CPUE standardization of neon flying squid caught by Chinese Taipei squid jigging fishery up to 2024

Chinese Taipei

4th March 2026 (Wed.)

Neon flying squid (NFS)

- Name
  - *Ommastrephes bartramii*
  - Red squid, Aka-ika
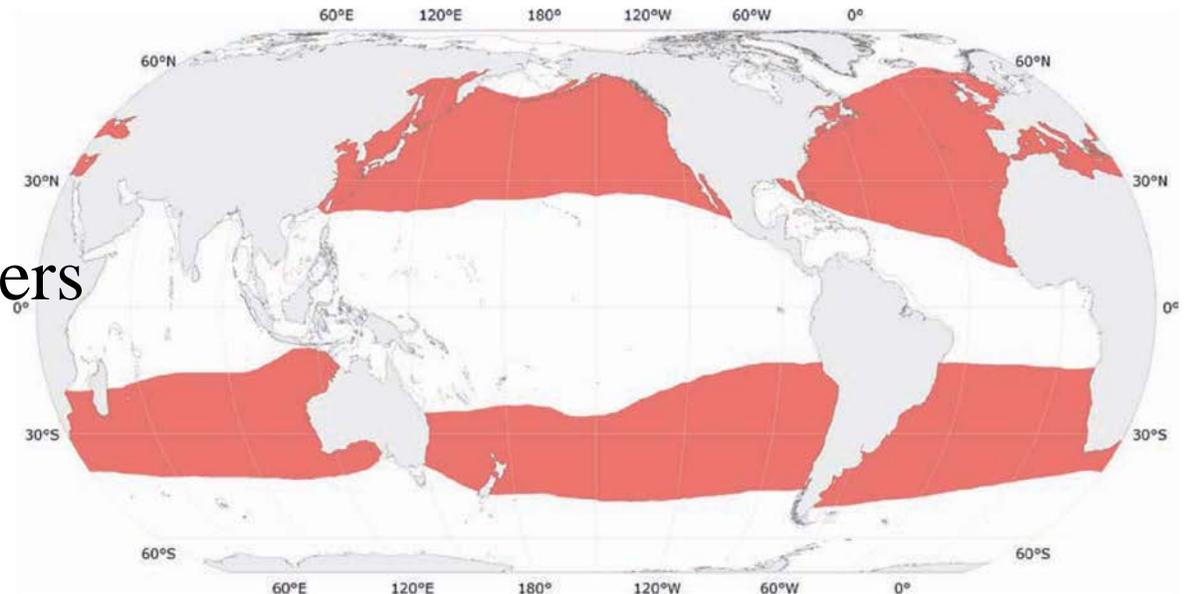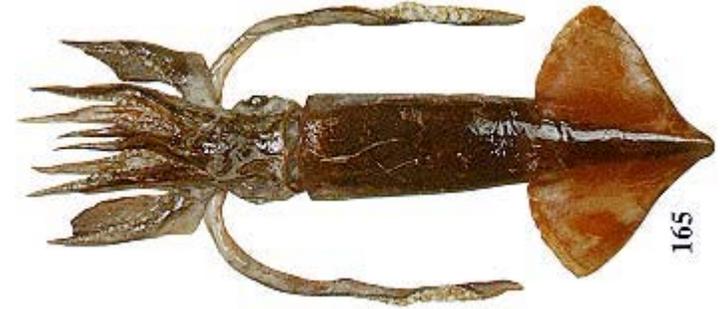- Geographical distribution
 - Temperate and subtropical waters

Fig. 291 *Ommastrephes bartramii*
■ Known distribution

Jereb & Roper eds. (2010) Cephalopod of the World.

NFS populations in the North Pacific

- Two cohorts
  - Autumn cohort
  - Winter-spring cohort

Autumn cohort

- Hatching dates
  - From September to February
- Feeding grounds
  - East of 170°E (rare in West NP)
  - ML ≥35 cm during June-September
  - Female dominant
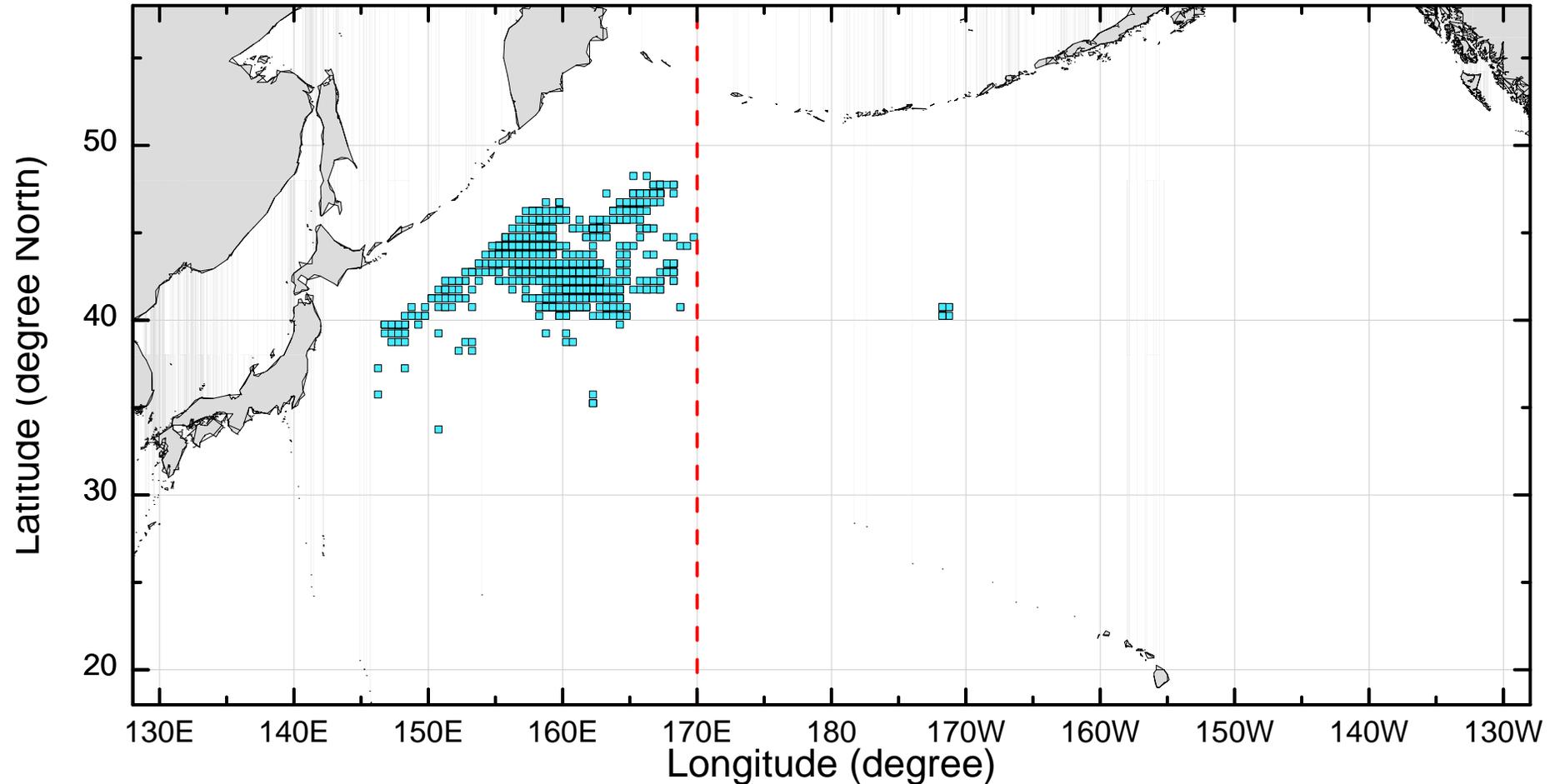
- Caught in east of 170°E: Autumn cohort (NE stock)
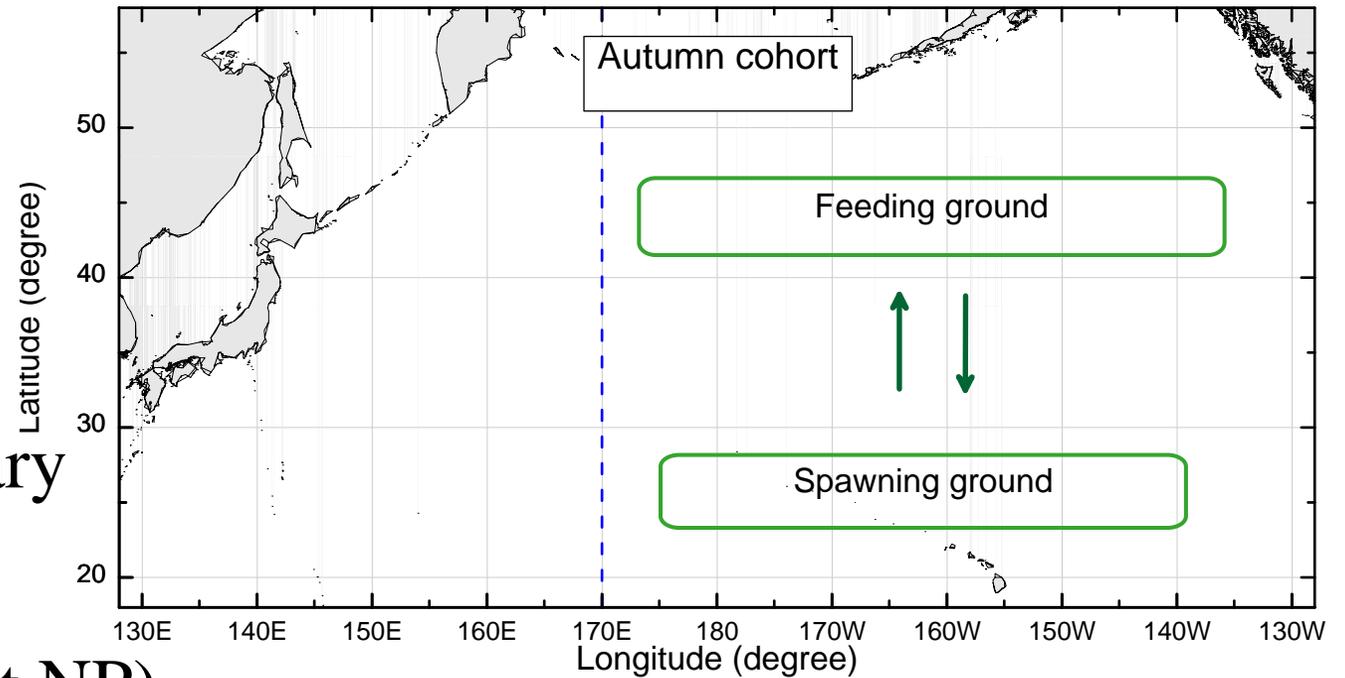
Winter-spring cohort

- Hatching dates
  - From January to August
- Feeding grounds
  - Across the North Pacific
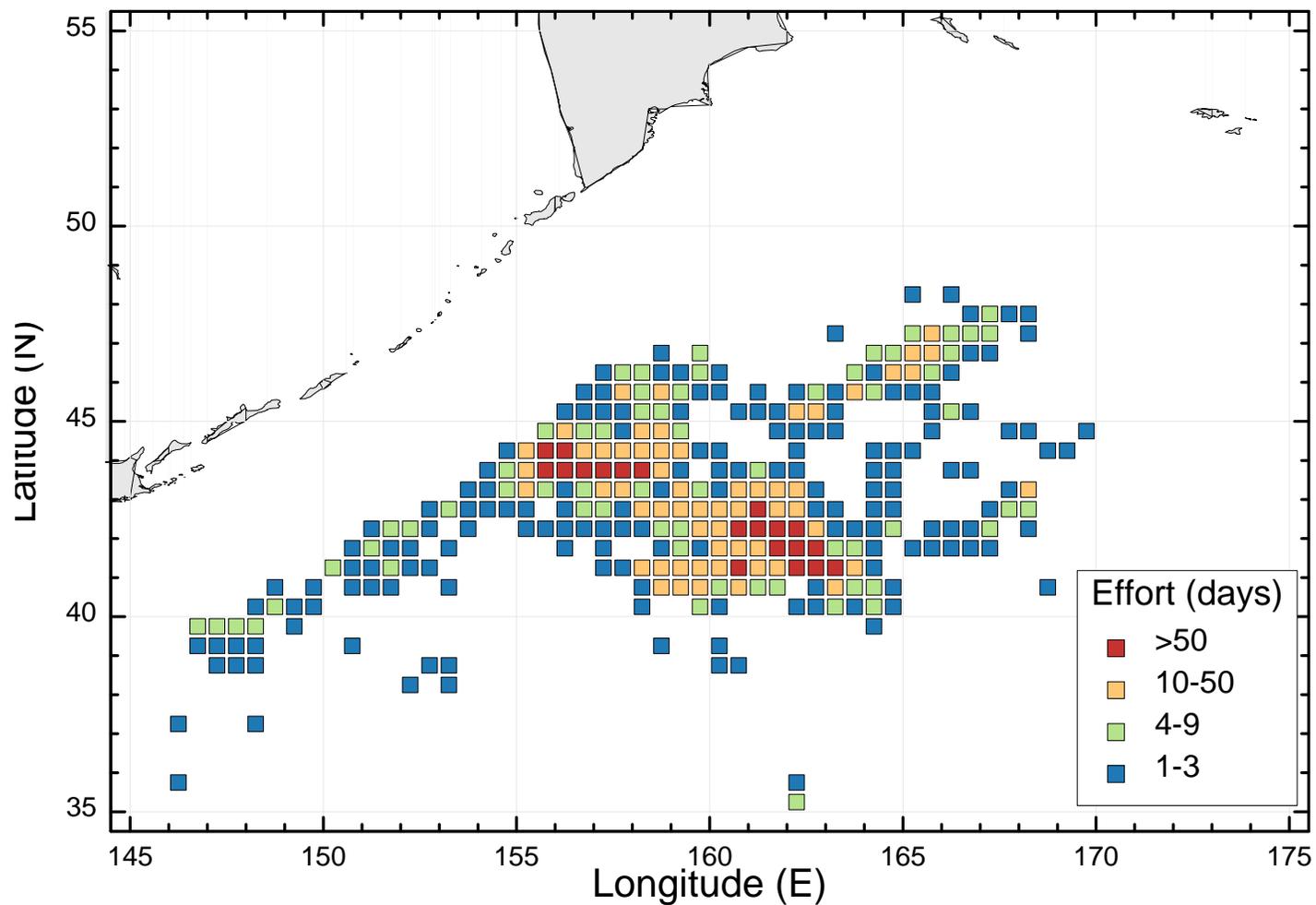 - ML <30 cm during June-September
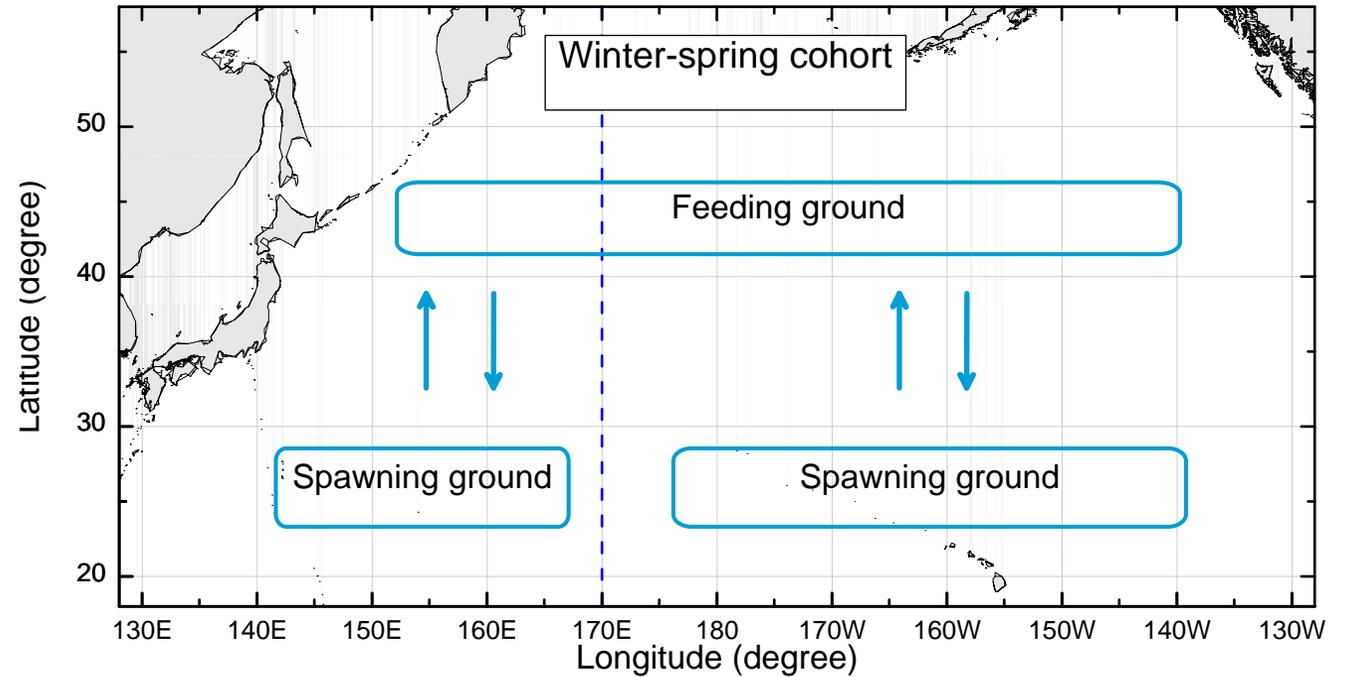
- Caught in west of 170°E: Winter-spring cohort (NW stock)

Distribution of Chinese Taipei NFS fishery (2016-2024)

Target on Winter-spring cohort

Distribution of fishing effort (2016-2024)

Explanatory variables used in this study

| Variable	Code	No. of categories	Description
Year	Year	9	2016-2024
Month	Month	5	July–November
Latitude	Lat	25	$0.5° \times 0.5°$ grids ($33.75°N - 48.25°N$)
Longitude	Lon	48	$0.5° \times 0.5°$ grids ($146.25°E - 169.75°E$)
Vessel size (Gross tonnage)	GT	4	(1) <950; (2) 950-1050; (3) 1050-1200; (4) ≥1200 (tons)
Sea surface temperature	SST	4	(1) <16; (2) 16-17; (3) 17-18; (4) ≥18 ($°C$)

Spearman Correlation Matrix

Model selection

No.	Model	AIC	Exp. Dev. (%)
1	ln(CPUE) ~ β + Year	3595	28.4
2	ln(CPUE) ~ β + Year + Month	3549	33.5
3	ln(CPUE) ~ β + Year + Month + Lat	3518	35.5
4	ln(CPUE) ~ β + Year + Month + Lat + GT	3504	36.5
5	ln(CPUE) ~ β + Year + Month + Lat + GT + SST	3497	37.1
6	ln(CPUE) ~ β + Year + Month + Lat + GT + SST + Year:Month	3300	51.4
7	ln(CPUE) ~ β + Year + Month + Lat + GT + SST + Year:Month + Year:Lat	3211	55.9
8	ln(CPUE) ~ β + Year + Month + Lat + GT + SST + Year:Month + Year:Lat + Lat:Month	3173	59.8
9	ln(CPUE) ~ β + Year + Month + Lat + GT + SST + Year:Month + Year:Lat + Lat:Month + Year:GT	3130	62.3
10	ln(CPUE) ~ β + Year + Month + Lat + GT + SST + Year:Month + Year:Lat + Lat:Month + Year:GT + Lat:SST	3105	65.1
11	ln(CPUE) ~β + Year + Month + Lat + GT + SST + Year:Month + Year:Lat + Lat:Month + Year:GT + Lat:SST + Month:GT	3095	66.0
12	ln(CPUE) ~β + Year + Month + Lat + GT + SST + Year:Month + Year:Lat + Lat:Month + Year:GT + Lat:SST + Month:GT + Year:SST	3091	67.1
13	ln(CPUE) ~ β + Year + Month + Lat + GT + SST + Year:Month + Year:Lat + Lat:Month + Year:GT + Lat:SST + Month:GT + Year:SST+ Month:SST	**3084**	**67.7**

Model diagnostic
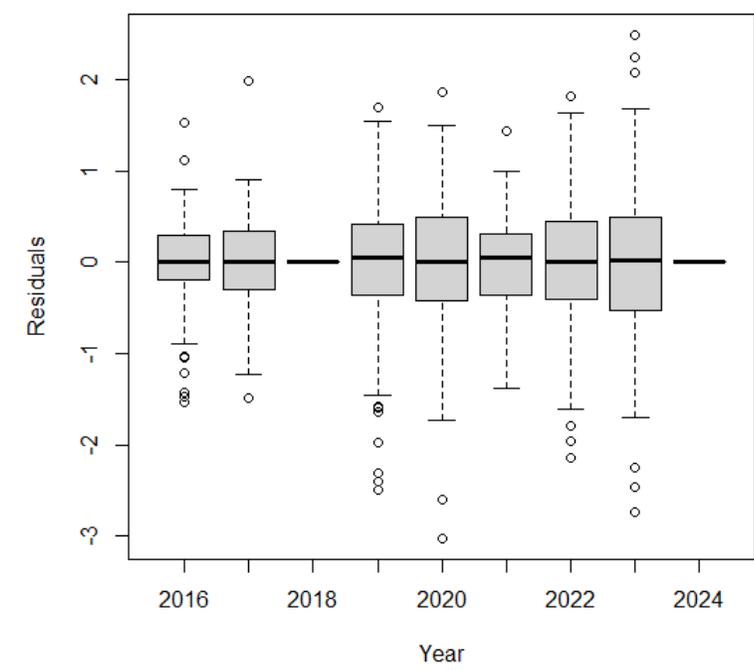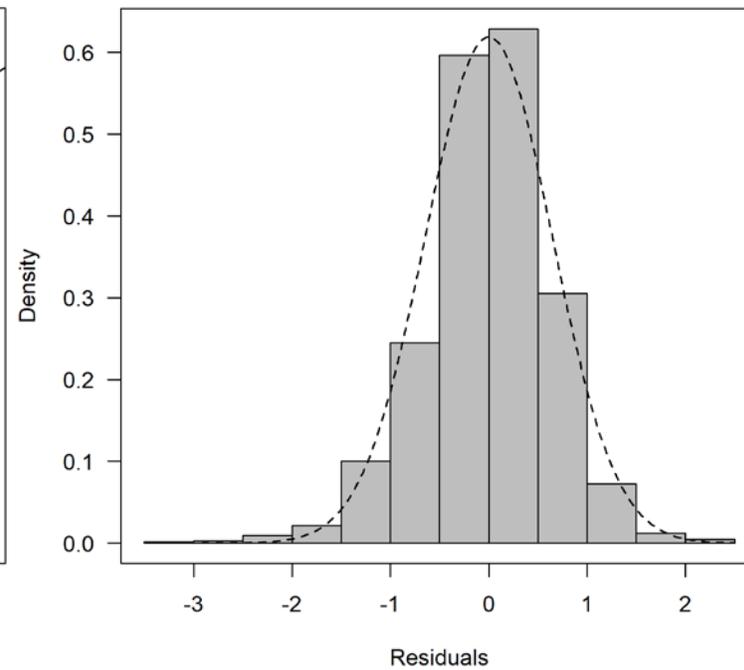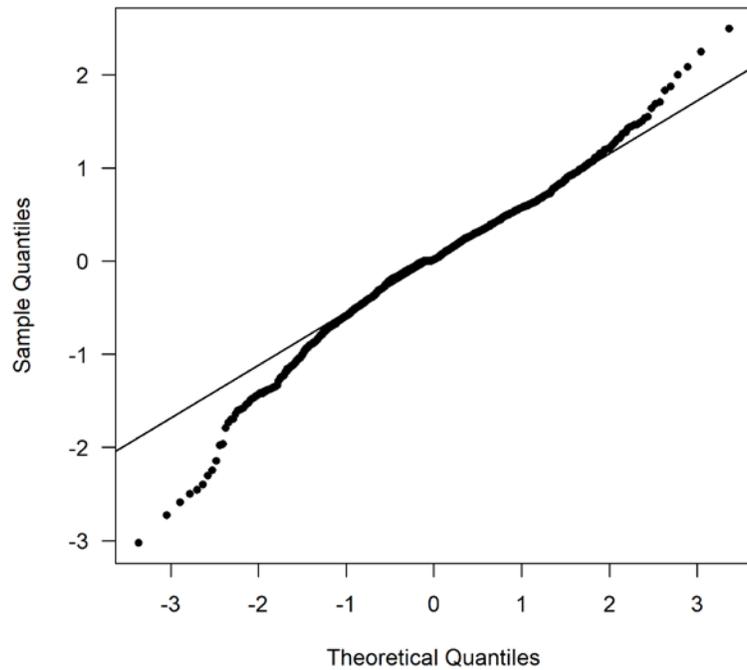
Variables	df	F	p-value	Significance codes
Year	8	113.24	<0.001	***
Lat	24	6.68	<0.001	***
Month	4	15.69	<0.001	***
GT	3	10.35	<0.001	***
SST	3	6.51	<0.001	***
Year:Lat	69	6.61	<0.001	***
Year:Month	19	7.61	<0.001	***
Lat:Month	41	3.03	<0.001	***
Year:GT	19	4.08	<0.001	***
Lat:SST	38	2.37	<0.001	***
Month:GT	12	2.36	0.005	**
Year:SST	19	1.83	0.016	*
Month:SST	10	2.13	0.020	*

***, < 0.001; **, < 0.01; *, < 0.05

NFS CPUE trend
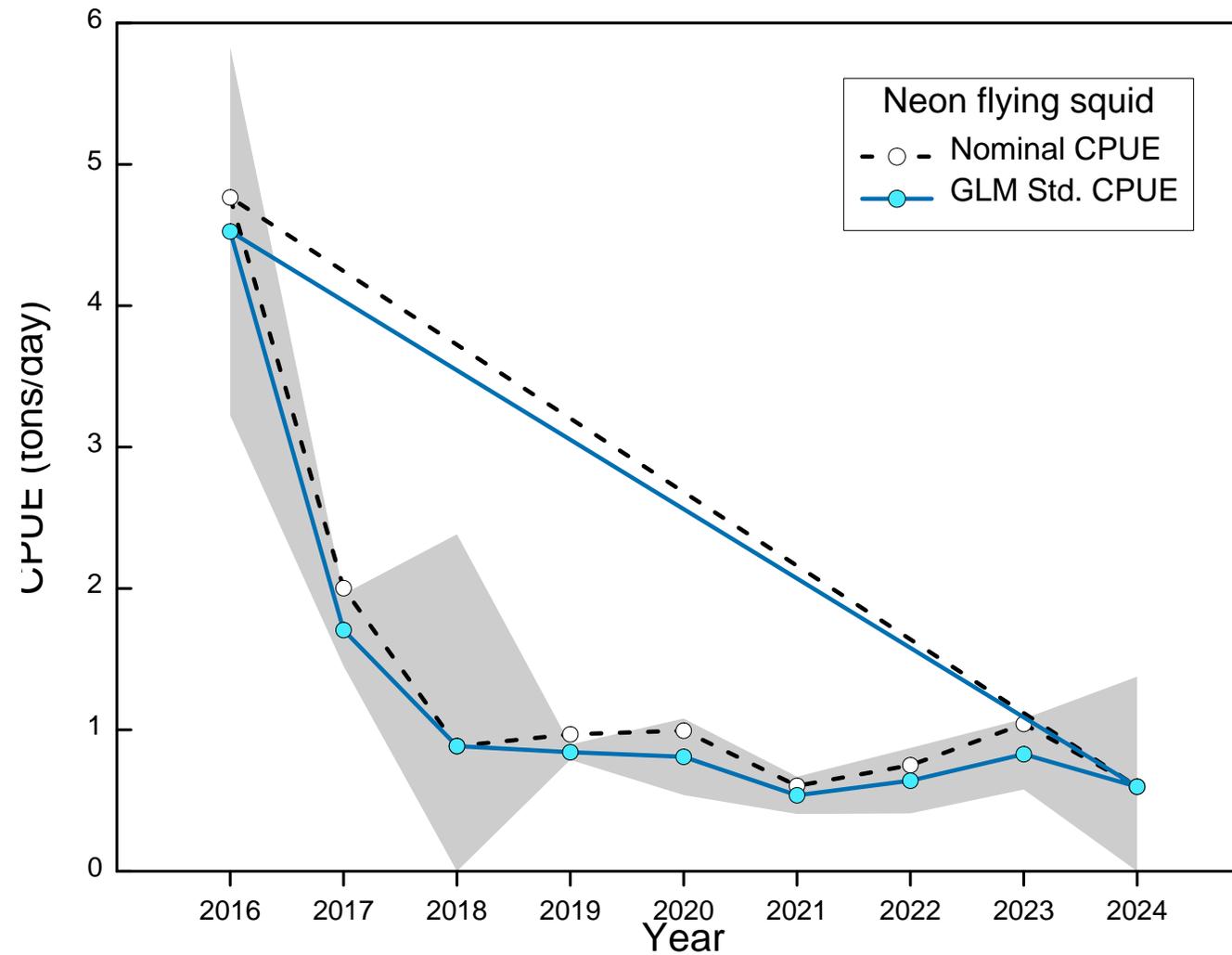
Summary

- Chinese Taipei NFS fishery
  - Part-time fishery of Pacific saury fishery
  - Target on winter-spring cohort (west to 170 E)
- CPUE trend
  - Decreased during 2016-2018, stable during 2019-2024

Supplementary