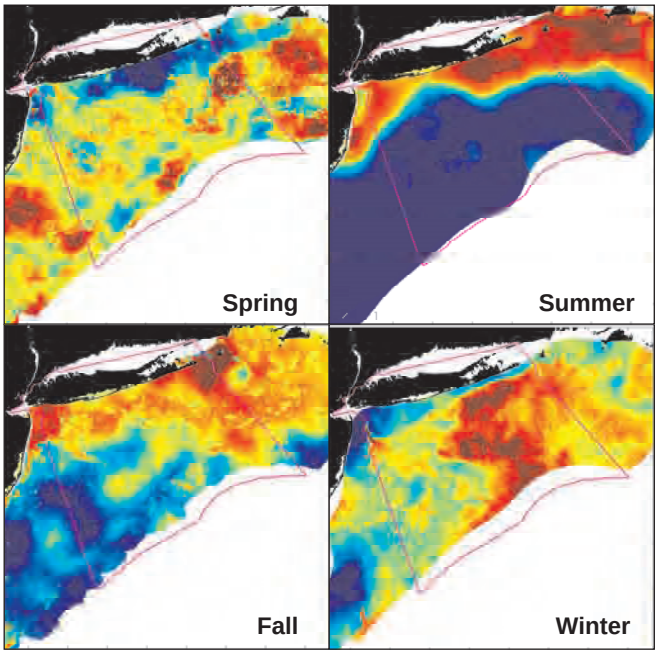
Annual Presence Relative Uncertainty



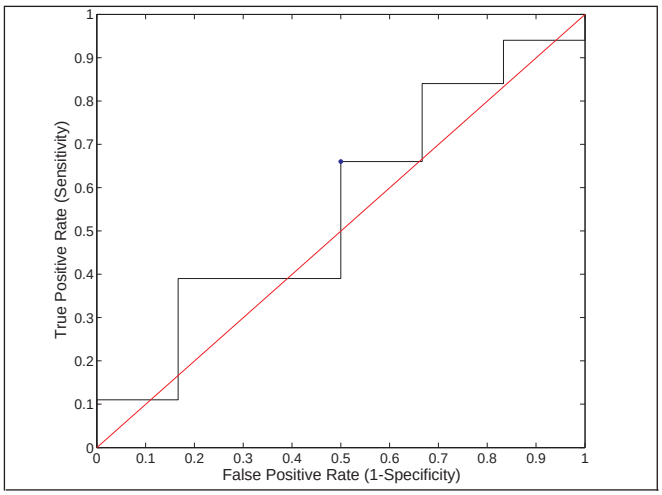
Seasonal Presence Probability Maps



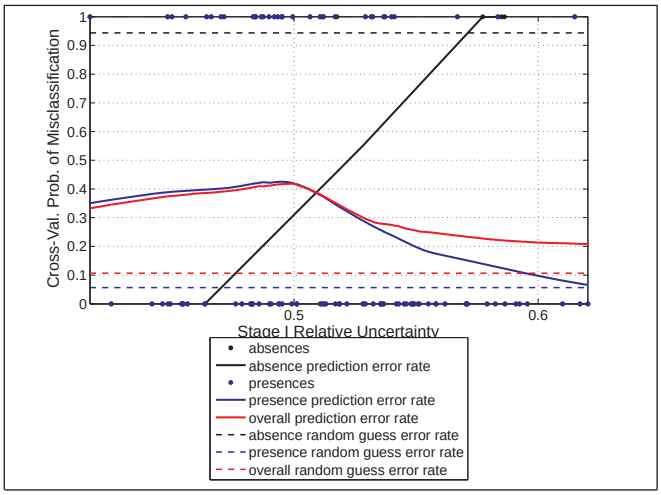
Seasonal Presence Relative Uncertainty Maps



Annual Cross-Validation ROC Plot

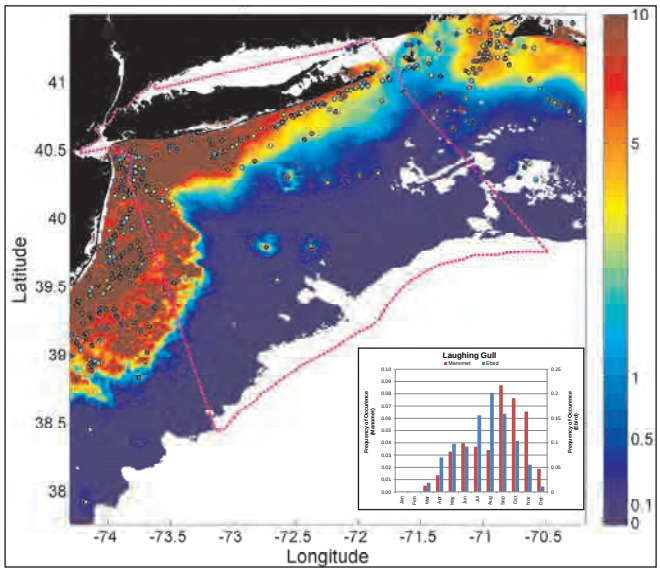


Annual Presence Uncertainty Calibration Plot

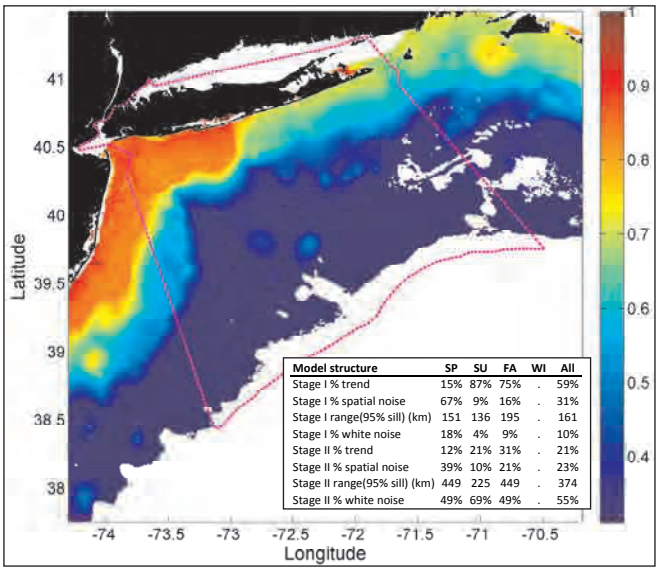


Laughing Gull

Annual Predicted SPUE Map

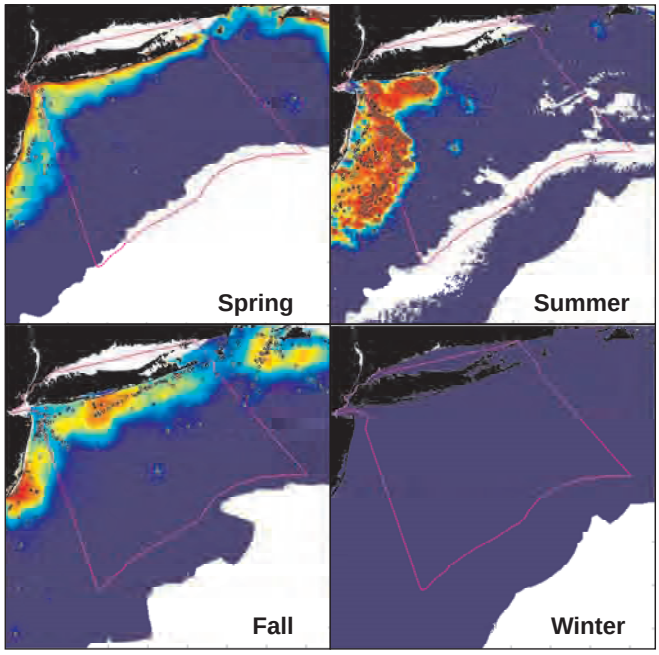


Annual SPUE Relative Uncertainty Map

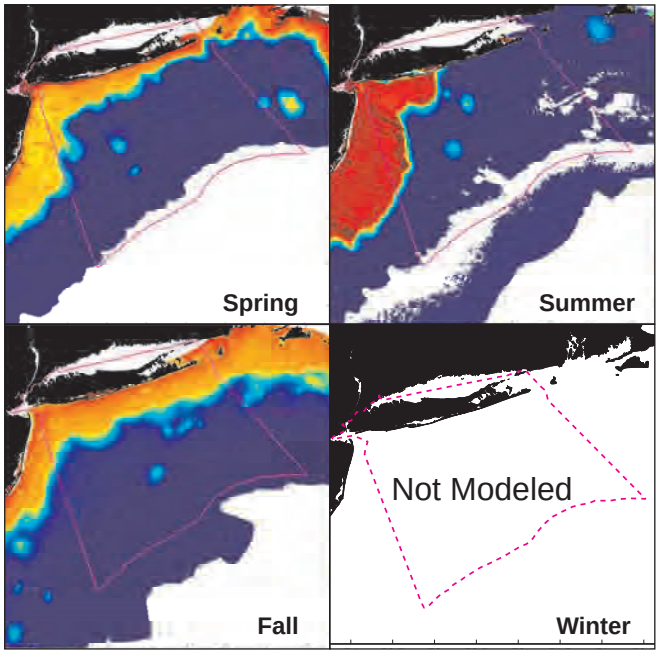


Model structure	SP	SU	FA	WI	All
Stage I % trend	15%	87%	75%	.	59%
Stage I % spatial noise	67%	9%	16%	.	31%
Stage I range(95% sill) (km)	151	136	195	.	161
Stage I % white noise	18%	4%	9%	.	10%
Stage II % trend	12%	21%	31%	.	21%
Stage II % spatial noise	39%	10%	21%	.	23%
Stage II range(95% sill) (km)	449	225	449	.	374
Stage II % white noise	49%	69%	49%	.	55%

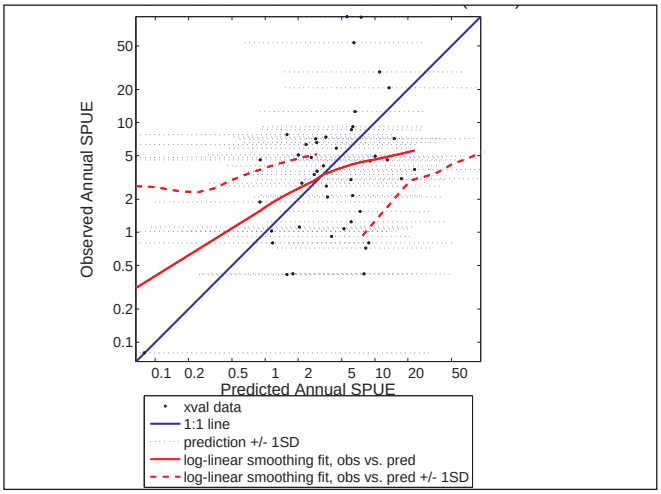
Seasonal Predicted SPUE Maps



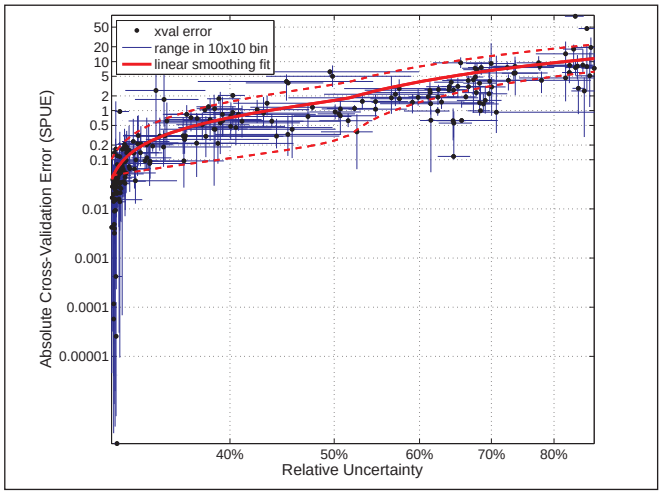
Seasonal SPUE Relative Uncertainty



Annual Cross-Val Observed vs. Predicted



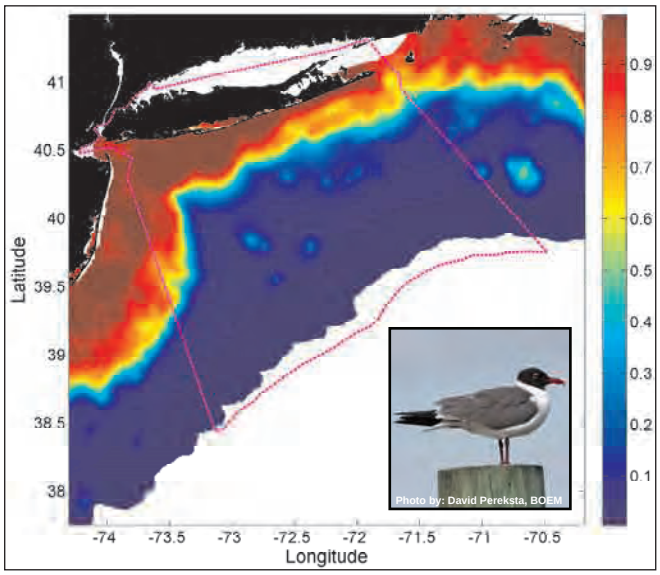
Annual SPUE Uncertainty Calibration Plot



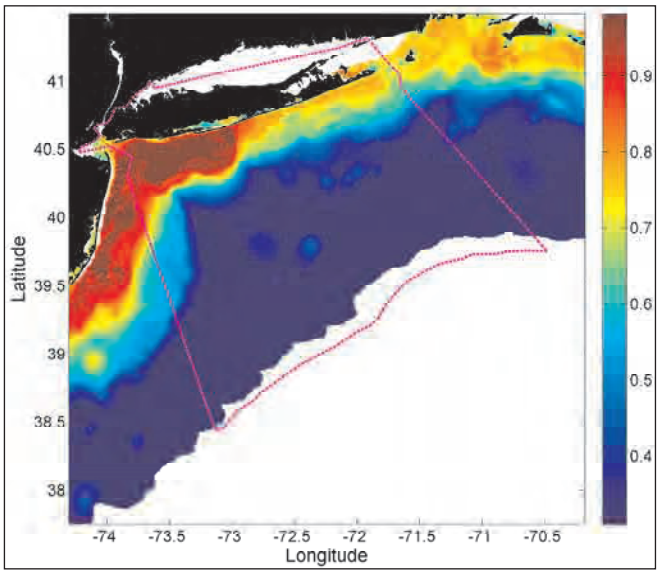
Laughing Gull

Stage I: Presence Probability Predictive Model

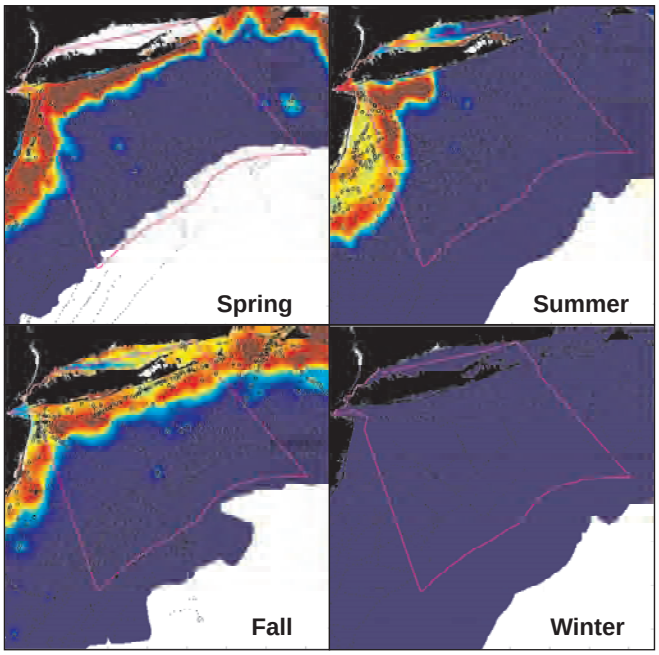
Annual Presence Probability



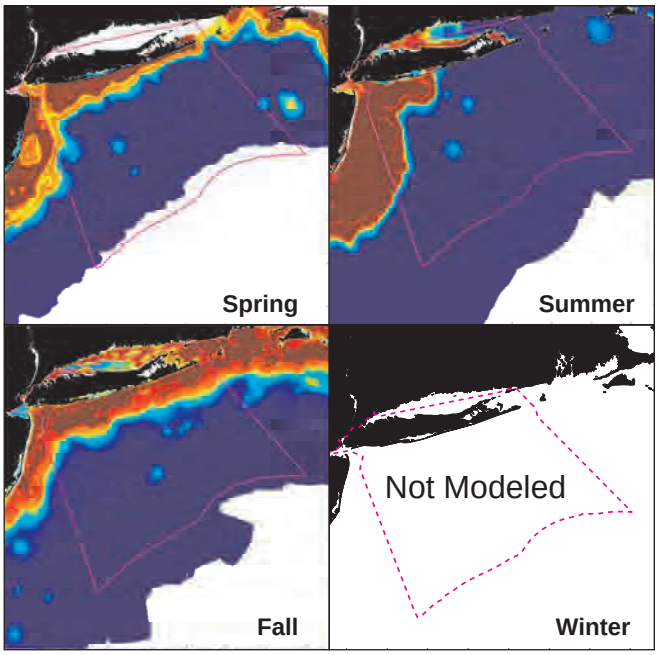
Annual Presence Relative Uncertainty



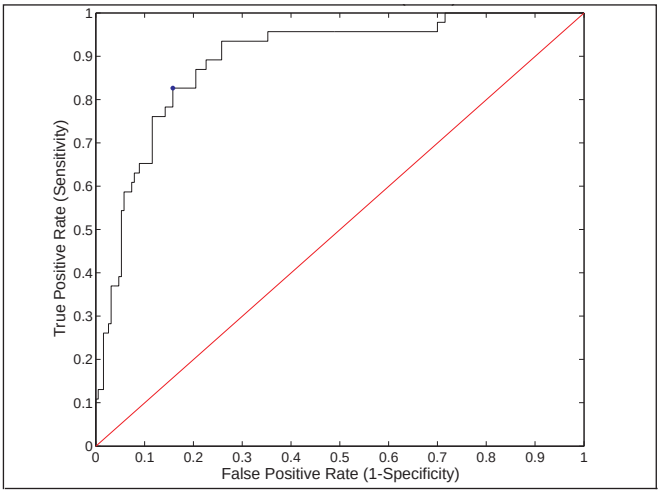
Seasonal Presence Probability Maps



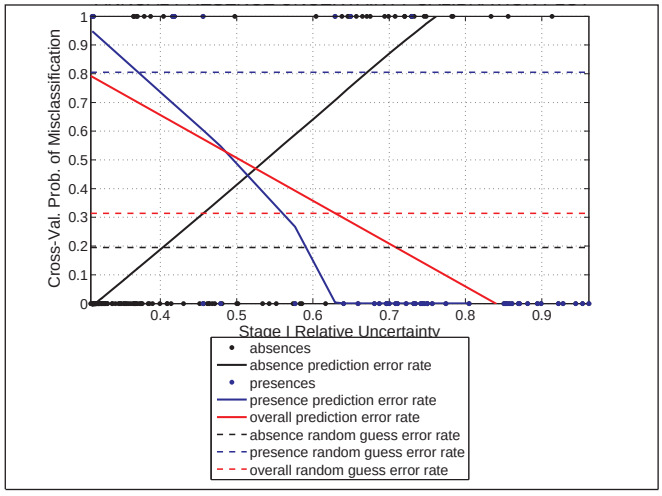
Seasonal Presence Relative Uncertainty Maps



Annual Cross-Validation ROC Plot



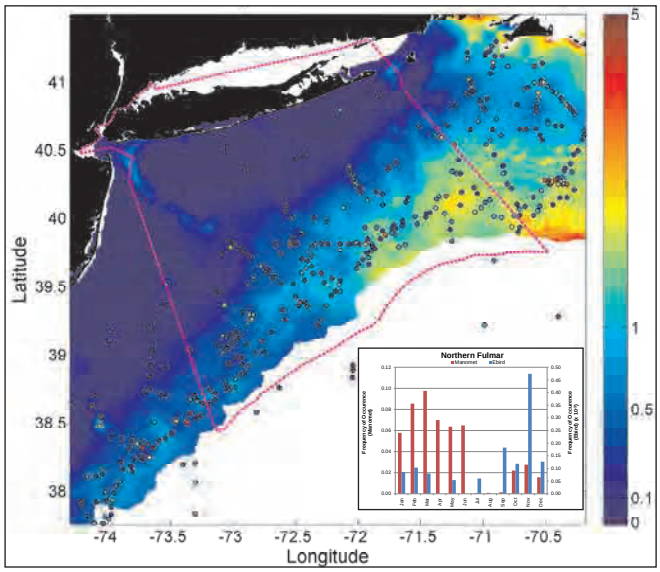
Annual Presence Uncertainty Calibration Plot



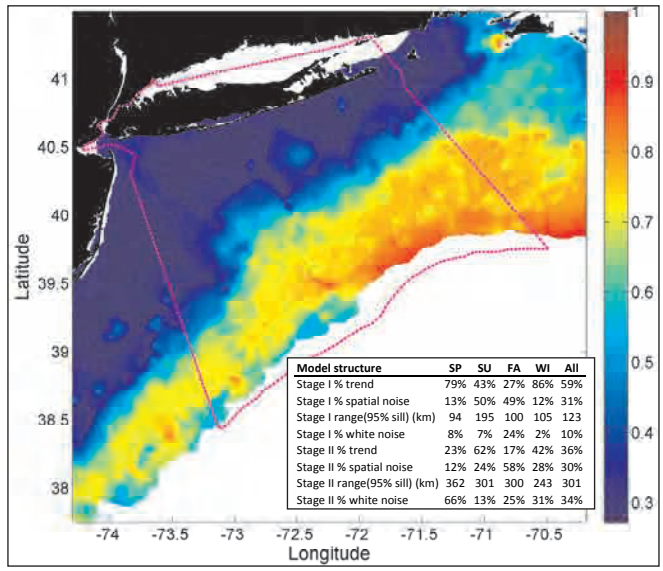
Northern Fulmar

Stage I x II: Relative Abundance Predictive Model

Annual Predicted SPUE Map

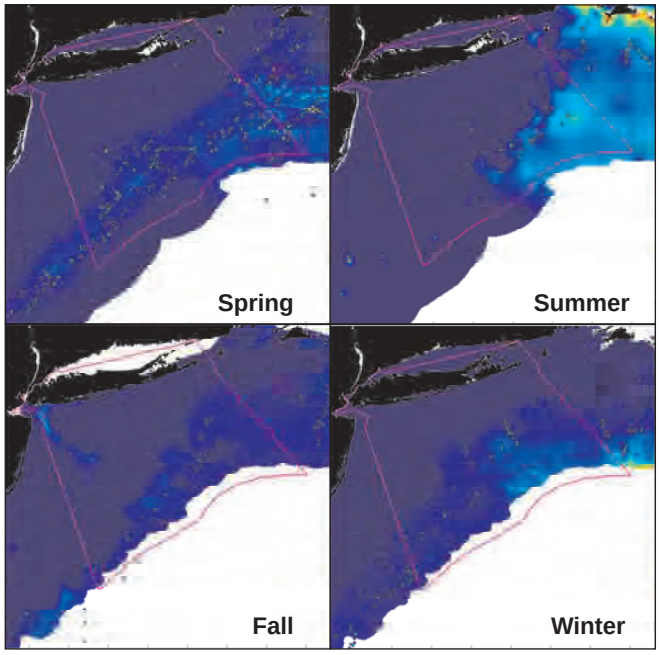


Annual SPUE Relative Uncertainty Map

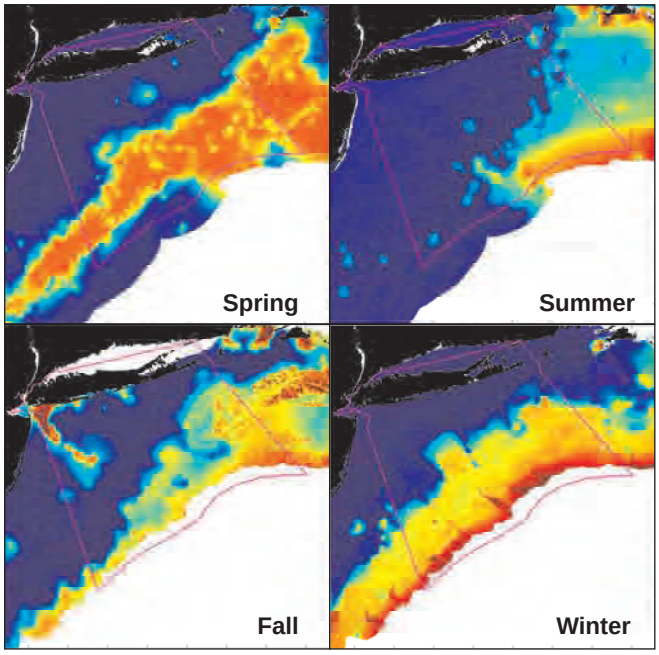


Model structure	SP	SU	FA	WI	All
Stage I % trend	79%	43%	27%	86%	59%
Stage I % spatial noise	13%	50%	49%	12%	31%
Stage I range(95% sill) (km)	94	195	100	105	123
Stage I % white noise	8%	7%	24%	2%	10%
Stage II % trend	23%	62%	17%	42%	36%
Stage II % spatial noise	12%	24%	58%	28%	30%
Stage II range(95% sill) (km)	362	301	300	243	301
Stage II % white noise	66%	13%	25%	31%	34%

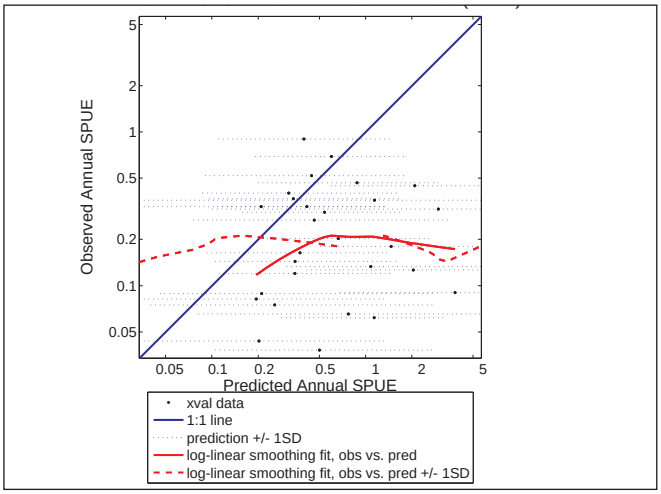
Seasonal Predicted SPUE Maps



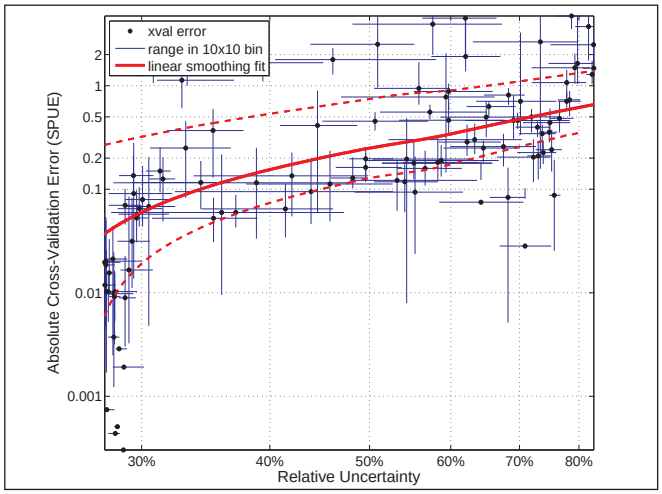
Seasonal SPUE Relative Uncertainty



Annual Cross-Val Observed vs. Predicted



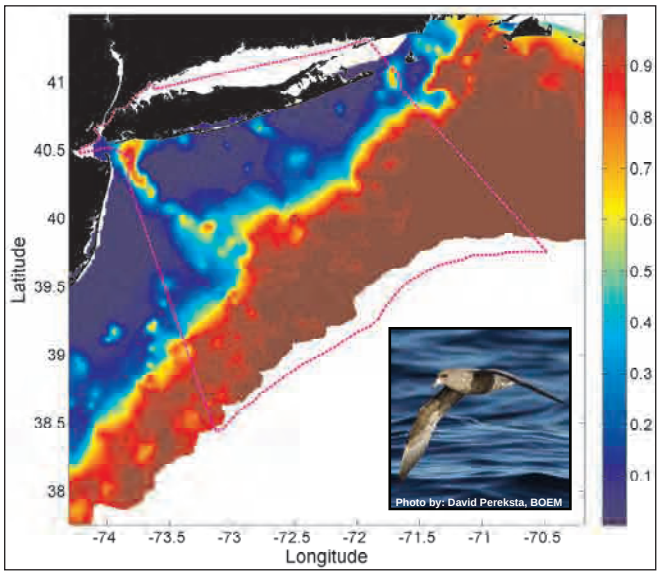
Annual SPUE Uncertainty Calibration Plot



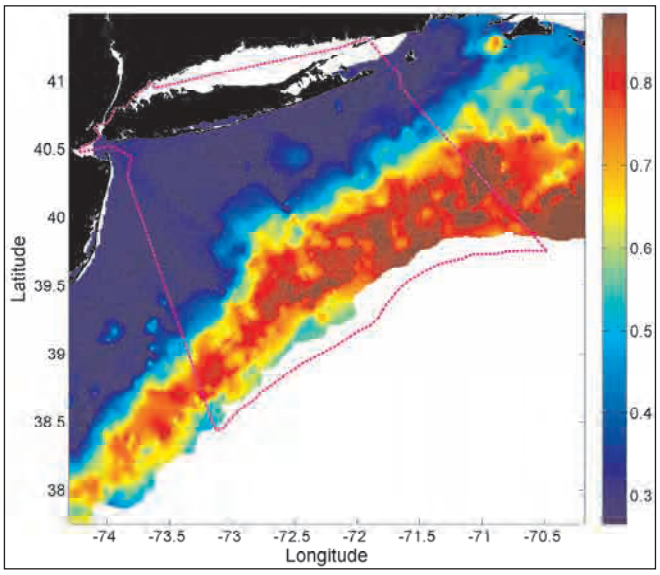
Northern Fulmar

Stage I: Presence Probability Predictive Model

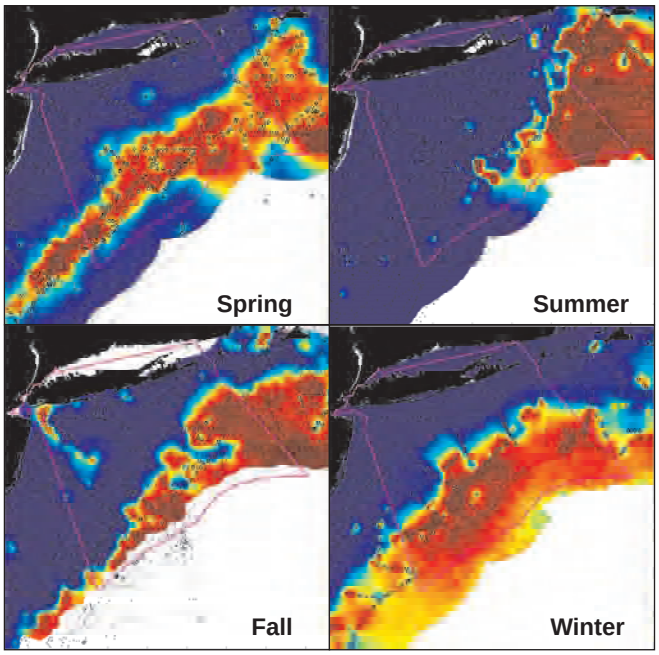
Annual Presence Probability



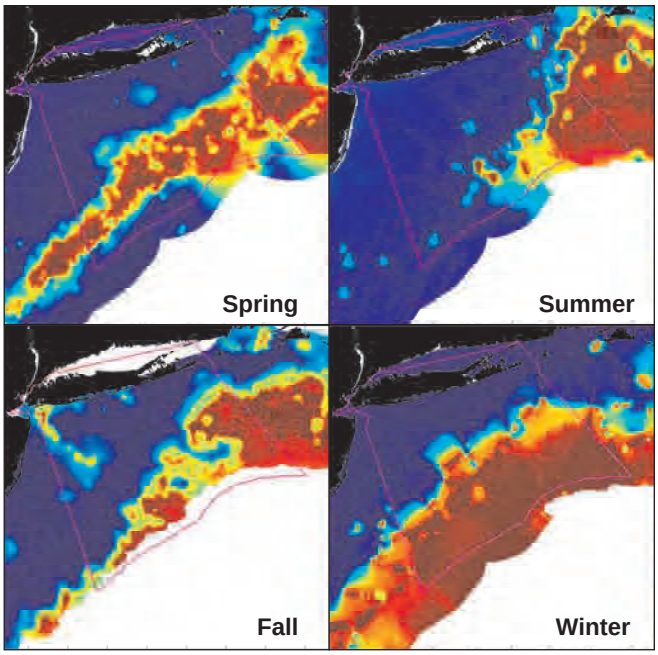
Annual Presence Relative Uncertainty



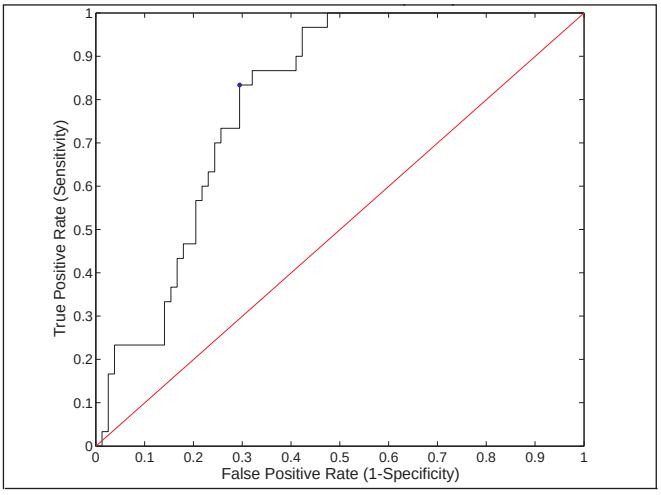
Seasonal Presence Probability Maps



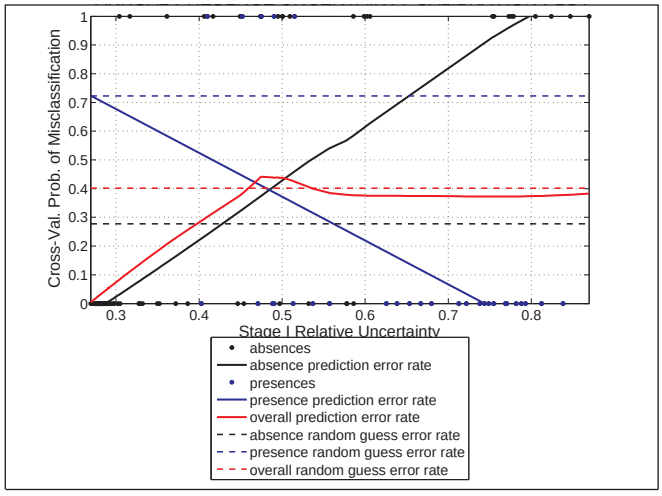
Seasonal Presence Relative Uncertainty Maps



Annual Cross-Validation ROC Plot

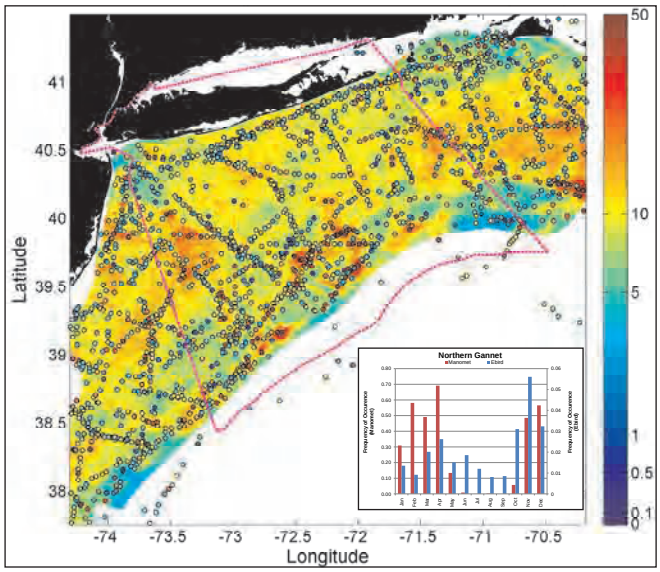


Annual Presence Uncertainty Calibration Plot

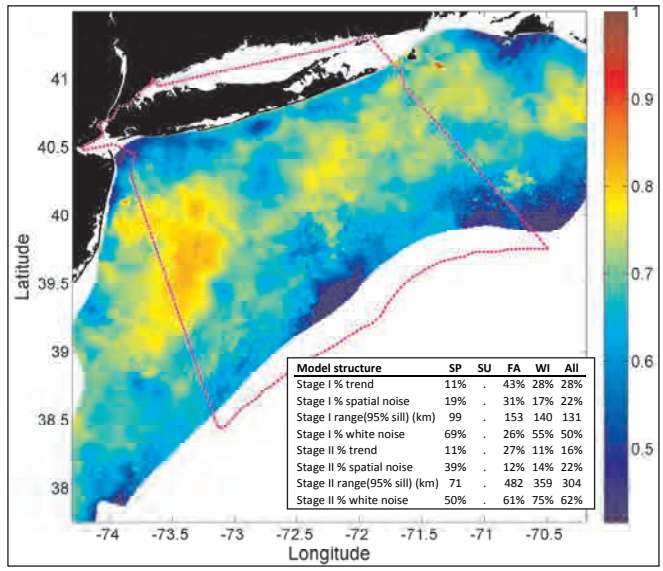


Northern Gannet

Annual Predicted SPUE Map

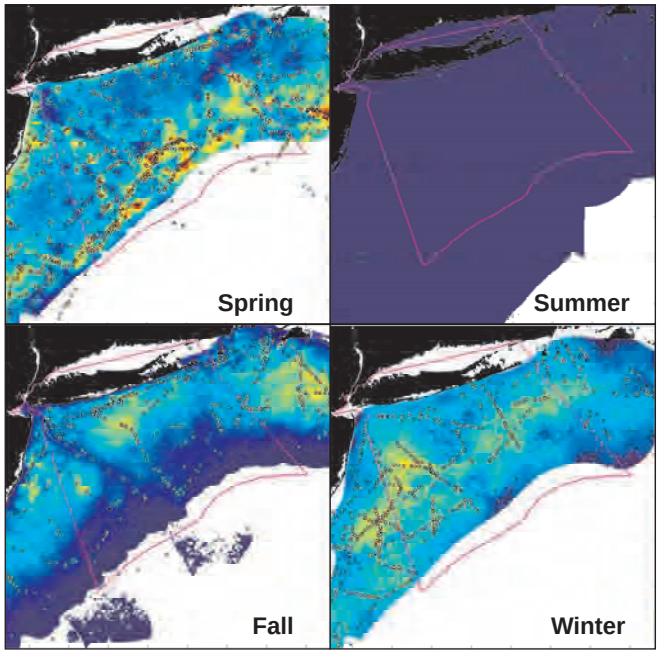


Annual SPUE Relative Uncertainty Map

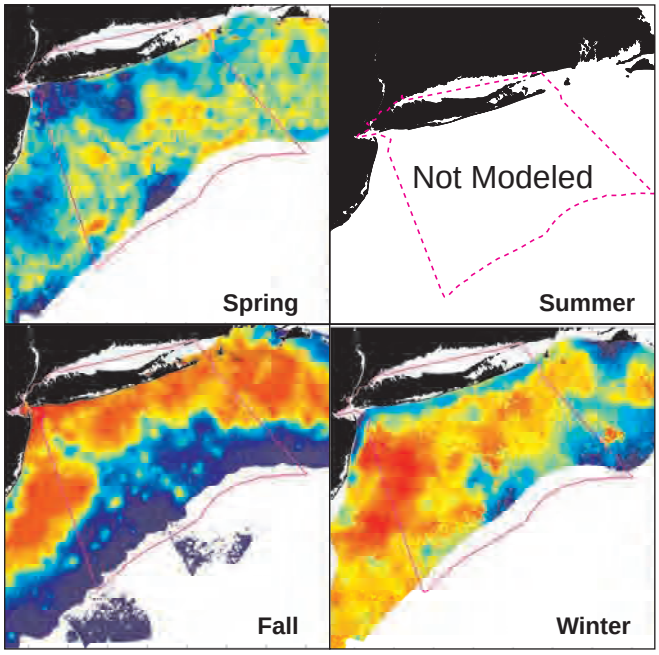


Model structure	SP	SU	FA	WI	All
Stage I % trend	11%	.	43%	28%	28%
Stage I % spatial noise	19%	.	31%	17%	22%
Stage I range(95% sill) (km)	99	.	153	140	131
Stage I % white noise	69%	.	26%	55%	50%
Stage II % trend	11%	.	27%	11%	16%
Stage II % spatial noise	39%	.	12%	14%	22%
Stage II range(95% sill) (km)	71	.	482	359	304
Stage II % white noise	50%	.	61%	75%	62%

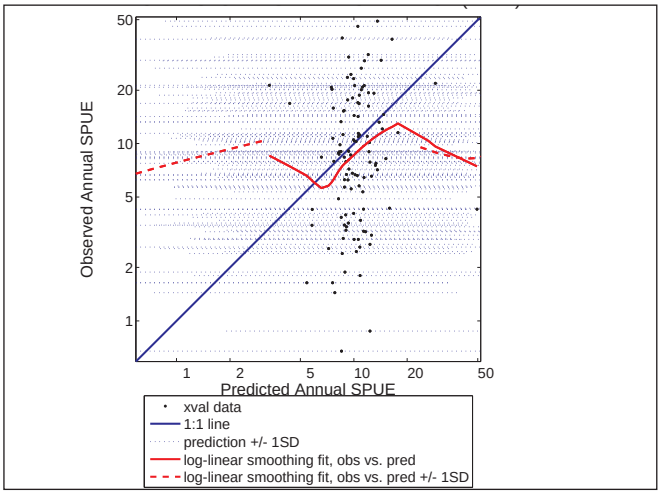
Seasonal Predicted SPUE Maps



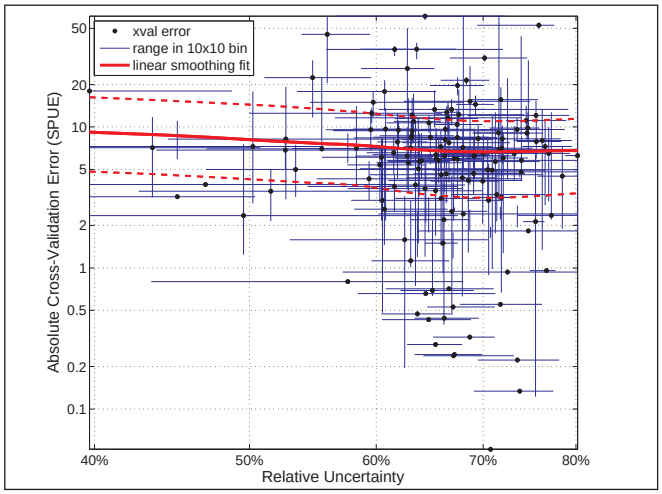
Seasonal SPUE Relative Uncertainty



Annual Cross-Val Observed vs. Predicted



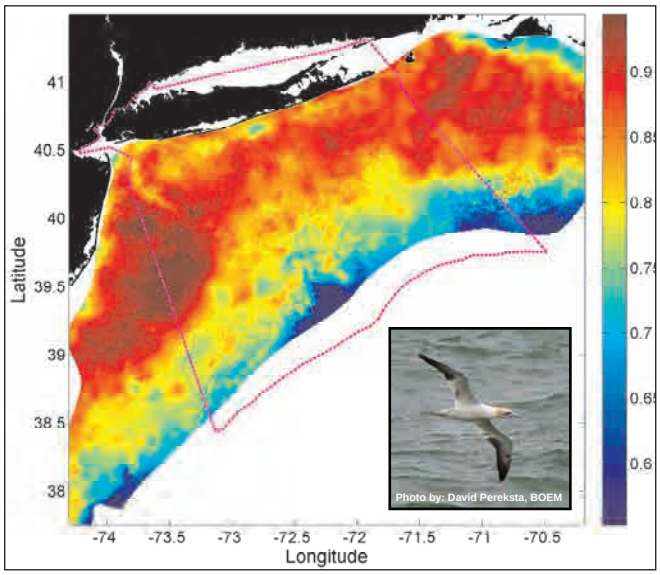
Annual SPUE Uncertainty Calibration Plot



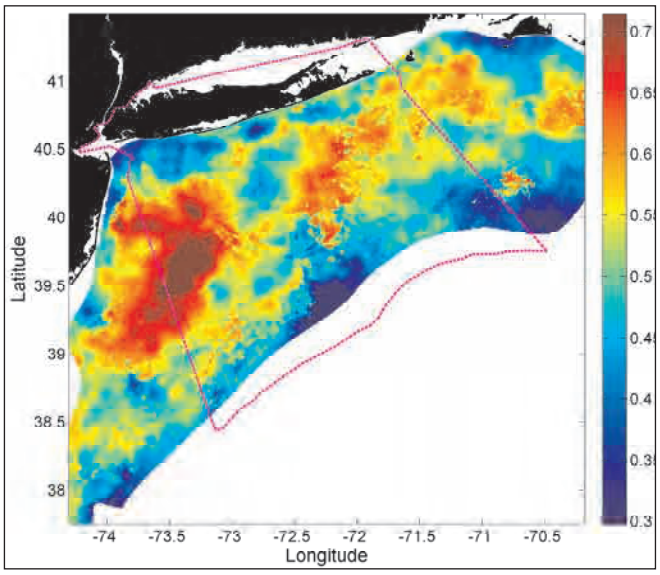
Northern Gannet

Stage I: Presence Probability Predictive Model

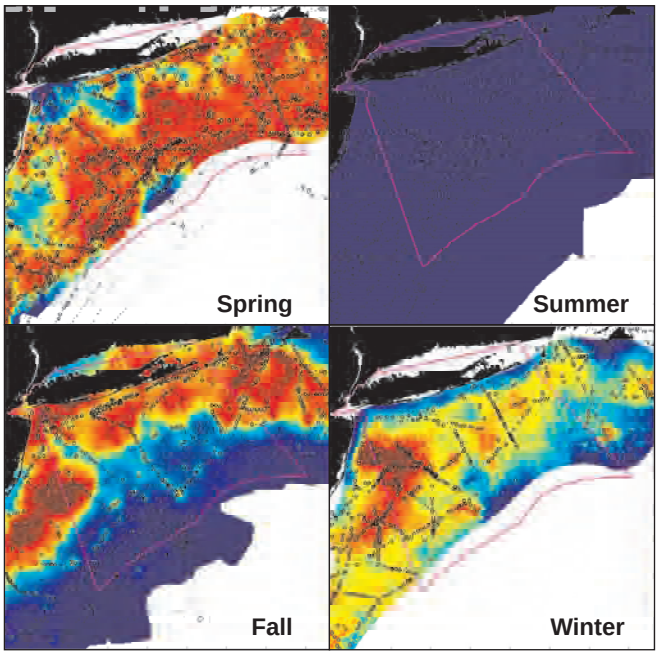
Annual Presence Probability



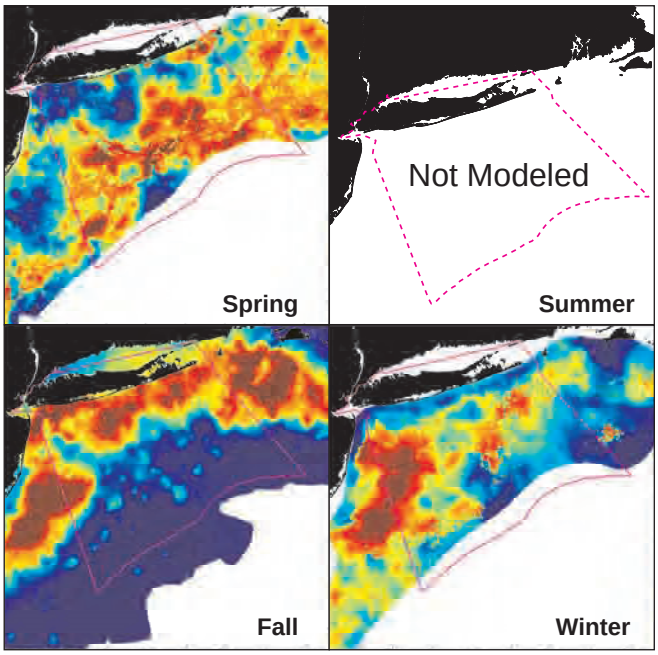
Annual Presence Relative Uncertainty



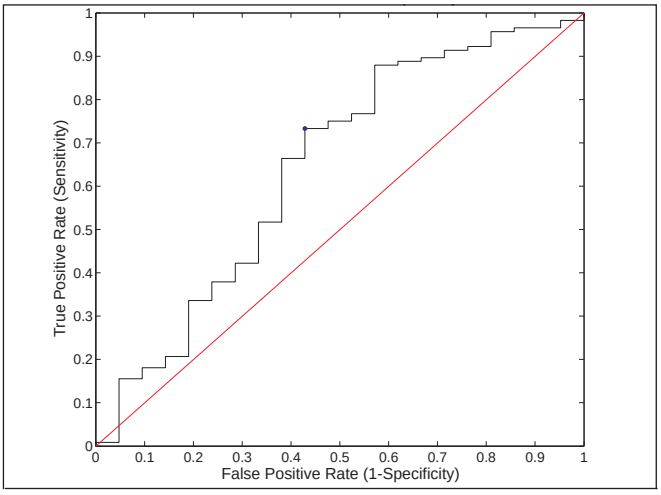
Seasonal Presence Probability Maps



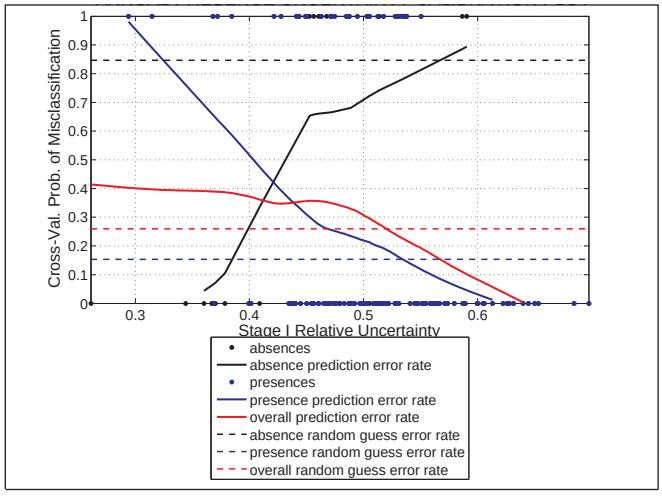
Seasonal Presence Relative Uncertainty Maps



Annual Cross-Validation ROC Plot



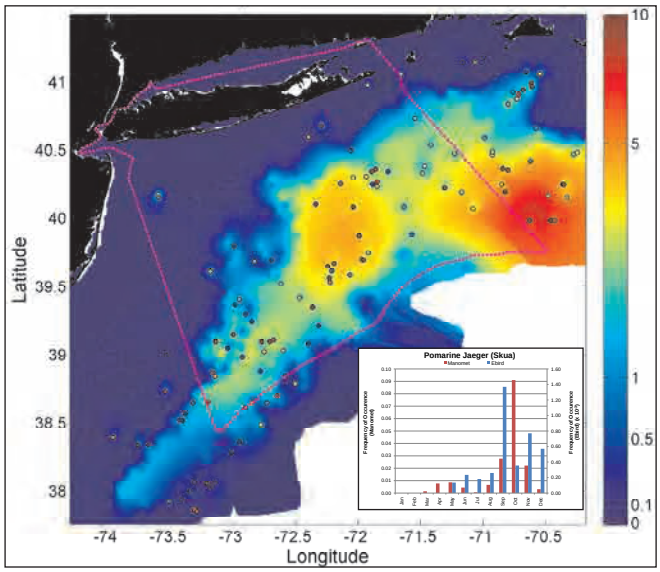
Annual Presence Uncertainty Calibration Plot



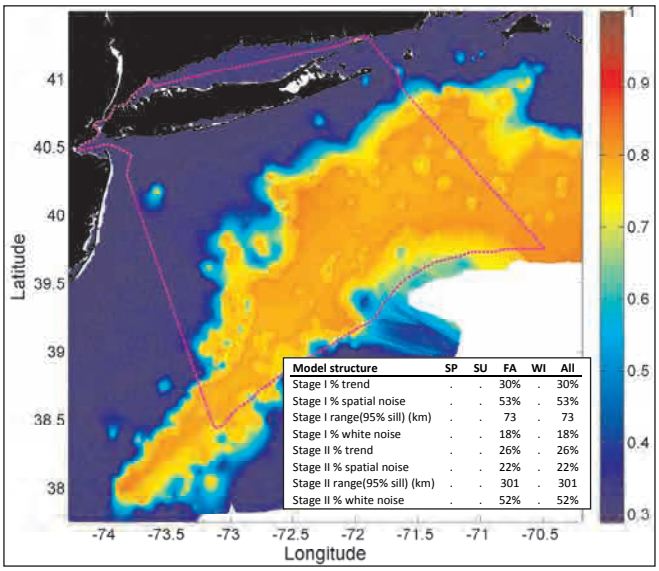
Pomarine Jaeger

Stage I x II: Relative Abundance Predictive Model

Annual Predicted SPUE Map

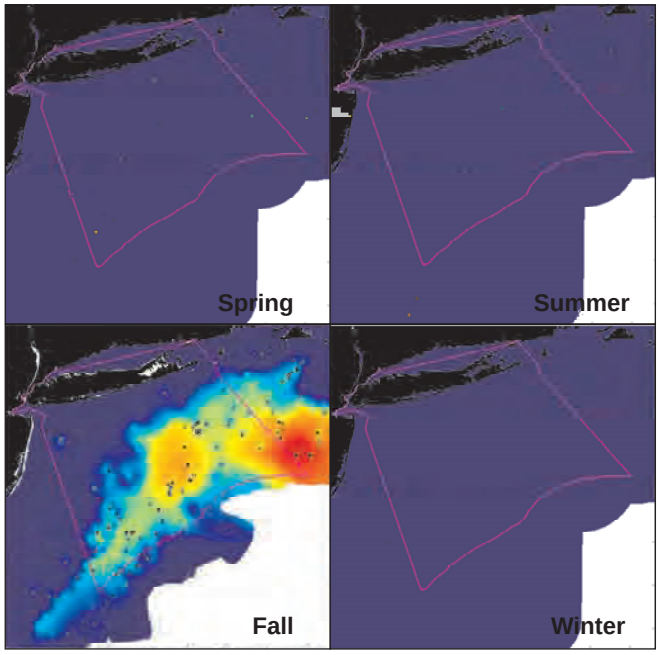


Annual SPUE Relative Uncertainty Map

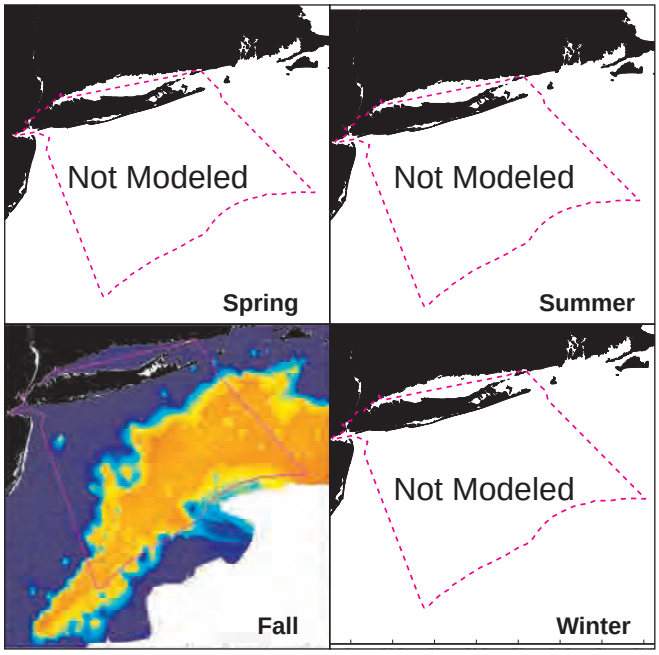


Model structure	SP	SU	FA	WI	All
Stage I % trend	.	.	30%	.	30%
Stage I % spatial noise	.	.	53%	.	53%
Stage I range(95% sill) (km)	.	.	73	.	73
Stage I % white noise	.	.	18%	.	18%
Stage II % trend	.	.	26%	.	26%
Stage II % spatial noise	.	.	22%	.	22%
Stage II range(95% sill) (km)	.	.	301	.	301
Stage II % white noise	.	.	52%	.	52%

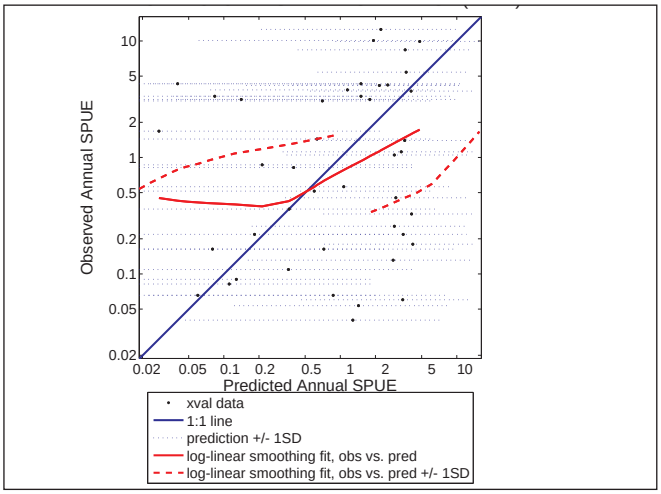
Seasonal Predicted SPUE Maps



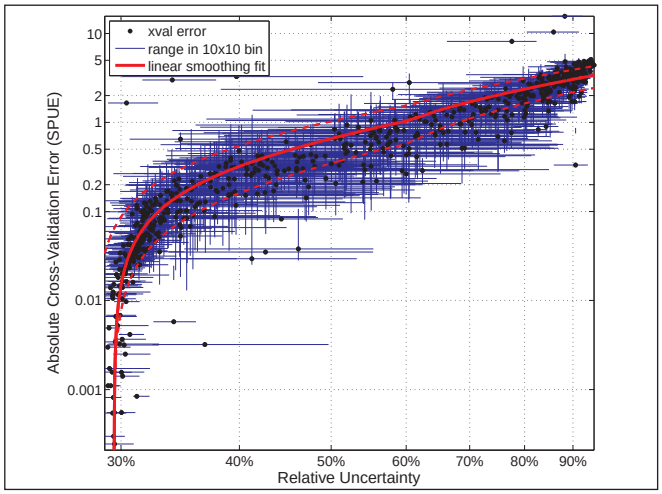
Seasonal SPUE Relative Uncertainty



Annual Cross-Val Observed vs. Predicted



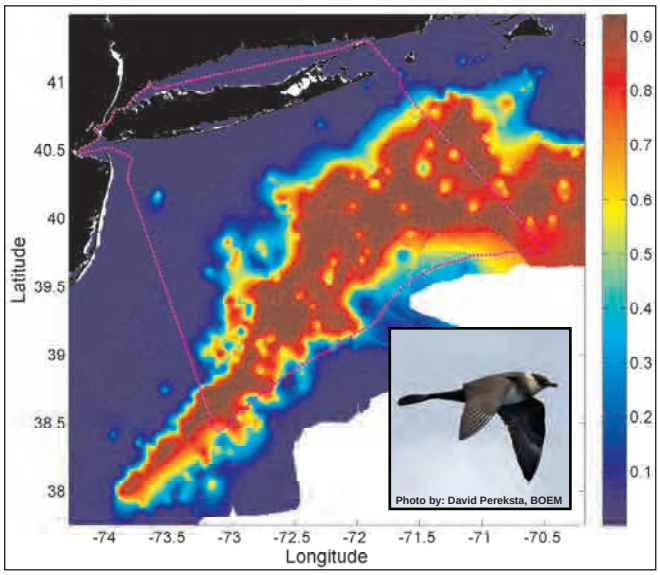
Annual SPUE Uncertainty Calibration Plot



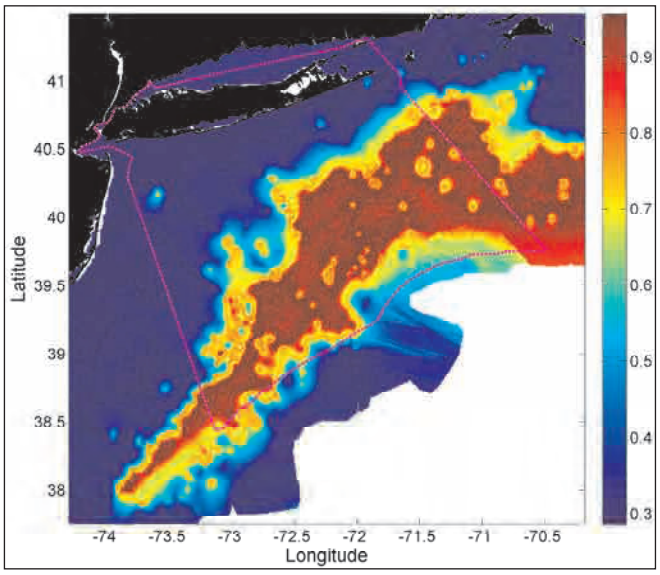
Pomarine Jaeger

Stage I: Presence Probability Predictive Model

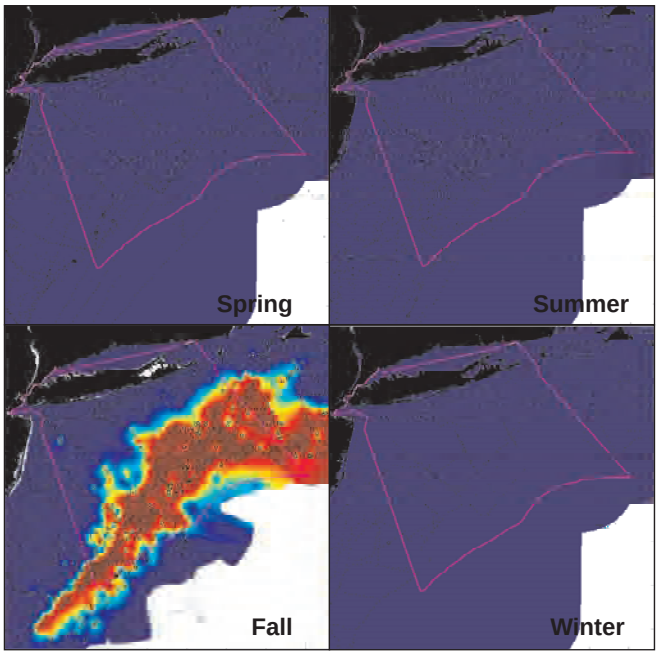
Annual Presence Probability



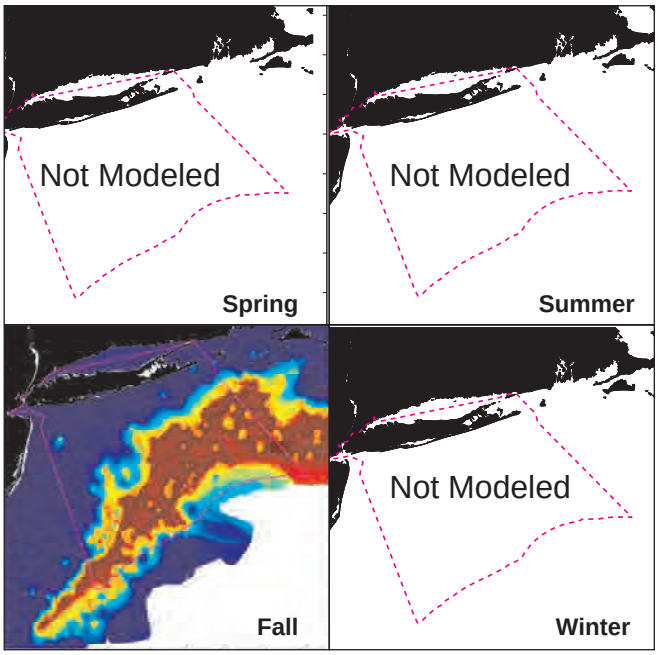
Annual Presence Relative Uncertainty



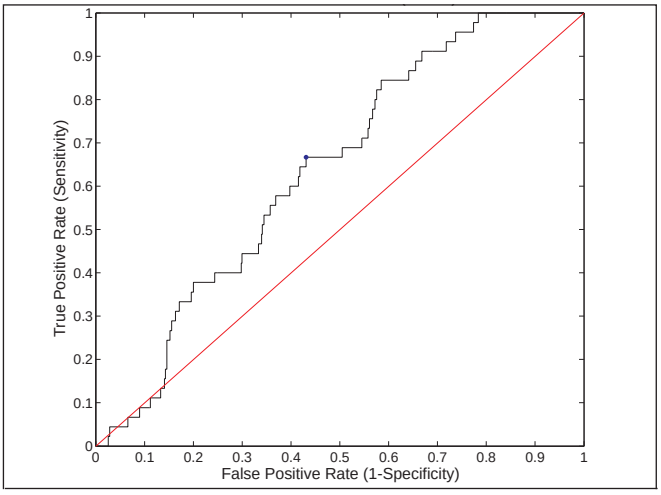
Seasonal Presence Probability Maps



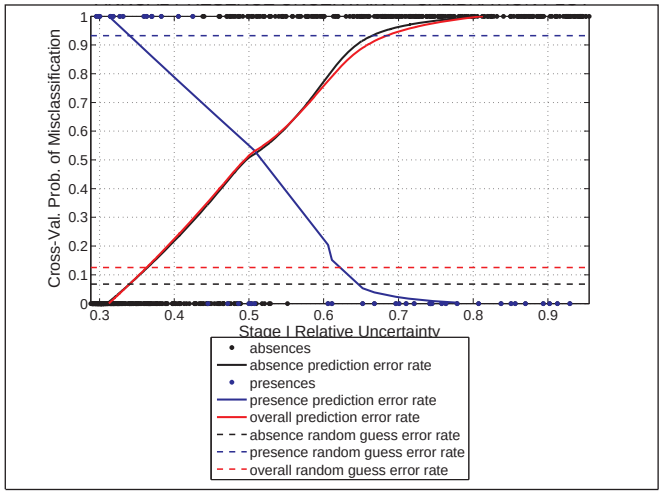
Seasonal Presence Relative Uncertainty Maps



Annual Cross-Validation ROC Plot



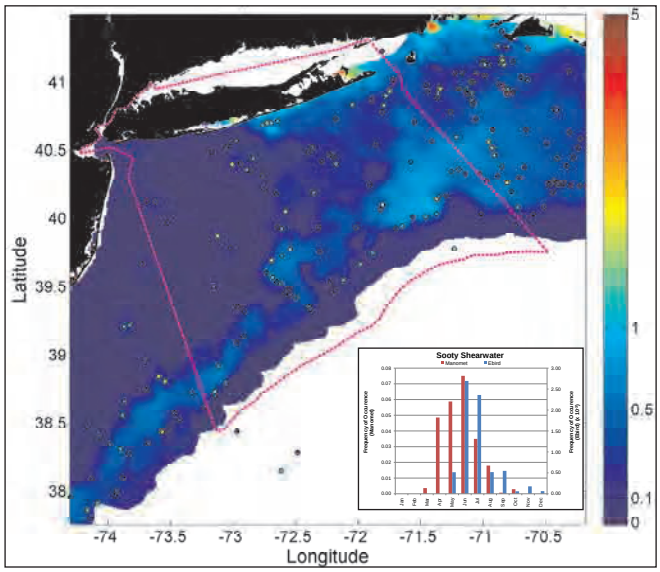
Annual Presence Uncertainty Calibration Plot



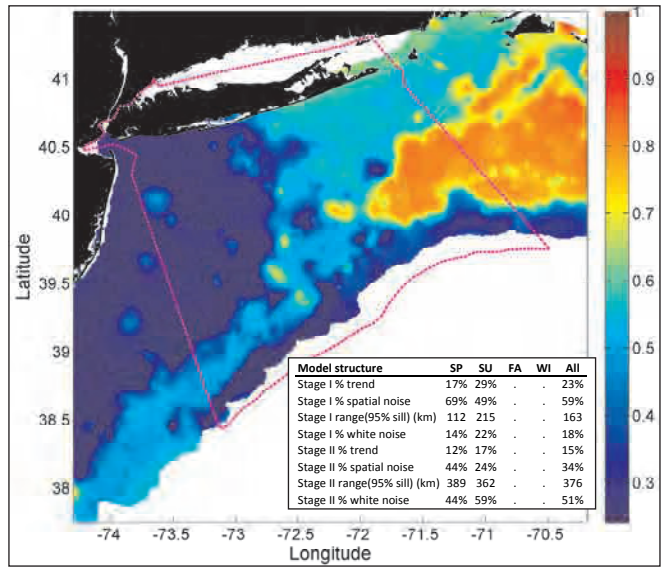
Sooty Shearwater

Stage I x II: Relative Abundance Predictive Model

Annual Predicted SPUE Map

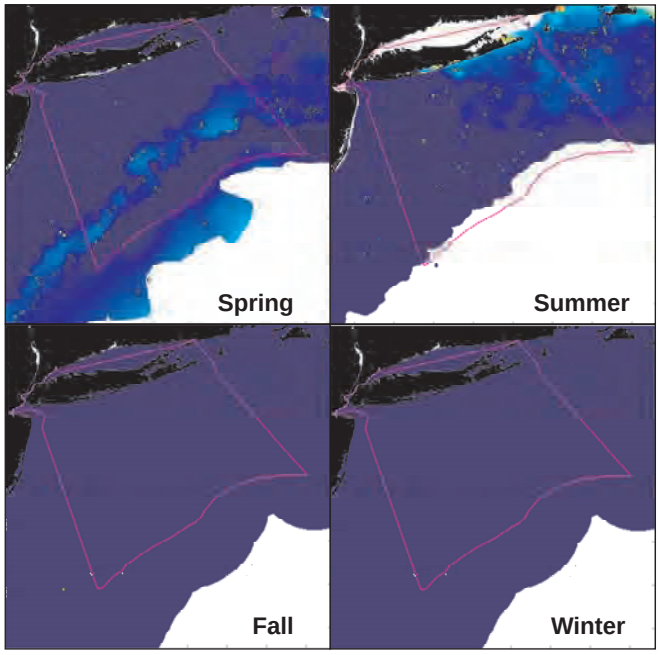


Annual SPUE Relative Uncertainty Map

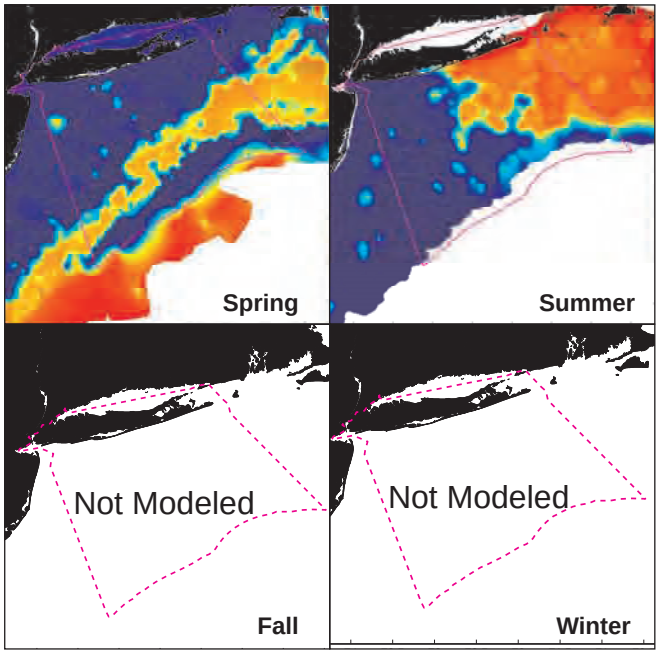


Model structure	SP	SU	FA	WI	All
Stage I % trend	17%	29%	.	.	23%
Stage I % spatial noise	69%	49%	.	.	59%
Stage I range(95% sill) (km)	112	215	.	.	163
Stage I % white noise	14%	22%	.	.	18%
Stage II % trend	12%	17%	.	.	15%
Stage II % spatial noise	44%	24%	.	.	34%
Stage II range(95% sill) (km)	389	362	.	.	376
Stage II % white noise	44%	59%	.	.	51%

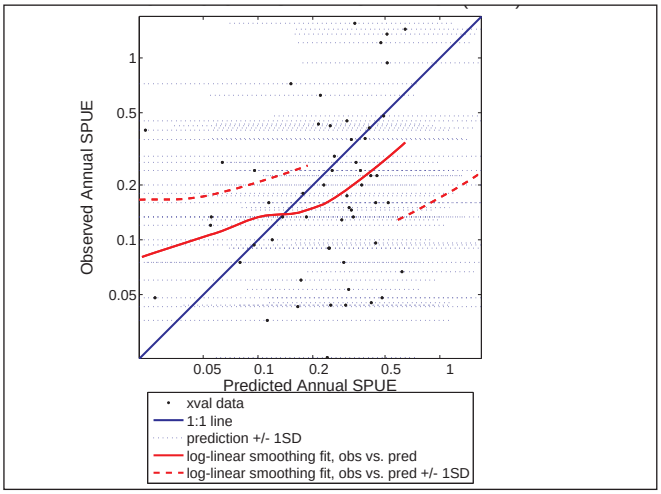
Seasonal Predicted SPUE Maps



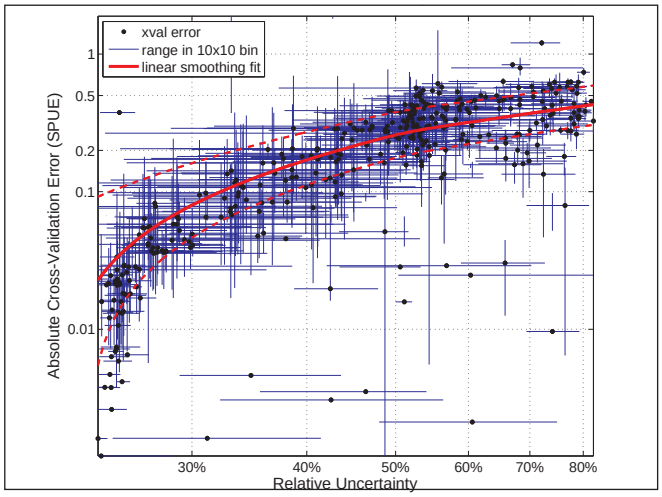
Seasonal SPUE Relative Uncertainty



Annual Cross-Val Observed vs. Predicted



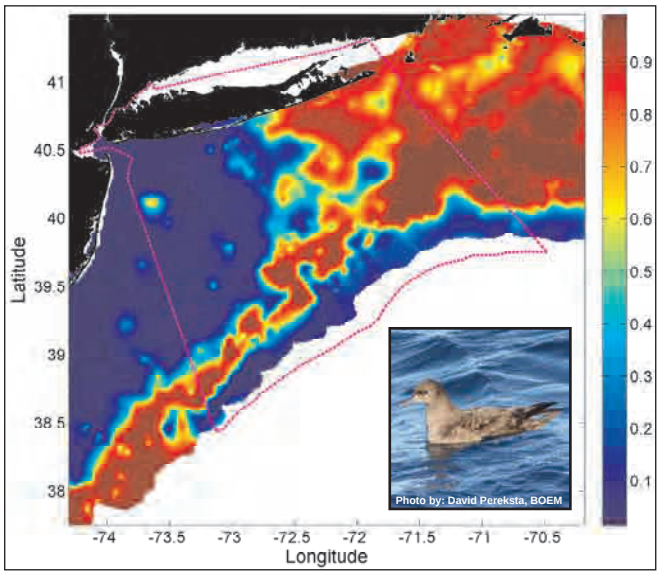
Annual SPUE Uncertainty Calibration Plot



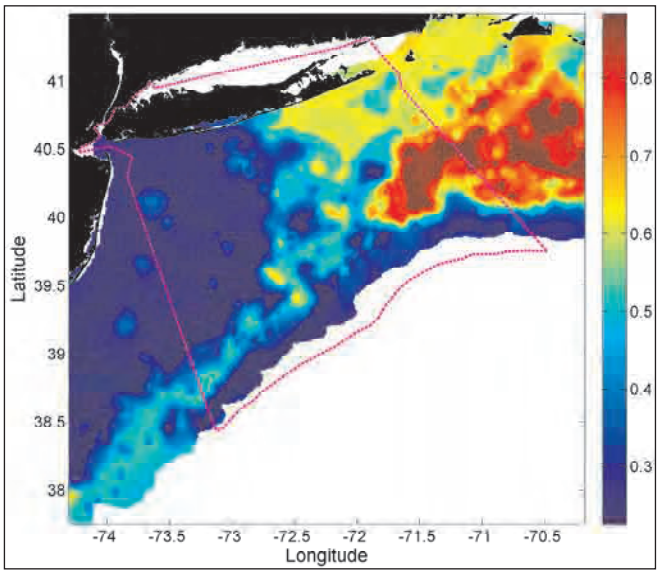
Sooty Shearwater

Stage I: Presence Probability Predictive Model

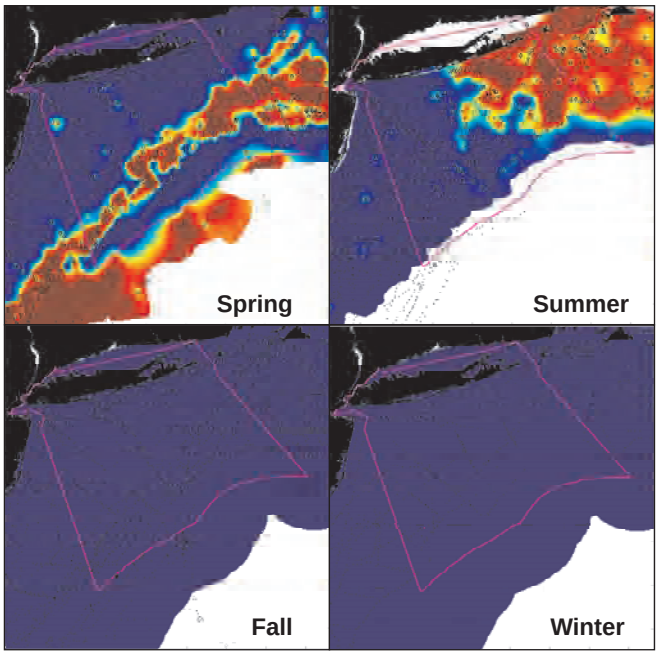
Annual Presence Probability



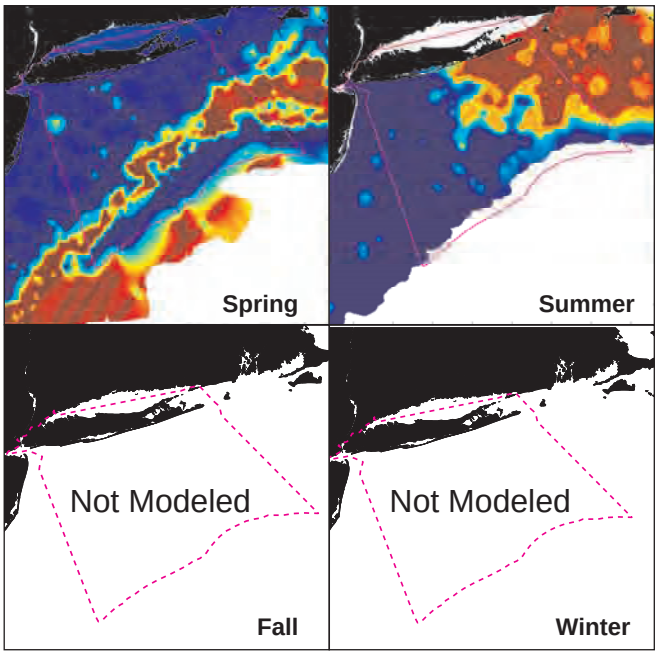
Annual Presence Relative Uncertainty



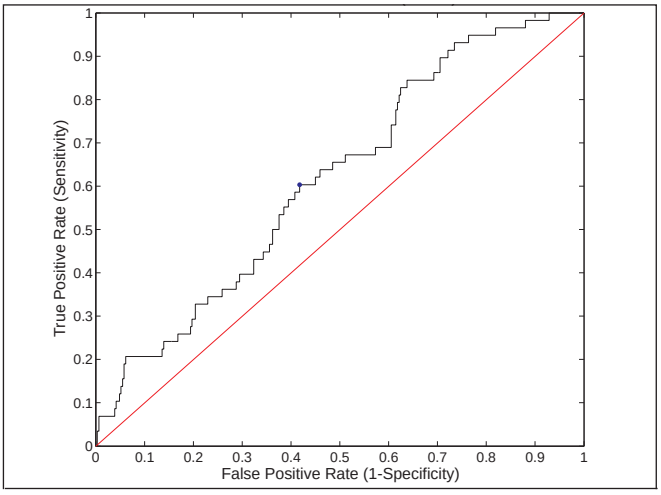
Seasonal Presence Probability Maps



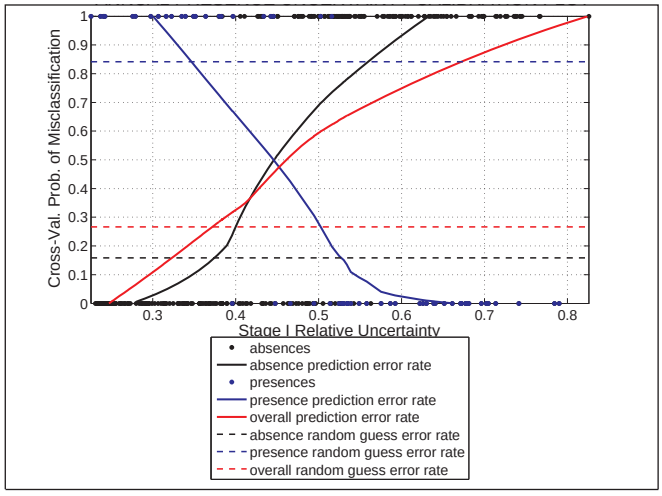
Seasonal Presence Relative Uncertainty Maps



Annual Cross-Validation ROC Plot



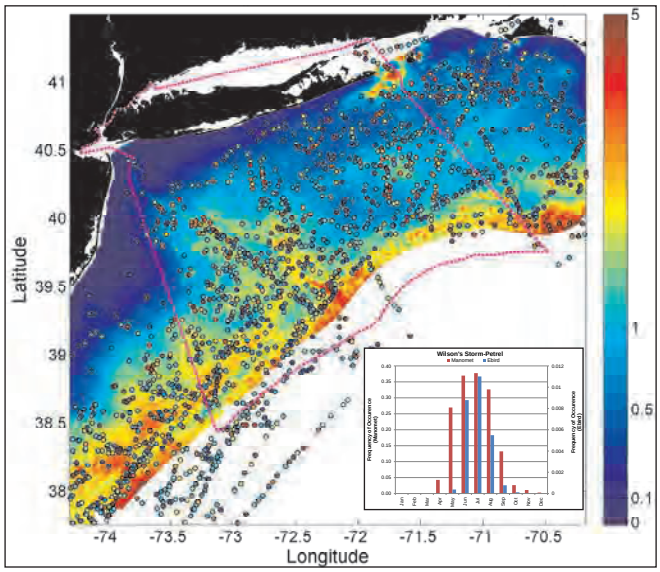
Annual Presence Uncertainty Calibration Plot



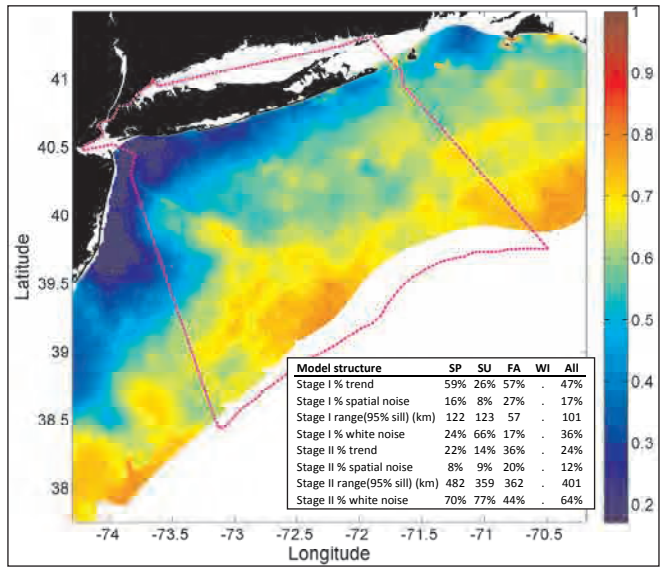
Wilson's Storm-Petrel

Stage I x II: Relative Abundance Predictive Model

Annual Predicted SPUE Map

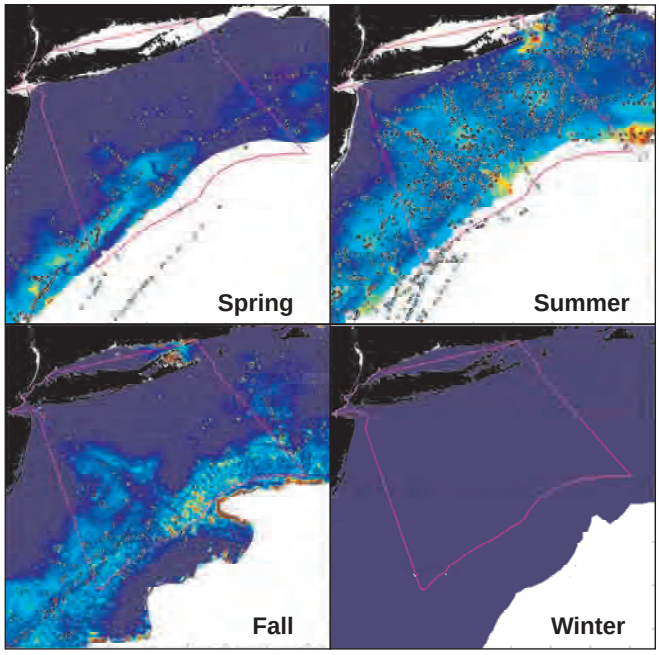


Annual SPUE Relative Uncertainty Map

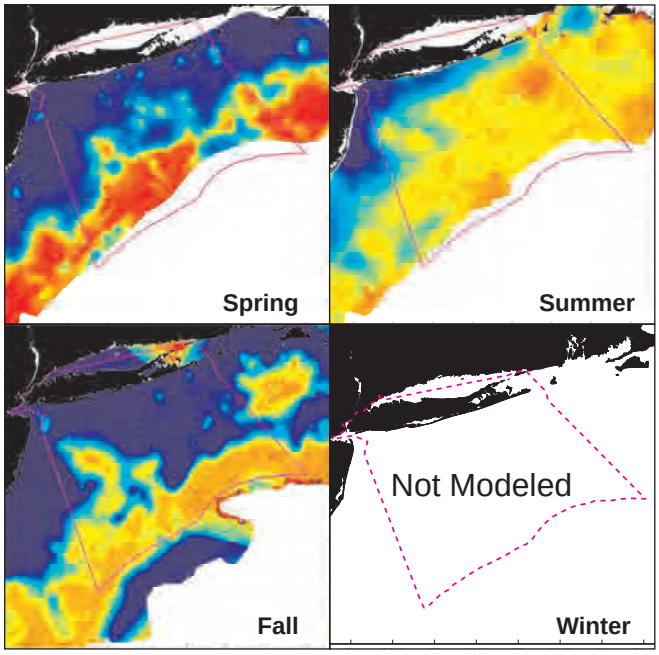


Model structure	SP	SU	FA	WI	All
Stage I % trend	59%	26%	57%	.	47%
Stage I % spatial noise	16%	8%	27%	.	17%
Stage I range(95% sill) (km)	122	123	57	.	101
Stage I % white noise	24%	66%	17%	.	36%
Stage II % trend	22%	14%	36%	.	24%
Stage II % spatial noise	8%	9%	20%	.	12%
Stage II range(95% sill) (km)	482	359	362	.	401
Stage II % white noise	70%	77%	44%	.	64%

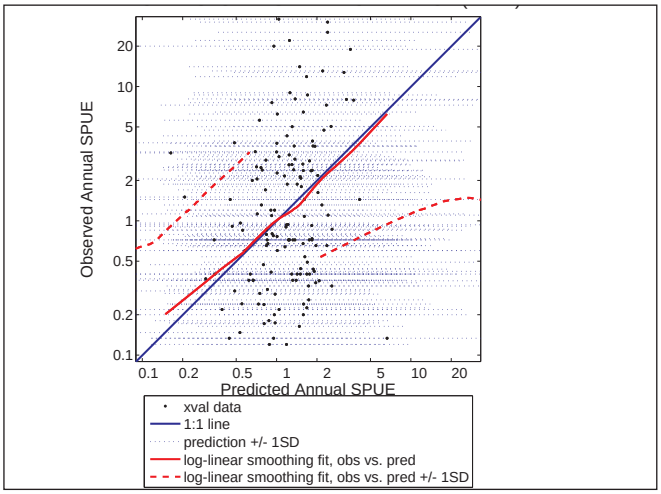
Seasonal Predicted SPUE Maps



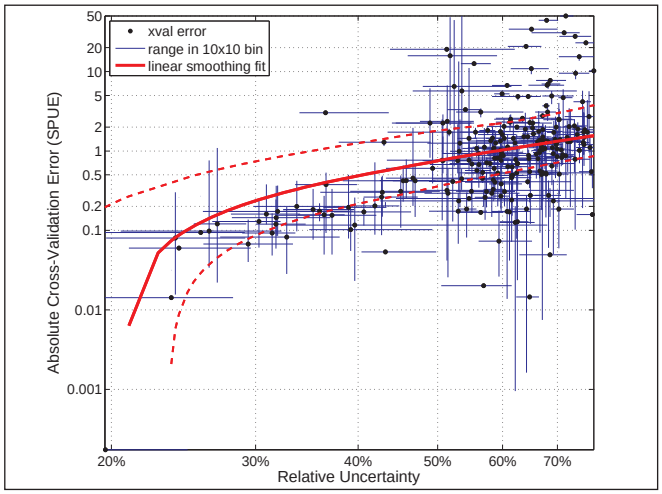
Seasonal SPUE Relative Uncertainty



Annual Cross-Val Observed vs. Predicted



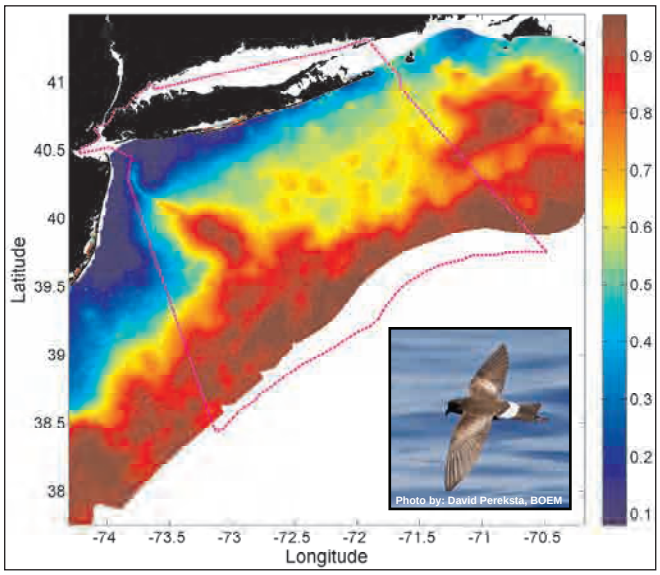
Annual SPUE Uncertainty Calibration Plot



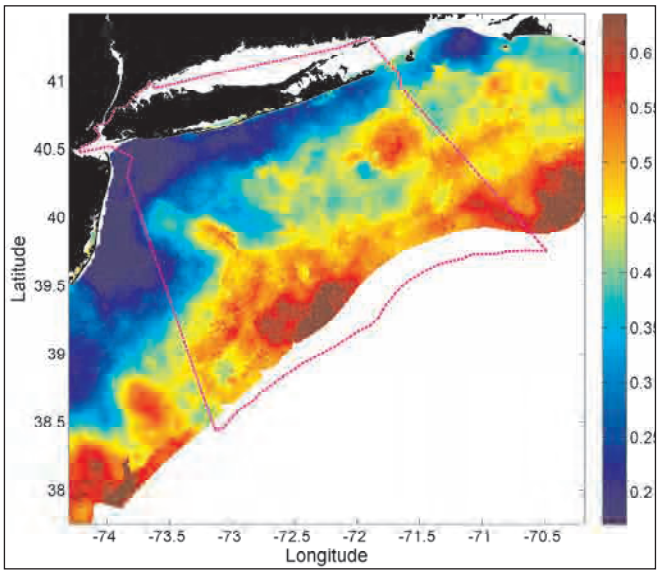
Wilson's Storm-Petrel

Stage I: Presence Probability Predictive Model

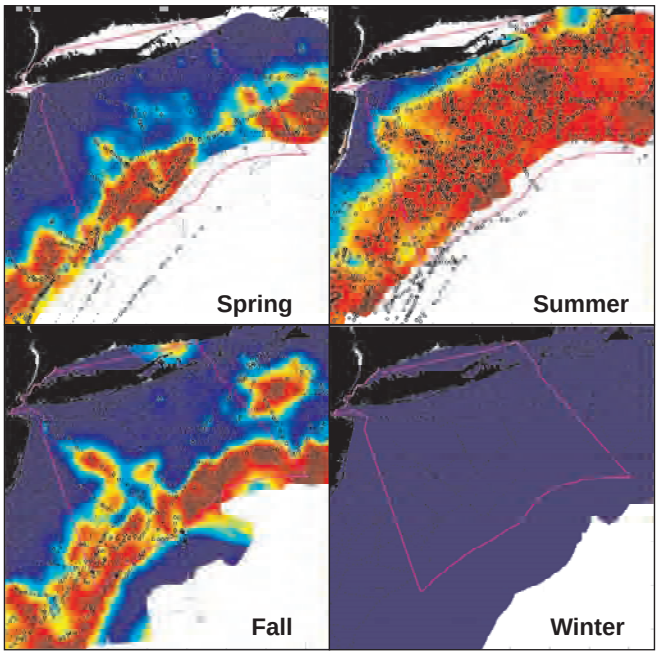
Annual Presence Probability



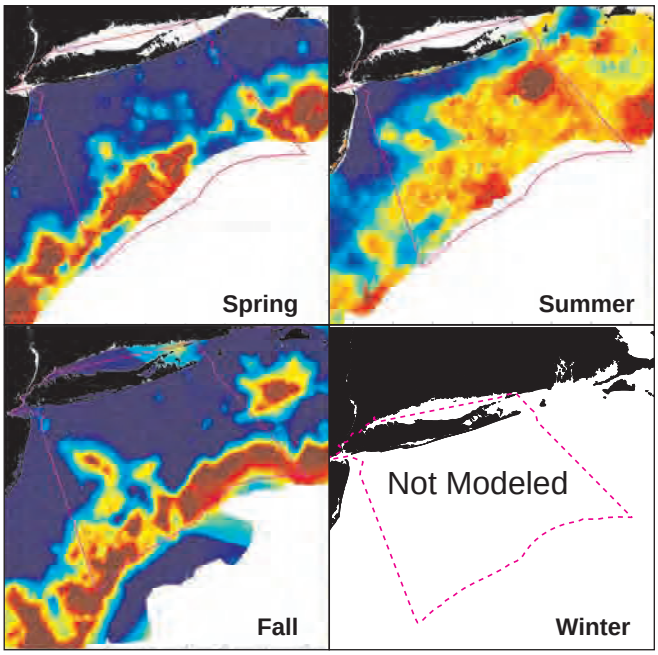
Annual Presence Relative Uncertainty



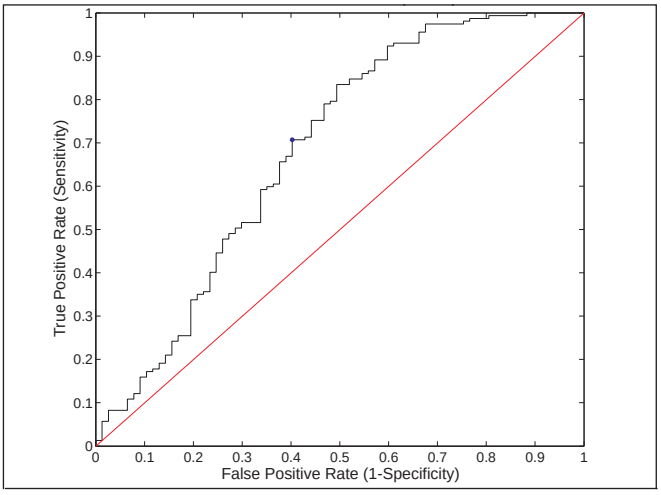
Seasonal Presence Probability Maps



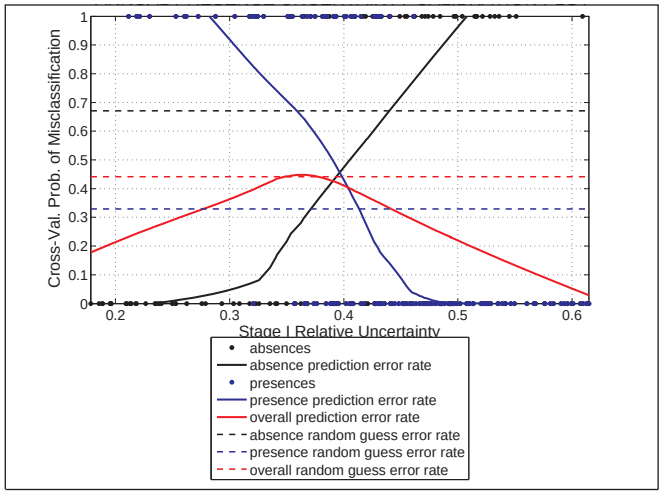
Seasonal Presence Relative Uncertainty Maps



Annual Cross-Validation ROC Plot



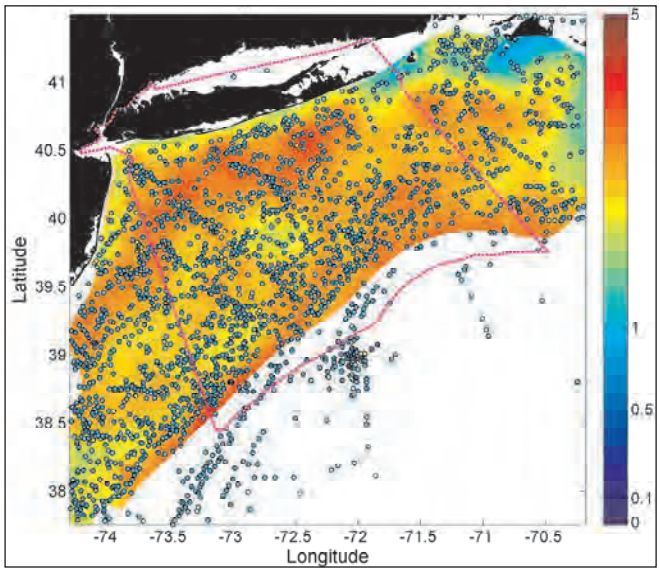
Annual Presence Uncertainty Calibration Plot



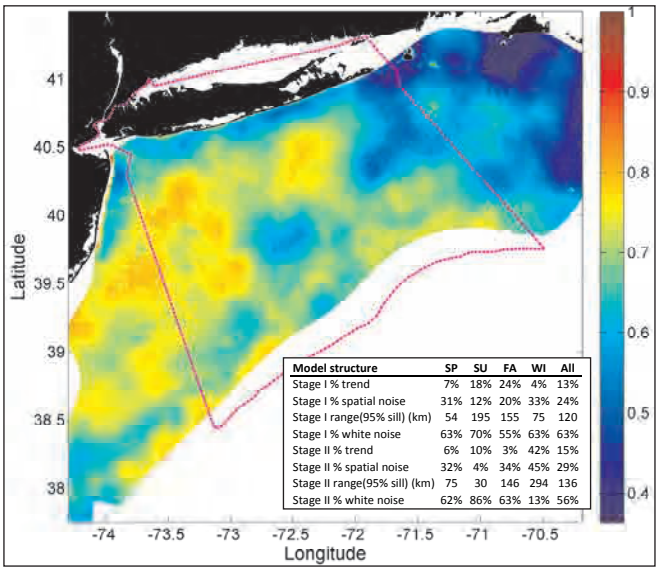
‘No birds sighted’

Stage I x II: Relative Abundance Predictive Model

Annual Predicted SPUE Map

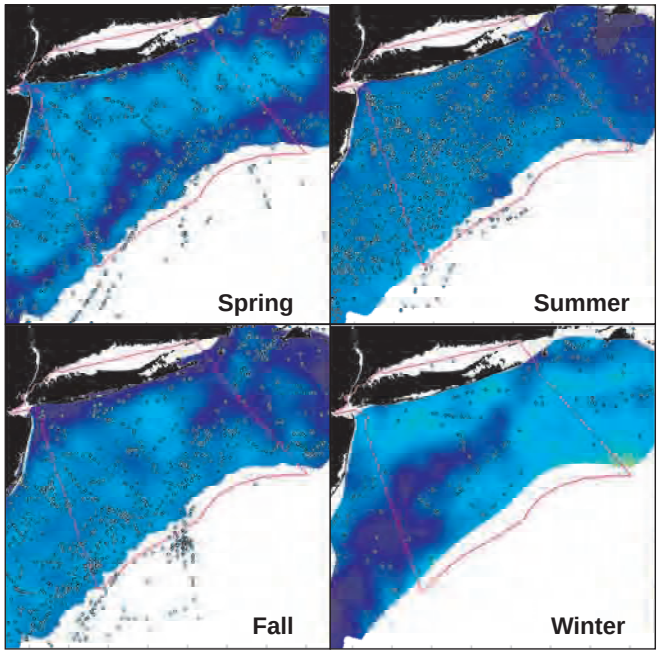


Annual SPUE Relative Uncertainty Map

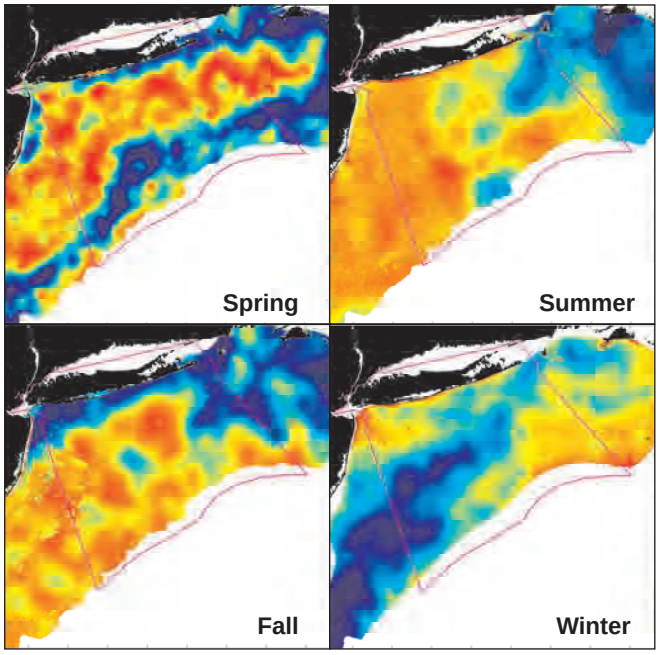


Model structure	SP	SU	FA	WI	All
Stage I % trend	7%	18%	24%	4%	13%
Stage I % spatial noise	31%	12%	20%	33%	24%
Stage I range(95% sill) (km)	54	195	155	75	120
Stage I % white noise	63%	70%	55%	63%	63%
Stage II % trend	6%	10%	3%	42%	15%
Stage II % spatial noise	32%	4%	34%	45%	29%
Stage II range(95% sill) (km)	75	30	146	294	136
Stage II % white noise	62%	86%	63%	13%	56%

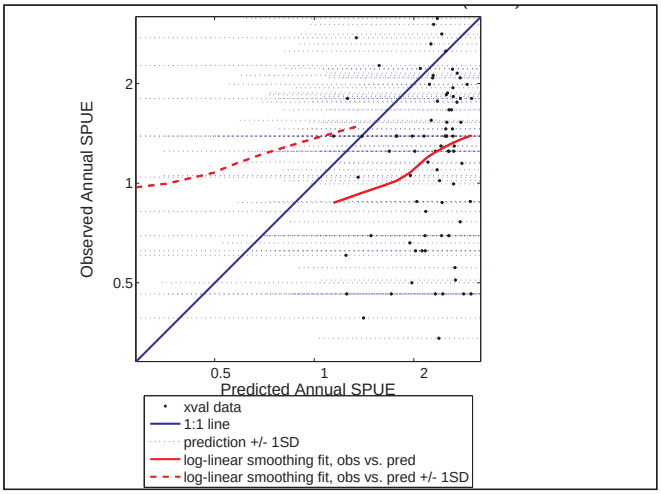
Seasonal Predicted SPUE Maps



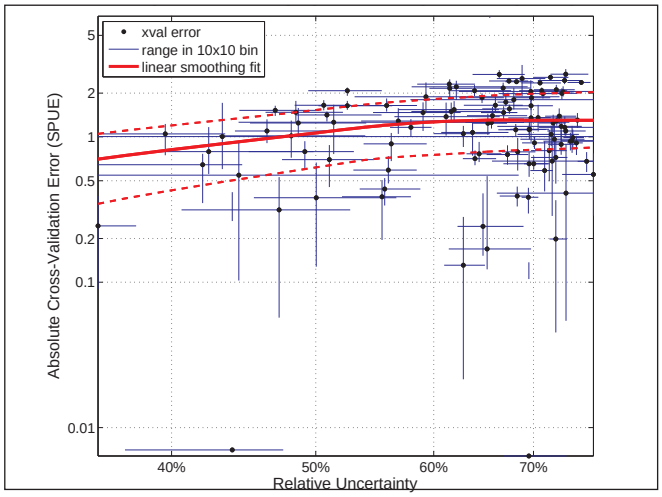
Seasonal SPUE Relative Uncertainty



Annual Cross-Val Observed vs. Predicted



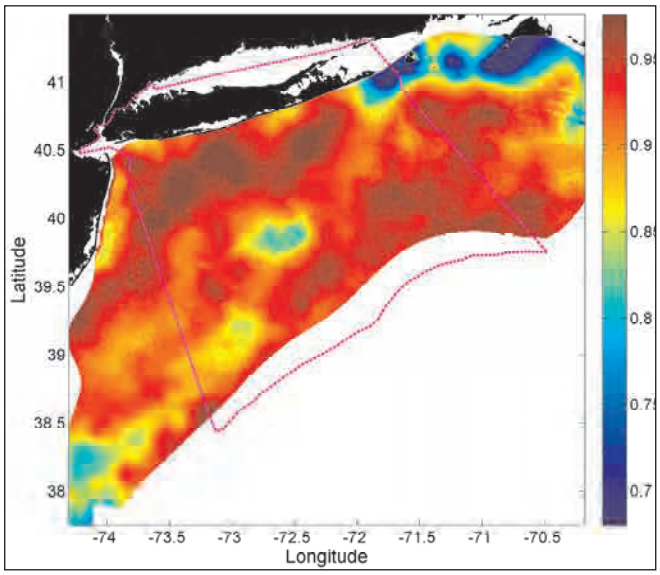
Annual SPUE Uncertainty Calibration Plot



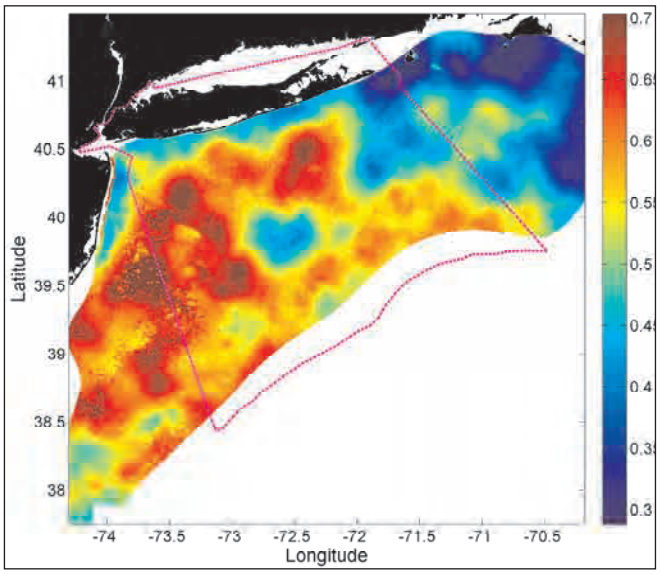
‘No birds sighted’

Stage I: Presence Probability Predictive Model

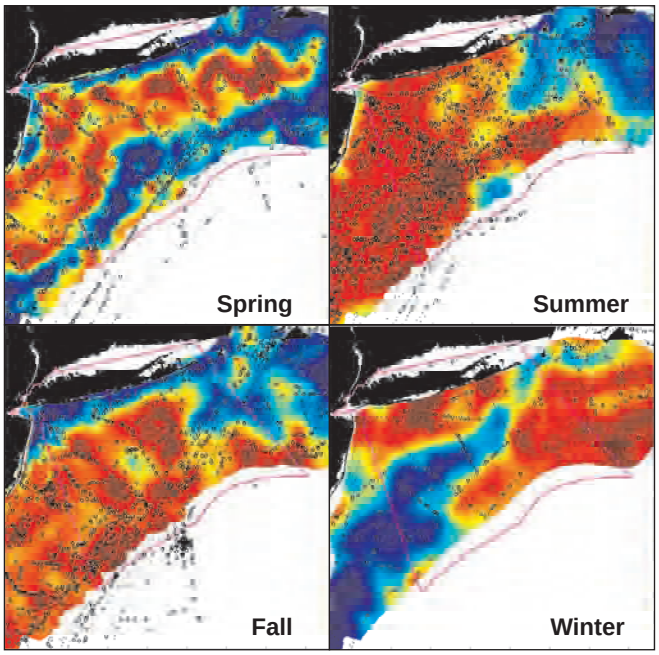
Annual Presence Probability



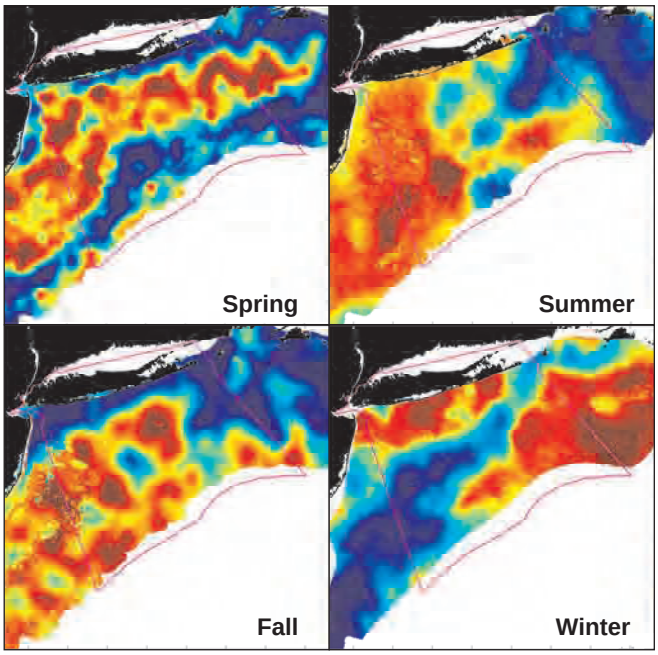
Annual Presence Relative Uncertainty



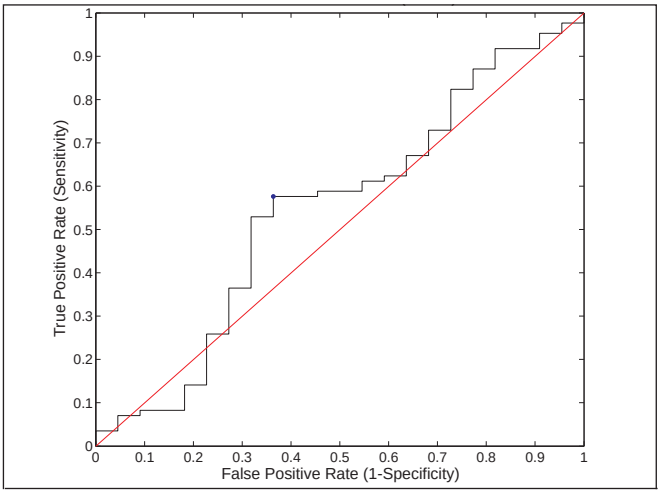
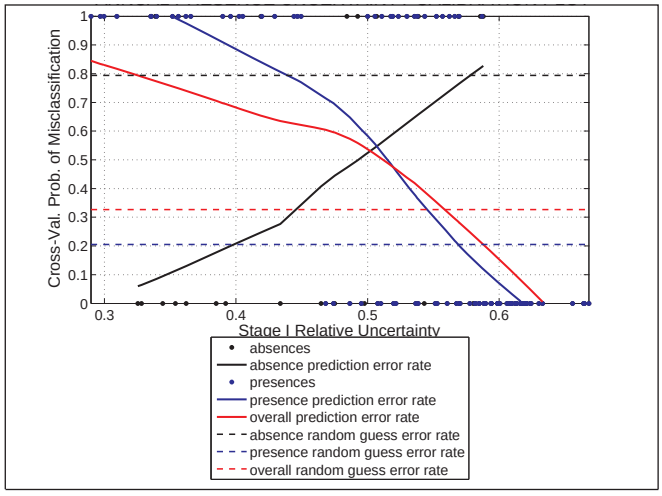
Seasonal Presence Probability Maps



Seasonal Presence Relative Uncertainty Maps



Annual Cross-Validation ROC Plot



Annual Presence Uncertainty Calibration Plot