

ILLEX TABLES:

Table C1. *Illex illecebrosus* landings (mt) in NAFO Subareas 5+6 (U.S. EEZ) and Subareas 3 and 4 during 1963-2005^{1,2,3,4,5,6} and total allowable catches (TACs).

Year	Cape Hatteras to the Gulf of Maine (Subareas 5+6)			Subareas (3+4)	All Subareas (3-6)	TAC (000's mt)		Percent US Landings
	Domestic	Foreign	Total	Total	Total	3+4	5+6	
	(mt)	(mt)	(mt)	(mt)	(mt)			
1963	810		810	2,222	3,032			
1964	358	2	360	10,777	11,137			
1965	444	78	522	8,264	8,786			
1966	452	118	570	5,218	5,788			
1967	707	288	995	7,033	8,028			
1968	678	2,593	3,271	56	3,327			
1969	562	975	1,537	86	1,623			
1970	408	2,418	2,826	1,385	4,211			
1971	455	6,159	6,614	8,906	15,520			
1972	472	17,169	17,641	1,868	19,509			
1973	530	18,625	19,155	9,877	29,032			
1974	148	20,480	20,628	437	21,065		71	98
1975	107	17,819	17,926	17,696	35,622	25	71	50
1976	229	24,707	24,936	41,767	66,703	25	30	37
1977	1,024	23,771	24,795	83,480	108,275	25	35	23
1978	385	17,207	17,592	94,064	111,656	100	30	16
1979	1,493	15,748	17,241	162,092	179,333	120	30	10
1980	299	17,529	17,828	69,606	87,434	150	30	20
1981	615	14,956	15,571	32,862	48,433	150	30	32
1982	5,871	12,762	18,633	12,908	31,541	150	30	59
1983	9,775	1,809	11,584	426	12,010	150	30	96
1984	9,343	576	9,919	715	10,634	150	30	93
1985	5,033	1,082	6,115	673	6,788	150	30	90
1986	6,493	977	7,470	111	7,581	150	30	99
1987	10,102	0	10,102	562	10,664	150	30	95
1988	1,958	0	1,958	811	2,769	150	30	71
1989	6,801	0	6,801	5,971	12,772	150	30	53
1990	11,670	0	11,670	10,975	22,645	150	30	52
1991	11,908	0	11,908	2,913	14,821	150	30	80
1992	17,827	0	17,827	1,578	19,405	150	30	92
1993	18,012	0	18,012	2,686	20,698	150	30	87
1994	18,350	0	18,350	5,951	24,301	150	30	76
1995	14,058	0	14,058	1,055	15,113	150	30	93
1996	16,969	0	16,969	8,742	25,711	150	21	66
1997	13,629	0	13,629	15,614	29,243	150	19	47
1998	23,597	0	23,597	1,902	25,499	150	19	93
1999	7,388	0	7,388	305	7,693	75	19	96
2000	9,011	0	9,011	366	9,377	34	24	96
2001	4,009	0	4,009	57	4,066	34	24	99
2002	2,750	0	2,750	258	3,008	34	24	91

Table C1. cont.

Year	Cape Hatteras to the Gulf of Maine (Subareas 5+6)			Subareas (3+4) Total (mt)	All Subareas (3-6) Total (mt)	TAC (mt)		Percent US Landings
	Domestic (mt)	Foreign (mt)	Total (mt)			3+4	5+6	
2003	6,389	0	6,389	1,128	7,517	34	24	85
2004	26,087	0	26,087	2,034	28,121	34	24	93
2005	11,429	0	11,429	Not available	11,429	34	24	
Averages								
1976-1981	674	18,986	19,661	80,645	100,306			
1982-1987	7,770	2,868	10,637	2,566	13,203			
1988-1993	11,363	0	11,363	4,156	15,518			
1994-1999	15,665	0	15,665	5,595	21,260			
2000-2003	5,540	0	5,540	452	5,992			

¹ Landings during 1963-1978 were not reported by species, but are proration-based estimates by Lange and Sissenwine (1980)

² Landings during 1979-2003 are from the NEFSC Weighout Database

³ Domestic landings during 1982-1991 include Joint-Venture landings

⁴ Includes landings from Subarea 2

⁵ Landings during 2004 are preliminary for all Subareas; USA landings were reported electronically by dealers during April 2004-2005

⁶ Landings for 2005 include preliminary dealer reports as of 11/2/2005

Table C2. Landings (mt) of *Illex illecebrosus* recorded in the Weighout Database, by gear type, during 1998-2004.

Year	Bottom Trawl	Other ¹ and Unknown	Midwater Pair Trawl	Total	Percent Bottom Trawl
1998	23,567.6	0.5		23,568	100.00
1999	7,387.4	1.2		7,389	99.98
2000	9,011.2	0.1		9,011	100.00
2001	4,008.6	0.0		4,009	100.00
2002	2,724.4	0.0	25.1	2,750	99.09
2003	6,364.4	0.1	26.9	6,391	99.58
2004	25,483.1	546.6		26,030	97.90

¹As of April 2004, gear type data were reported by dealers

Table C3. Estimates of kept weight (mt), discarded weight (mt) and discard ratios (discard/kept weight) of *Illex illecebrosus* sampled in the *Illex* fishery, by observers from the NEFSC Observer Program, during 1995-2004. *Illex* trips were defined as trips where *Illex* landings were $\geq 25\%$, by weight, of the total trip landings. Total discard estimates are the product of discard ratios and total *Illex* landings, for *Illex* trips in the Weighout database, for all months sampled.

	May	June	July	Aug	Sept	Oct	Total
1995							
Trips	0	0	0	0	1	1	2
Total Kept (mt)					0.902	0.113	1.015
Total Discards (mt)					0.007	0.023	0.030
Ratio discard/kept					0.008	0.204	0.030
Total Landings (mt)					1,263.819	905.822	2,169.641
Total Discards (mt)					9.808	184.371	64.127
1996							
Trips	0	4	3	6	1	1	15
Total Kept (mt)		112.696	236.297	182.447	136.617	166.106	834.163
Total Discards (mt)		0.769	3.499	0.045	0.163	0.000	4.476
Ratio discard/kept		0.007	0.015	0.000	0.001	0.000	0.005
Total Landings (mt)		3,817.659	2,736.593	3,787.278	2,455.642	2,436.032	15,233.204
Total Discards (mt)		26.050	40.522	0.936	2.930	0.000	81.741
1997							
Trips	0	0	7	3	0	0	10
Total Kept (mt)			773.388	343.904			1,117.292
Total Discards (mt)			1.941	5.286			7.227
Ratio discard/kept			0.003	0.015			0.006
Total Landings (mt)			5,077.722	3,600.592			8,678.314
Total Discards (mt)			12.744	55.343			56.134

Table C3. cont.

	May	June	July	Aug	Sept	Oct	Total
1998							
Trips	0	0	2	2	0	0	4
Total Kept (mt)			106.141	48.761			154.902
Total Discards (mt)			1.656	0.000			1.656
Ratio discard/kept			0.016	0.000			0.011
Total Landings (mt)			7,526.991	6,501.153			14,028.144
Total Discards (mt)			117.435	0.000			149.970
1999							
Trips	0	0	1	2	1	0	4
Total Kept (mt)			26.218	50.723	14.011		90.952
Total Discards (mt)			0.000	0.907	0.068		0.975
Ratio discard/kept			0.000	0.018	0.005		0.011
Total Landings (mt)			2,249.614	2,550.402	596.029		5,396.045
Total Discards (mt)			0.000	45.605	2.893		57.845
2000							
Trips	0	2	4	7	0	0	13
Total Kept (mt)		85.820	135.459	182.796			404.075
Total Discards (mt)		0.000	0.680	1.198			1.878
Ratio discard/kept		0.000	0.005	0.007			0.005
Total Landings (mt)		1,409,981	2,753,821	2,122.142			6,285.944
Total Discards (mt)		0.000	13.824	13.908			29.215
2001							
Trips	0	0	0	0	0	0	0

Table C3. cont.

	May	June	July	Aug	Sept	Oct	Total
2002							
Trips	0	0	0	0	0	0	0
2003							
Trips	0	1	5	2	1	1	10
Total Kept (mt)		1,950	667,788	294,246	8,393	276,739	1,249,116
Total Discards (mt)		0	2,330	0	00,006	0,232	2,568
Ratio discard/kept		0	0.0003	0	0.001	0.001	0.002
Total Landings (mt)		1,108,513	1,196,377	1,123,499	526,248	1,931,618	5,886,256
Total Discards (mt)		0	4,174	0	0,376	1,619	6,170
2004							
Trips	1	3	12	9	7	1	33
Total Kept (mt)	24,948	89,132	327,945	378,682	342,689	0,102	1,163,498
Total Discards (mt)	0	0,907	12,774	0	2,287	0,519	16,487
Ratio discard/kept	0	0.01	0.039	0	0.007	5,088	0.014
Total Landings (mt)	1,527,714	5,646,571	6,664,912	8,184,790	3,987,020	0	26,011,007
Total Discards (mt)	0	57,459	259,609	0	26,608	0	343,676

Table C4. Estimates of kept weight (mt), discarded weight (mt) and discard ratios (discard/kept weight) of *Illex illecebrosus* sampled in the *Loligo* fishery, by observers from the NEFSC Observer Program, during 1995-2004. *Loligo* trips were defined as trips where *Loligo* landings were $\geq 25\%$, by weight, of the total trip landings. Estimates of total discards are based the product of discard ratios and reported *Loligo* landings, by month, for *Loligo* trips in the Weighout database.

	Nov	Dec	Jan	Feb	Mar	Apr	Total
1995							
Trips	0	1	1	1	0	0	3
Total Kept (mt)		1.195	0.513	2.971			4.679
Total Discard (mt)		0.000	0.000	0.002			0.002
Ratio discard/kept		0.000	0.000	0.001			0.000
Total Landings (mt)		537.991	981.273	1,407.113			2,926.377
Total Discards (mt)		0.000	0.000	0.947			1.251
1996							
Trips	1	1	1	2	1	0	6
Total Kept (mt)	3.009	0.335	0.760	11.952	10.972		27.028
Total Discard (mt)	1.100	0.000	0.000	0.068	0.069		1.237
Ratio discard/kept	0.366	0.000	0.000	0.006	0.006		0.046
Total Landings (mt)	347.441	306.178	2,077.435	1,933.899	1,462.509		6,127.462
Total Discards (mt)	127.014	0.000	0.000	11.003	9.197		280.438
1997							
Trips	0	0	1	2	1	1	5
Total Kept (mt)			2.220	23.071	8.137	12.084	45.512
Total Discard (mt)			0.318	0.206	0.278	0.687	1.489
Ratio discard/kept			0.143	0.009	0.034	0.057	0.033
Total Landings (mt)			602.383	1,192.511	752.883	735.620	3,283.397
Total Discards (mt)			86.287	10.648	25.722	41.821	107.422

Table C4. cont.

	Nov	Dec	Jan	Feb	Mar	Apr	Total
1998							
Trips	2	0	3	3	7	3	18
Total Kept (mt)	3.629		21.514	25.045	100.520	25.540	176.248
Total Discard (mt)	0.003		0.372	0.078	0.976	3.395	4.824
Ratio discard/kept	0.001		0.017	0.003	0.010	0.133	0.027
Total Landings (mt)	1,442.321		1,202.271	3,697.553	3,720.621	1,009.754	11,072.520
Total Discards (mt)	1.192		20.789	11.516	36.125	134.225	303.061
1999							
Trips	2	3	0	0	4	5	14
Total Kept (mt)	40.183	14.411			31.508	37.670	123.772
Total Discard (mt)	0.032	0.155			2.015	2.376	4.578
Ratio discard/kept	0.001	0.011			0.064	0.063	0.037
Total Landings (mt)	1,783.164	1,286.115			1,197.348	1,343.383	5,610.010
Total Discards (mt)	1.420	13.833			76.573	84.733	207.499
2000							
Trips	1	0	4	5	5	0	15
Total Kept (mt)	0.429		14.527	63.171	53.083		131.210
Total Discard (mt)	0.000		0.005	0.492	0.530		1.027
Ratio discard/kept	0.000		0.000	0.008	0.010		0.008
Total Landings (mt)	292.562		1,232.910	2,182.140	1,769.293		5,476.905
Total Discards (mt)	0.000		0.424	16.995	17.665		42.869

Table C4. cont.

	Nov	Dec	Jan	Feb	Mar	Apr	Total
2001							
Trips	2	1	1	4	5	1	14
Total Kept (mt)	21.32	11.05	2.864	29.828	61.793	23.918	150.773
Total Discard (mt)	0.227	0	0.906	1.789	0.402	0.228	3.552
Ratio discard/kept	0.011	0.000	0.316	0.060	0.007	0.010	0.024
Total Landings (mt)	1,908.420	1,691.437	519.057	850.685	1,557.575	979.096	7,506.270
Total Discards (mt)	20.319	0.000	164.199	51.022	10.133	9.333	176.837
2002							
Trips	0	0	1	3	0	3	7
Total Kept (mt)			20.117	24.937		15.183	60.237
Total Discard (mt)			0.15	1.026		0	1.176
Ratio discard/kept			0.007	0.041		0	0.020
Total Landings (mt)			1,272.791	1,338.373		111.488	2,722.652
Total Discards (mt)			9.490	55.066		0	53.154
2003							
Trips	4	2	0	0	0	2	8
Total Kept (mt)	9.734				18.673	13.290	41.697
Total Discard (mt)	0.412				0.027	2.702	3.141
Ratio discard/kept	0.042				0.001	0.203	0.075
Total Landings (mt)	348.863				2,050.161	1,602.186	4,001.210
Total Discards (mt)	14.766				2.964	325.742	343.472
2004							
Trips	10	21	3	15	0	5	54
Total Kept (mt)	7.188	207.010	12.416	156.471		265.424	648.509
Total Discard (mt)	2.750	3.050	2.693	23.371		12.537	44.401
Ratio discard/kept	0.383	0.015	0.217	0.149		0.047	0.068
Total Landings (mt)	1,651.820	2,585.834	979.853	1,355.578		2,892.108	9,465.194
Total Discards (mt)	631.957	38.099	212.528	202.473		136.605	1,221.662

Table C5. Summary of *Illlex* discards (mt), by year and fishery, estimated from data collected by observers from the NEFSC Observer Program during 1995-2004.

Percentage of landings sampled for <i>Illlex</i> discards											
Year	<i>Illlex</i> Fishery			<i>Loligo</i> Fishery			<i>Illlex</i> Discards (mt)			Total <i>Illlex</i> Landings (mt)	<i>Illlex</i> Discards (% of <i>Illlex</i> landings)
	<i>Illlex</i> Landings (May-Oct, mt)	%	<i>Loligo</i> Landings (Nov-April, mt)	%	<i>Illlex</i> Fishery	%	<i>Loligo</i> Fishery	%	Total		
1995	13,494	0.01%	6,702	0.07%	64	98	1	2	65	14,058	0.5%
1996	15,563	5.36%	7,070	0.38%	82	23	280	77	362	16,969	2.1%
1997	12,709	8.79%	6,484	0.69%	56	34	107	66	163	13,629	1.2%
1998	23,091	0.67%	12,755	1.38%	150	33	303	67	453	23,597	1.9%
1999	7,115	1.28%	7,811	1.59%	58	22	207	78	265	7,388	3.6%
2000	8,901	4.54%	5,810	2.25%	29	40	43	60	72	9,011	0.8%
2001	3,452	0.00%	7,506	2.01%	No data		177		177	4,009	4.4%
2002	2,342	0.00%	6,107	0.98%	No data		53		53	2,750	2.0%
2003	5,887	21.22%	8,804	0.47%	6	2	344	98	350	6,389	5.5%
2004	26,011	4.47%	10,350	6.27%	344	22	1,222	78	1,566	26,087	6.0%

Table C6. Standardized, stratified mean catch per tow (delta-transformed) in numbers/tow, and kg/tow of *Illex illecebrosus*, pre-recruits (≤ 10 cm) and recruits (≥ 11 cm), caught during autumn research bottom trawl surveys in offshore strata 1-40 and 61-76 from Cape Hatteras to the Gulf of Maine during 1967-2004.

Year	All sizes (no./tow)	CV (%)	All sizes (kg/tow)	CV (%)	Individual Mean Weight (g)	Pre-recruits (no./tow)	Recruits (no./tow)
1967	1.57	17	0.242	17	147	0.04	1.53
1968	1.64	21	0.307	17	186	0.10	1.54
1969	0.59	23	0.073	26	121	0.09	0.50
1970	2.26	21	0.268	15	110	0.85	1.41
1971	1.68	12	0.337	14	206	0.20	1.48
1972	2.19	25	0.292	15	123	0.48	1.71
1973	1.47	24	0.353	25	242	0.04	1.43
1974	2.82	40	0.392	30	145	1.20	1.62
1975	8.74	36	1.417	18	143	3.98	4.76
1976	20.55	16	7.018	19	317	0.42	20.13
1977	12.62	18	3.740	18	299	0.72	11.90
1978	19.25	21	4.529	26	219	3.29	15.96
1979	19.42	11	6.053	11	305	1.31	18.11
1980	13.81	15	3.285	18	238	0.43	13.38
1981	27.10	32	9.340	40	327	0.22	26.88
1982	3.94	15	0.602	13	155	0.71	3.23
1983	1.73	14	0.233	13	134	0.16	1.57
1984	4.54	17	0.519	19	113	0.32	4.22
1985	2.38	17	0.355	18	147	0.19	2.19
1986	2.10	15	0.257	17	119	0.26	1.84
1987	15.83	31	1.527	29	92	0.84	14.99
1988	23.22	25	2.997	24	121	0.41	22.81
1989	22.43	45	3.307	57	118	1.05	21.38
1990	16.61	12	2.401	13	141	0.61	16.00
1991	5.21	17	0.691	18	129	0.22	4.99
1992	8.24	15	0.804	16	98	1.79	6.45
1993	10.42	19	1.595	20	159	0.15	10.27
1994	6.83	24	0.860	25	128	0.22	6.61
1995	8.01	30	0.700	39	84	0.82	7.19
1996	10.76	22	0.926	19	87	0.60	10.16
1997	5.83	24	0.521	17	89	0.74	5.09
1998	14.60	51	1.400	50	94	1.18	13.42
1999	1.39	16	0.192	17	136	0.15	1.24
2000	7.41	28	0.706	22	94	0.95	6.46
2001	4.49	27	0.323	23	72	0.46	4.03
2002	6.36	20	0.444	19	70	1.01	5.35
2003	28.46	61	1.946	67	69	3.12	25.34
2004	5.06	24	0.412	22	82	1.09	3.97
Average							
1967-1981	9.05	22	2.510	21	209	0.89	8.16
1982-2003	9.58	25	1.06	25	111	0.73	8.86
1967-2003	9.36	24	1.65	23	151	0.79	8.57
1999-2003	9.62	30	0.72	29	88	1.14	8.48

Table C7. Summary of data from Vessel Trip Reports submitted by fishermen participating in the *Illex illecebrosus* fishery during 2003 and 2004. FT represents freezer trawlers and RSW represents refrigerated seawater system trawlers.

	2003			2004		
	FT	RSW	Total	FT	RSW	Total
N vessels	3	11	14	12	16	28
N trips	32	80	112	92	355	447
Average trip duration (days absent from port)	8.2	2.8	4.4	6.5	1.8	2.8
Average nominal effort (days fished) per trip	2.1	0.8	1.2	1.1	0.5	0.6
Average landings (mt)	152	17	55	122	34	52
Average nominal LPUE (mt/df)	71	22	48	111	76	89
Total fishery landings (mt)	4,859	1,337	6,195	12,174	11,198	23,372
Proportion of total annual landings	0.78	0.22		0.52	0.48	
Total nominal effort (days fished)	69	61	130	101	161	262
Proportion of total annual effort	0.53	0.47		0.39	0.61	
Duration of fishing season (weeks) ¹			23			18
Timing of fishing season			weeks 24-46			weeks 21-38

¹ Fishery closed on 9/21/2004 because quota of 24,000 mt was landed

Table C8. Results of a General Linear Model with log-transformed landings per unit effort from the 2003 U.S. *Illex illecebrosus* fishery as the dependent variable and week of year, vessel type (freezer or RSW trawler), and quarter-degree square fishing area as class effects in the model.

Source	DF	Sum of Squares	Mean Square	F	Pr > F
Model	28	64.92159721	2.31862847	3.35	< 0.0001
Error	50	34.60964687	0.69219294		
Corrected Total	78	99.53124408			
R-Square	CV	Root MSE	ln (lpuemt) Mean		
0.652274	25.36757	0.831981	3.279705		
Source	DF	Type I SS	Mean Square	F	Pr > F
wkofyr	21	43.71807976	2.08181332	3.01	0.0007
vessel type	1	16.85165507	16.85165507	24.35	<.0001
quarter-degree square	6	4.35186239	0.7253104	1.05	0.4062
Source	DF	Type III SS	Mean Square	F	Pr > F
wkofyr	21	28.38454289	1.3516449	1.95	0.0271
vessel type	1	16.32903841	16.32903841	23.59	<.0001
quarter-degree square	6	4.35186239	0.7253104	1.05	0.4062
Parameter		Estimate	Standard Error	t Value	Pr > t
Intercept		2.892167156	0.65598996	4.41	<.0001
wkofyr	23	-0.83677222	1.09519873	-0.76	0.4484
	26	0.025684254	0.85545884	0.03	0.9762
	27	-0.556877471	0.80031553	-0.70	0.4898
	28	0.727561846	0.7656278	0.95	0.3465
	29	-1.057333371	0.80031553	-1.32	0.1925
	30	0.050102596	0.8073132	0.06	0.9508
	31	0.820210337	0.87588503	0.94	0.3535
	32	0.174250298	0.79740912	0.22	0.8279
	33	-0.810892382	0.71768494	-1.13	0.2639
	34	0.326811416	0.85266844	0.38	0.7031
	35	0.473101326	0.74953597	0.63	0.5308
	36	-0.192868857	0.72695638	-0.27	0.7919
	37	-0.448380259	0.89406911	-0.50	0.6182
	38	0.773904369	0.74364221	1.04	0.3030
	39	0.74920603	0.74830111	1.00	0.3215
	40	0.564620776	0.71213424	0.79	0.4316

	41	0.303483041	0.73487454	0.41	0.6814
	42	-0.252719536	0.7925821	-0.32	0.7512
	44	0.06387861	1.03822267	0.06	0.9512
	45	-0.87454083	1.03822267	-0.84	0.4036
	46	-2.196469961	1.09814748	-2.00	0.0509
	924	0			
vessel type	freezer	1.38042707	0.28421484	4.86	<.0001
	90	0			
quarter-degree square	35744	-0.251695345	0.48585275	-0.52	0.6067
	36744	-0.051855303	0.39807988	-0.13	0.8969
	37741	-0.554991953	0.47689578	-1.16	0.2500
	38731	-0.248242504	0.44571473	-0.56	0.5800
	38732	-0.361044568	0.33103193	-1.09	0.2806
	38734	0.673924219	0.51879469	1.30	0.1999
	936742	0			

Table C9. Results of a General Linear Model with log-transformed landings per unit effort from the 2004 U.S. *Illex illecebrosus* fishery as the dependent variable and week of year, vessel type (freezer or RSW trawler), and quarter-degree square fishing area as class effects in the model.

Source	DF	Sum of Squares	Mean Square	F	Pr > F
Model	30	31	56.7928322	1.8320268	< 0.0001
Error	340	368	167.8628528	0.4561491	
Corrected Total	370	399	224.655685		
R-Square	Coeff Var	Root MSE	Inlpuemt Mean		
0.252799	15.43396	0.675388	4.375987		
Source	DF	Type I SS	Mean Square	F	Pr > F
wkofyr	19	24.77420331	1.30390544	2.86	<.0001
vessel type	1	12.40259859	12.40259859	27.19	<.0001
quarter-degree square	11	19.61603029	1.78327548	3.91	<.0001
Source	DF	Type III SS	Mean Square	F	Pr > F
wkofyr	19	30.60929990	1.61101578	3.53	<.0001
vessel type	1	17.81584700	17.81584700	39.06	<.0001
quarter-degree square	11	19.61603029	1.78327548	3.91	<.0001
Parameter		Estimate	Standard Error	t Value	Pr > t
Intercept		4.260992	0.232047	18.36	<.0001
wkofyr	20	0.280698	0.508075	0.55	0.581
	21	-0.395540	0.243112	-1.63	0.1046
	22	0.482445	0.254427	1.9	0.0587
	23	0.346848	0.238090	1.46	0.146
	25	-0.244626	0.211317	-1.16	0.2478
	26	0.016649	0.207027	0.08	0.9359
	27	-0.015857	0.217309	-0.07	0.9419
	28	0.340708	0.203401	1.68	0.0948
	29	-0.161689	0.210484	-0.77	0.4429
	30	-0.000075	0.220173	0.00	0.9997
	31	0.157004	0.238182	0.66	0.5102
	32	0.141091	0.228924	0.62	0.5381
	33	0.320713	0.206790	1.55	0.1218
	34	0.688085	0.215205	3.20	0.0015
	35	0.551480	0.199831	2.76	0.0061
	36	0.023374	0.213164	0.11	0.9127
	37	0.188770	0.240686	0.78	0.4334

	38	0.070158	0.236524	0.30	0.7669
	39	-0.971570	0.454831	-2.14	0.0333
	924	0			
vessel type	freezer	0.634100	0.101463	6.25	<.0001
	90	0			
quarter-degree square	37734	0.037820	0.372147	0.10	0.9191
	37741	-0.098423	0.277586	-0.35	0.7231
	37742	-0.804485	0.276812	-2.91	0.0039
	37743	0.216598	0.298521	0.73	0.4686
	38724	0.101493	0.210326	0.48	0.6297
	38731	-0.298963	0.183363	-1.63	0.1039
	38732	-0.077336	0.173498	-0.45	0.6561
	38733	-0.031082	0.188733	-0.16	0.8693
	39693	0.858187	0.701742	1.22	0.2222
	39721	-1.453390	0.236918	-6.13	<.0001
	39722	-0.806836	0.381026	-2.12	0.0349
	999999	0			

Table C10. Probability values ($\alpha = 0.05$) from General Linear Models used to standardize catch rates in the *Illex illecebrosus* fishery during 2003 and 2004. Vessel types were characterized as freezer trawler (FT) or refrigerated seawater system (RSW) trawler.

Effect	2003		2004		
			RSW	FT	
Week of year	0.0271	0.1230	0.0001	0.0001	0.0025
Quarter-degree square	0.4062	0.9807	0.0588	0.7251	0.0001
Vessel type	0.0001				
Hull Number		0.0008	0.0001		0.0001
Model	0.0001	0.0001	0.0001	0.0001	0.0001
R ²	0.65	0.75	0.25	0.67	0.72
df	28	38	31	52	47
			45	25	24

Table C11. Status of research recommendations from the previous *Illlex* stock assessment (SARC 37).

Research Recommendation	Status
Continue model development, with the objective of producing sound statistical models for stock assessment purposes	All three models presented at SARC 37 were improved upon and tested further. These models require seasonal age and maturity data before further model testing can be done.
Consider the development of "operating models" which can be used to test the effectiveness of alternative management strategies	This research recommendation cannot be accomplished until a reliable stock assessment model is available.
Evaluate the relationship between growth rates and sea temperature to define possible changes in stock productivity associated with environmental conditions.	Not completed. Requires a funding source for the collection and analysis of growth rate data.
Define biological indicators of low or high productivity regimes.	In progress. There is a relationship between <i>Illlex</i> body size, autumn survey relative abundance indices, and bottom temperature anomalies on the US Shelf. However, further investigation of these relationships is needed.
Evaluate seasonal and latitudinal clines in growth rates.	Not completed. Requires a funding source for the collection and analysis of growth rate data.
Evaluate and design cooperative research programs with commercial vessels for sampling of size, weight and possible age of <i>Illlex</i> during the fishing season	Completed. Length and weight data from the fishery are collected by the <i>Illlex</i> processors/dealers and sent to the NEFSC for use in the assessments.
Continue with cooperative ventures for pre-season survey to obtain possible indices of upcoming stock abundance and productivity.	A pre-season <i>Illlex</i> survey was conducted using commercial vessels in 2000 with funds from an external grant and these data were used in the assessments (SARC 37 and current). External funding is needed to conduct a second <i>Illlex</i> pre-season survey to assess the inter-annual variability of the data.
Evaluate catch rates by vessel by using VTR and Weighout databases to improve procedures for standardization of nominal LPUE.	Completed during the current assessment.