Supporting Information File 1: Polymer Identification of Plastic Debris Ingested by Pelagic-phase Sea Turtles in the Central Pacific

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See **Supporting Information File 2** for a spreadsheet containing the ATR FT-IR spectral data for all analyzed ingested debris pieces.

Disclaimer

Hook Depths Protocol from Bigelow et al. [1]

1. Obtain NOAA observer report for individual turtle
2. Enter the following information from the observer reports into separate columns in a spreadsheet:
    - Vessel Documentation No.
    - Trip No.
    - Set No.
    - Hook Type
    - Target Species
    - Target Depth (m)
    - Length of Mainline* (m)
    - No. of Floats
    - Begin Set Lat and Long Coordinates
    - End Set Lat and Long Coordinates
    - H_a = Length of Branchline (m)
    - H_b = Length of Floatline (m)
    - j=Hook Number Turtle was Caught
    - N=Hooks Between Floats +1 (add 1 to the value taken from the observer report)

***Make sure to convert values into meters.**
i.e., Length of mainline is given in nautical miles.

3. Calculate L=Length of Mainline Between floats (m)
    - Calculated by length of mainline (m)/ number of floats in a set
4. Calculate H=Great Circle Distance (km)
    - Calculated by the lat/long coordinates at the start and end of each **SET**, not the haul
    - Use http://www.movable-type.co.uk/scripts/latlong.html to calculate the great circle distance by inputting the coordinates
5. Calculate S=sag ratio=L/H
    - Calculated by length of mainline (m)/ great circle distance (m)
    - The smaller and larger values correspond to lesser and greater sag ratios, respectively
    - Used for illustrative purposes
6. Calculate S=sag ratio=H/L
    - Calculated by great circle distance (m)/ length of mainline (m)
    - Used for the R code
    - Plug this value into the last line of the code
      i.e.,- sagrate.angle2(0.65)

Hook Depths R Code

```
#### Function for calculating angle from sag ratio finer estimation
angle <- 1:2
names(angle) <- c("angle", "convergence")
angle <- data.frame(angle)
sagrate.angle2 <- function(sagrate)
{
for(i in 1:length(sagrate))
{
      print(i)
      print(sagrate[i])
      tmp4 <- 1
# consider sagrates from 0.28 to 0.96
      for(j in 28000:96000)
      {
      k <- j/1000.0
      tmp <- tan(k*pi/180)
      tmp2 <- sinh(tmp*sagrate[i])
      tmp3 <- abs(tmp-tmp2)
      if(tmp3<0.01)
      {
         if(tmp3<tmp4 && k<85 && k>27.999)
         {
         tmp4 <- tmp3
         angle$angle[i]<-k
         angle$convergence[i]<-tmp3
# print(tmp4)
         }
      }
      }
}
return(angle)
}
sagrate.angle2(0.65) → value in ( ) from sag ratio
```

7. Retrieve Catenary Angle (given in degrees)
    - This value is produced by the R code

R Code Format: sagrate.angle2(0.65)

```
[1] 1
[1] 0.65
angle  convergence
angle 68.802 1.384423e-05
convergence  2.000 9.971286e-03
```

Answers for each possible two-decimal place sag ratio are shown in Table S1 below, which eliminates the need for using R.

8. Calculate D_j =theoretical depth of catenary hook
    - Calculated with equation below
    - This is the theoretical value of the depth

    Google Spreadsheet Formula:
    D_j = Ha + Hb +(L/2)*((1+COT(RADIANS(CatAngle))^2)^0.5-((1-2*(j/N))^2+COT(RADIANS(CatAngle))^2)^0.5)

9. Percent shoaling must be applied to theoretical depth of catenary hook
    - This generates the estimated actual depth of the hook
    - This compensates for environmental factors (wind stress, current velocity, etc.) that will affect the theoretical depth as the longline sways through the water column

Important Notes

Use % Shoaling (Positive Only) From Bigelow et al (2006):
Deep set, Method 1

Mean, S.D., median and range (in parentheses): 39.1 % ± 19.3 %, 39.8 % (1 %–85 %, *n* = 141)

Method 1 was used instead of Method 2. Method 2 requires the speed of the line thrower, which was not provided in the observer reports.

Shallow vs Deep Set:
Swordfish gear (shallow) is characterized as the 'Gulf of Mexico' style [2] which typically **deploys four HBF** (hooks between floats) and is kept relatively taut to **target the upper 30–90 m of water column** [3]. **Tuna (deep)** fishing uses a line thrower to put sag in the longline and **deploys a greater number of HBF to reach depths of □400 m** [4].

Estimations made when certain data were missing for a turtle:
(1) If the calculated sag ratio was < 0.28, the catenary angles was set to 84.838^{o}.
(2) If the calculated sag ratio was > 0.96, the catenary angle was set to 28^{o}.
(3) If the length of the mainline deployed was missing, the length of the mainline from the same vessel for a different turtle was used.

Table S1. R outputs from code shown above to calculate catenary angle from sag ratios.

Sag ratio	Catenary Angle (degrees)		Sag ratio	Catenary Angle (degrees)
0.28	84.838		0.62	70.728
0.29	84.564		0.63	70.104
0.30	84.284		0.64	69.462
0.31	83.998		0.65	68.802
0.32	83.704		0.66	68.122
0.33	83.404		0.67	67.423
0.34	83.096		0.68	66.702
0.35	82.782		0.69	65.959
0.36	82.460		0.70	65.193
0.37	82.130		0.71	64.402
0.38	81.793		0.72	63.586
0.39	81.447		0.73	62.743
0.40	81.094		0.74	61.871
0.41	80.733		0.75	60.968
0.42	80.363		0.76	60.033
0.43	79.984		0.77	59.064
0.44	79.596		0.78	58.058
0.45	79.199		0.79	57.013
0.46	78.793		0.80	55.925
0.47	78.377		0.81	54.793
0.48	77.950		0.82	53.612
0.49	77.514		0.83	52.378
0.50	77.067		0.84	51.087
0.51	76.609		0.85	49.733
0.52	76.139		0.86	48.309
0.53	75.658		0.87	46.810
0.54	75.165		0.88	45.225
0.55	74.659		0.89	43.544
0.56	74.141		0.90	41.756
0.57	73.609		0.91	39.842
0.58	73.063		0.92	37.783
0.59	72.502		0.93	35.552
0.60	71.927		0.94	33.112
0.61	71.336		0.95	30.411
			0.96	28.000

Table S2. Mean, median, range, one standard deviation (SD), and percent occurrence of the mass (g) of high-density polyethylene (HDPE), polyvinyl chloride (PVC), low-density polyethylene (LDPE), polypropylene (PP), polystyrene (PS), unknown polyethylene (unknown PE), polyurethane, nylon, PE/PP mixture, unknown, grouped floating, and grouped sinking plastic fragments ingested by olive ridley (n = 37), green (n = 9), and loggerhead (n = 4) sea turtles. Resin codes are shown in parenthesis. Minimum mass of all pieces analyzed was 0.00097 g.

Mass of ingested plastics (g)					
Olive Ridley					
Polymer	**Mean**	**Median**	**Range**	**SD**	**% occurrence**
HDPE (#2)	0.377	0	0 - 3.11	0.770	40.5
PVC (#3)	0.377	0	0 - 1.66	0.770	2.70
LDPE (#4)	2.72	0.900	0 - 17.78	4.30	91.9
PP (#5)	2.64	1.08	0 - 15.3	4.30	89.2
PS (#6)	0.020	0	0 - 0.363	0.060	13.5
Unknown PE	0.550	0.330	0 - 2.71	0.670	64.9
Polyurethane (#7)	0.180	0	0 - 5.03	0.850	8.11
Nylon (#7)	0.030	0	0 - 0.948	0.160	2.70
PE/PP Mixture	0.080	0	0 - 0.723	0.190	29.7
Unknown	0.100	0	0 - 3.38	0.560	13.5
Floating	6.38	3.99	0.018 - 36.1	7.59	100
Sinking	0.365	0	0 - 5.03	1.03	37.8
Green					
Polymer	**Mean**	**Median**	**Range**	**SD**	**% occurrence**
HDPE (#2)	1.50	0.390	0 - 5.76	2.08	66.7
PVC (#3)	0	0	0	0	0
LDPE (#4)	10.2	9.91	0.068 - 28.8	9.10	100
PP (#5)	3.55	3.05	0.309 - 11.2	3.62	100
PS (#6)	0.050	0	0 - 0.309	0.110	22.2
Unknown PE	3.34	1.56	0.132 - 13.1	4.22	100
Polyurethane (#7)	0.210	0	0 - 1.89	0.630	11.1
Nylon (#7)	0	0	0	0	0
PE/PP Mixture	2.73	0.250	0 - 11.2	3.81	77.8
Unknown	0.070	0	0 - 0.582	0.190	22.2
Floating	21.3	17.9	0.859 - 44.2	16.4	100
Sinking	0.326	0	0 - 1.89	0.633	44.4
Loggerhead					
Polymer	**Mean**	**Median**	**Range**	**SD**	**% occurrence**
HDPE (#2)	0.560	0.300	0 - 1.64	0.780	50.0
PVC (#3)	0	0	0	0	0
LDPE (#4)	27.5	23.8	2.18 - 60.3	27.6	100
PP (#5)	5.60	3.37	0 - 15.7	7.35	75.0
PS (#6)	0	0	0	0	0
Unknown PE	2.06	1.08	0 - 6.07	2.73	75.0
Polyurethane (#7)	0.110	0	0 - 0.447	0.220	25.0
Nylon (#7)	0	0	0	0	0
PE/PP Mixture	0.840	0.800	0 - 1.75	0.760	75.0
Unknown	0.090	0.010	0 - 0.327	0.160	50.0
Floating	36.5	36.4	4.07 - 69.3	34.1	100
Sinking	0.199	0.175	0 - 0.447	0.223	75.0

Table S3. Mean, median, range, and one standard deviation (SD) of the percent mass of high-density polyethylene (HDPE), polyvinyl chloride (PVC), low-density polyethylene (LDPE), polypropylene (PP), polystyrene (PS), unknown polyethylene (unknown PE), polyurethane, nylon, PE/PP mixture, unknown, grouped floating, and grouped sinking plastic pieces ingested by olive ridley (n = 37), green (n = 9), and loggerhead (n = 4) sea turtles.

% mass of ingested plastics				
Olive Ridley				
Polymer	**Mean**	**Median**	**Range**	**SD**
HDPE (#2)	6.09	0	0 - 54.9	12.6
PVC (#3)	1.52	0	0 - 56.2	9.24
LDPE (#4)	41.9	35.6	0 - 100	30.4
PP (#5)	35.2	31.0	0 - 100	29.4
PS (#6)	0.240	0	0 - 4.02	0.850
Unknown PE	8.96	4.61	0 - 37.9	10.7
Polyurethane (#7)	1.66	0	0 - 37.1	7.14
Nylon (#7)	2.32	0	0 - 85.8	14.1
PE/PP Mixture	1.17	0	0 - 12.3	2.77
Unknown	0.950	0	0 - 30.5	5.01
Floating	93.3	100	14.2 - 100	18.4
Sinking	6.69	0	0 - 85.8	18.4
Green				
Polymer	**Mean**	**Median**	**Range**	**SD**
HDPE (#2)	5.66	3.50	0 - 17.1	6.36
PVC (#3)	0	0	0	0
LDPE (#4)	44.4	40.3	5.61 - 70.7	21.6
PP (#5)	18.2	17.0	1.11 - 26.5	8.47
PS (#6)	2.88	0	0 - 25.6	8.53
Unknown PE	17.5	15.0	1.93 - 35.3	24.1
Polyurethane (#7)	0.620	0	0 - 5.61	1.87
Nylon (#7)	0	0	0	0
PE/PP Mixture	10.6	9.81	0 - 37.2	12.0
Unknown	0.160	0	0 - 1.30	0.430
Floating	96.3	100	74.4 - 100	8.44
Sinking	3.67	0	0 - 25.6	8.44
Loggerhead				
Polymer	**Mean**	**Median**	**Range**	**SD**
HDPE (#2)	11.4	2.76	0 - 40.2	19.4
PVC (#3)	0	0	0	0
LDPE (#4)	67.9	65.8	53.2 - 86.9	14.1
PP (#5)	10.1	7.70	0 - 24.9	10.6
PS (#6)	0	0	0	0
Unknown PE	5.84	5.42	0 - 12.5	6.20
Polyurethane (#7)	1.04	0	0 - 4.15	2.07
Nylon (#7)	0	0	0	0
PE/PP Mixture	3.42	1.64	0 - 10.4	4.78
Unknown	0.260	0.260	0 - 0.53	0.300
Floating	98.7	99.5	95.9 - 100	1.91
Sinking	1.30	0.526	0 - 4.15	1.91

Table S4. Estimated catenary hook depths, catenary hook depths corrected for shoaling, and notes on estimations made for missing data for olive ridley (n = 37), green (n = 9), and loggerhead (n = 4) sea turtles caught as bycatch by Pacific longline fisheries.

Turtle ID	Species	Predicted catenary depth (m)	Catenary depth with 39.1% shoaling (m)	Estimations
LL445715	Lepidochelys olivacea	145	88.3	
LL444515	Lepidochelys olivacea	449	274	sag ratio <0.28, so set cat. angle to 84.838
LL441507	Lepidochelys olivacea	192	117	
LL431606	Lepidochelys olivacea	72.9	44.4	sag ratio >0.96, so set cat. angle to 28
LL431609	Lepidochelys olivacea	72.0	43.8	sag ratio >0.96, so set cat. angle to 28
AS013413	Lepidochelys olivacea	322	196	
LL450502	Lepidochelys olivacea	0	0	main line length missing, used average of all trips; hook number was missing, estimated shallowest as hook # 1 = 53.69432131, deepest as hook #15 = 248.300886 , can't estimate depth
LL452515	Lepidochelys olivacea	0	0	missing too much, can't calculate depth
LL458504	Lepidochelys olivacea	98.9	60.2	
LL461308	Lepidochelys olivacea	76.2	46.4	sag ratio >0.96, so set cat. angle to 28
LL460203	Lepidochelys olivacea	62.9	38.3	sag ratio >0.96, so set cat. angle to 28
LL468213	Lepidochelys olivacea	44.9	27.3	sag ratio >0.96, so set cat. angle to 28
LL469204	Lepidochelys olivacea	208	126	
LL477006	Lepidochelys olivacea	71.3	43.4	
LL481001	Lepidochelys olivacea	101	61.4	sag ratio >0.96, so set cat. angle to 28
LL489701	Lepidochelys olivacea	173	106	
LL490008	Lepidochelys olivacea	71.6	43.6	sag ratio >0.96, so set cat. angle to 28
LL492013	Lepidochelys olivacea	103	62.5	sag ratio >0.96, so set cat. angle to 28
LL514915	Lepidochelys olivacea	149	90.5	
LL515309	Lepidochelys olivacea	107	64.9	sag ratio >0.96, so set cat. angle to 28
LL517203	Lepidochelys olivacea	34.9	21.3	
LL519305	Lepidochelys olivacea	247	150	
LL525509	Lepidochelys olivacea	48.9	29.8	
LL527602	Lepidochelys olivacea	75.4	45.9	sag ratio >0.96, so set cat. angle to 28
LL528412	Lepidochelys olivacea	32.8	20.0	
LL530504	Lepidochelys olivacea	44.3	27.0	sag ratio >0.96, so set cat. angle to 28
LL531413	Lepidochelys olivacea	80.7	49.1	sag ratio >0.96, so set cat. angle to 28
LL531416	Lepidochelys olivacea	49.6	30.2	
LL532410	Lepidochelys olivacea	87.5	53.3	sag ratio >0.96, so set cat. angle to 28
LL543605	Lepidochelys olivacea	72.1	43.9	sag ratio >0.96, so set cat. angle to 28
LL554318	Lepidochelys olivacea	78.6	47.9	sag ratio >0.96, so set cat. angle to 28
LL556214	Lepidochelys olivacea	65.1	39.6	sag ratio >0.96, so set cat. angle to 28
LL550302	Lepidochelys olivacea	113	68.6	sag ratio >0.96, so set cat. angle to 28
LL552302	Lepidochelys olivacea	113	69.0	sag ratio >0.96, so set cat. angle to 28
LL556106	Lepidochelys olivacea	130	79.1	
LL445510	Lepidochelys olivacea	47.1	28.7	sag ratio >0.96, so set cat. angle to 28
LL474511	Lepidochelys olivacea	94.2	57.4	sag ratio >0.96, so set cat. angle to 28
LL476104	Chelonia mydas	104	63.4	
LL480011	Chelonia mydas	179	109	
AS015316	Chelonia mydas	120.4	73.3	
AS015728	Chelonia mydas	100	60.9	sag ratio <0.28, so set cat. angle to 84.838
AS015808	Chelonia mydas	177	108	
LL493312	Chelonia mydas agassizii	104	63.5	sag ratio >0.96, so set cat. angle to 28
LL513310	Chelonia mydas	55.6	33.8	
AS019908	Chelonia mydas	76.1	46.4	
LL547906	Chelonia mydas agassizii	51.8	31.6	sag ratio >0.96, so set cat. angle to 28
LL456601	Caretta caretta	45.7	27.8	main line length missing, found length on same vessel 3 years later, sag ratio >1 so used max cat angle
LL520119	Caretta caretta	49.2	30.0	sag ratio >0.96, so set cat. angle to 28
LL544407	Caretta caretta	46.4	28.3	sag ratio >0.96, so set cat. angle to 28
LL554807	Caretta caretta	51.4	31.3	sag ratio >0.96, so set cat. angle to 28

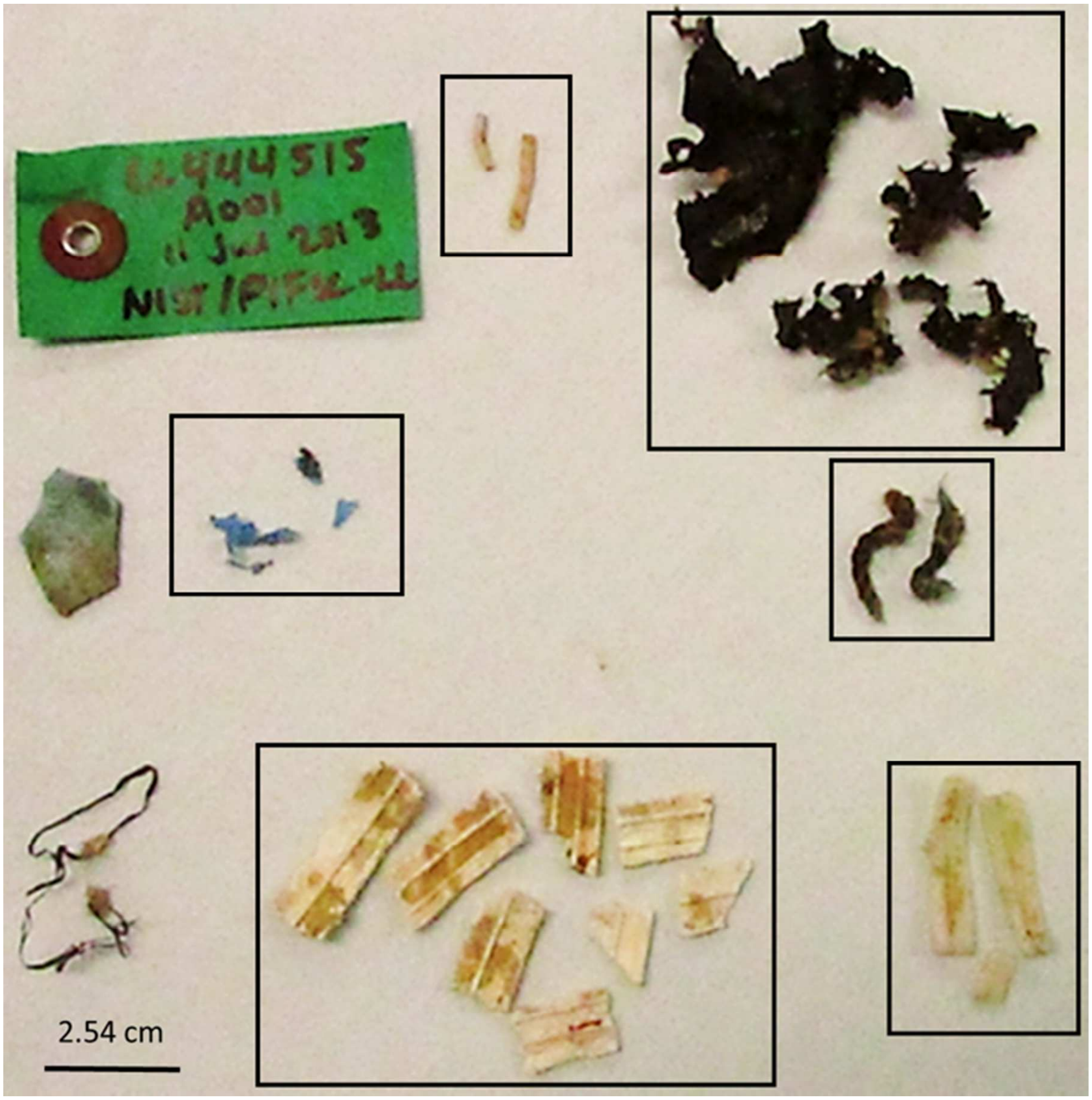


Figure S1. Recognizable groups of ingested plastics assumed to have come from the same larger item based on color, thickness, and texture from an olive ridley turtle. Groups are shown inside black rectangles.

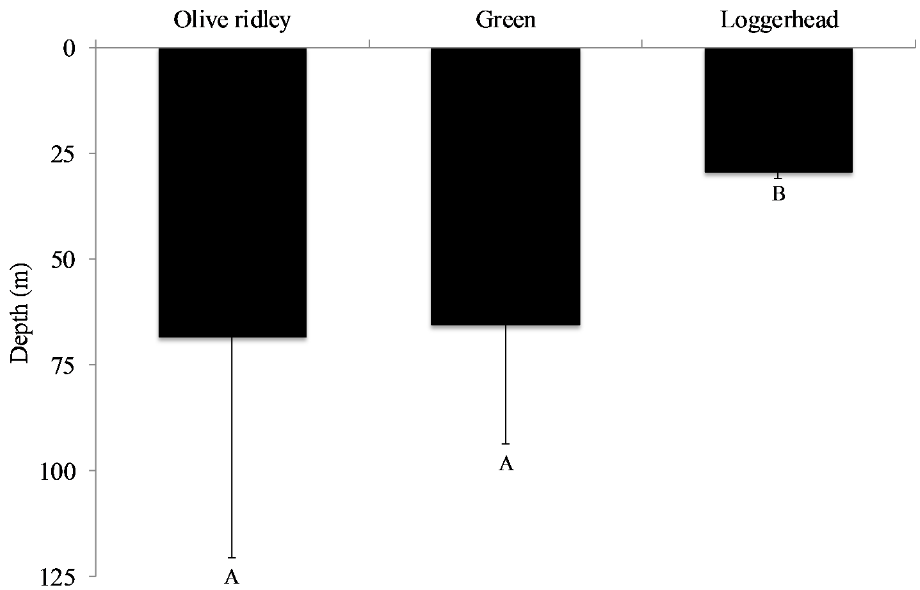


Figure S2. Mean and standard deviation of hook depths (m) corrected for shoaling for olive ridley (n = 35), green (n = 9), and loggerhead (n = 4) turtles caught as bycatch in Pacific longline fisheries. Different letters below bars indicate statistically significant differences among species ($p<0.05$); olive ridley and green turtles dive deeper than loggerhead turtles.

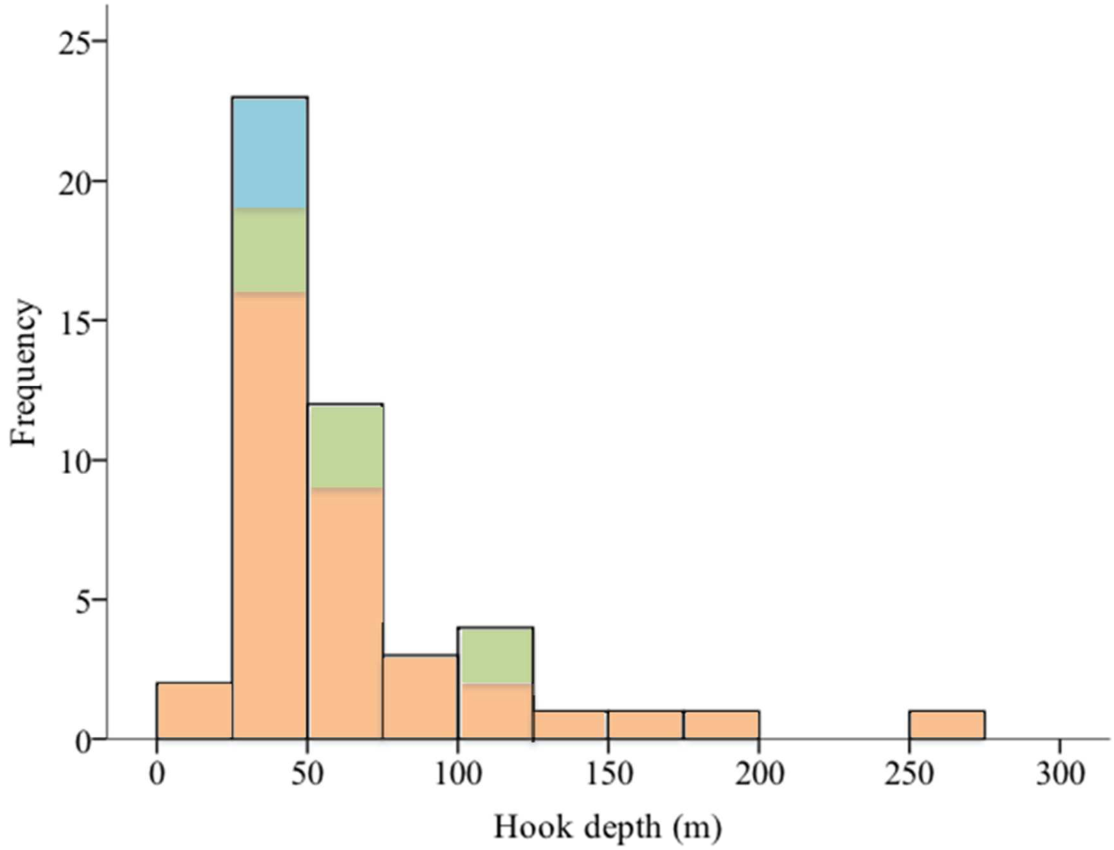
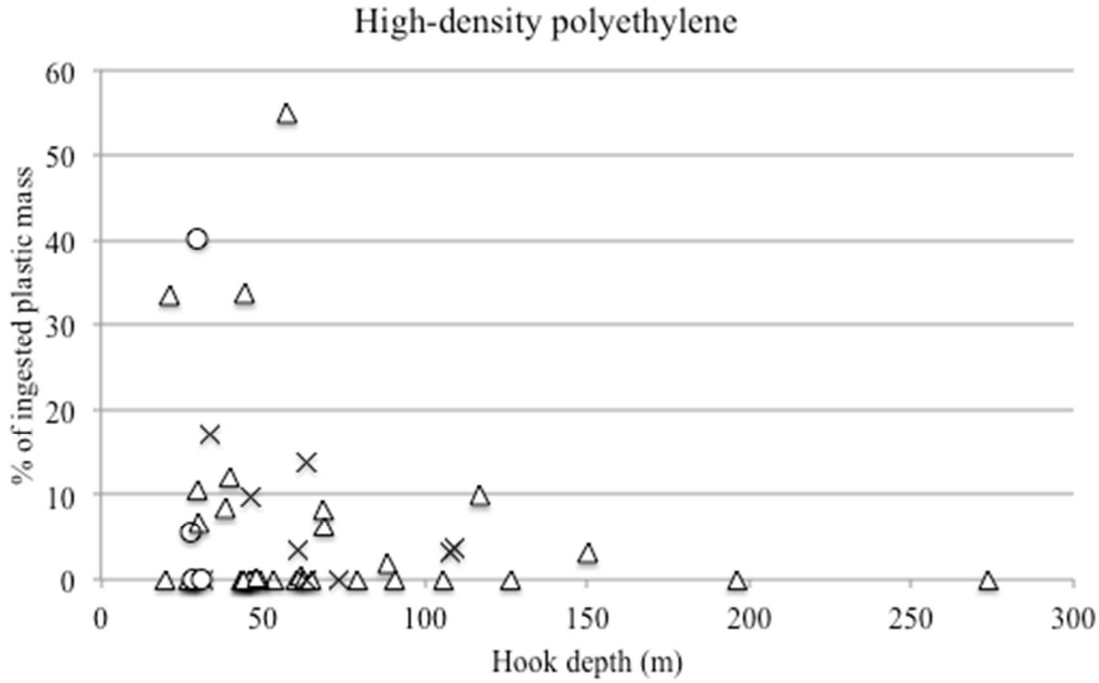
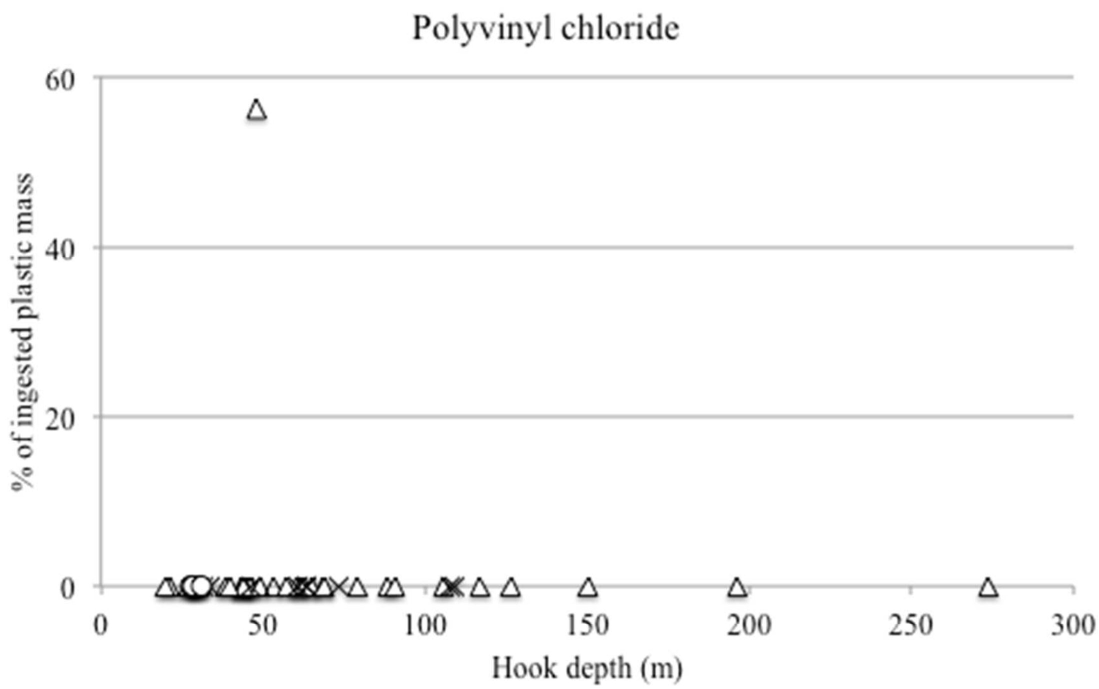


Figure S3. Histogram of hook depths (m) corrected for shoaling for olive ridley (n = 35, orange), green (n = 9, green), and loggerhead (n = 4, blue) turtles caught as bycatch in Pacific deep-set longline fisheries. Hook depths estimated using method 1 from Bigelow et al. (2006).

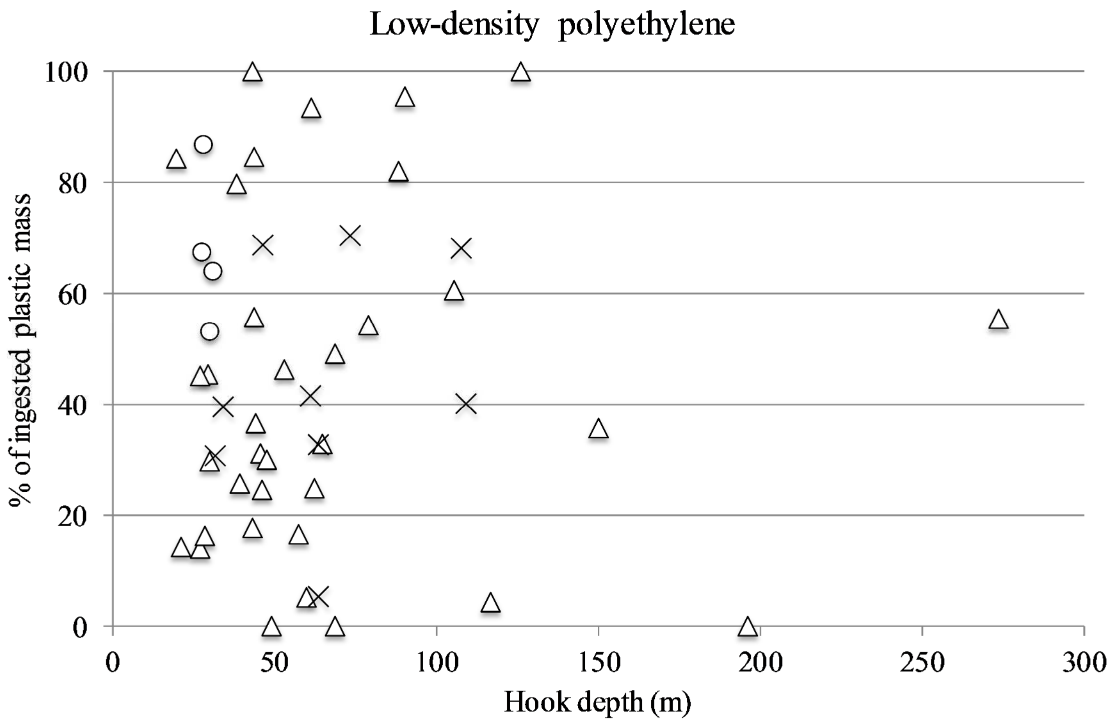
A.


High-density polyethylene
% of ingested plastic mass
Hook depth (m)
0
10
20
30
40
50
60
0
50
100
150
200
250
300

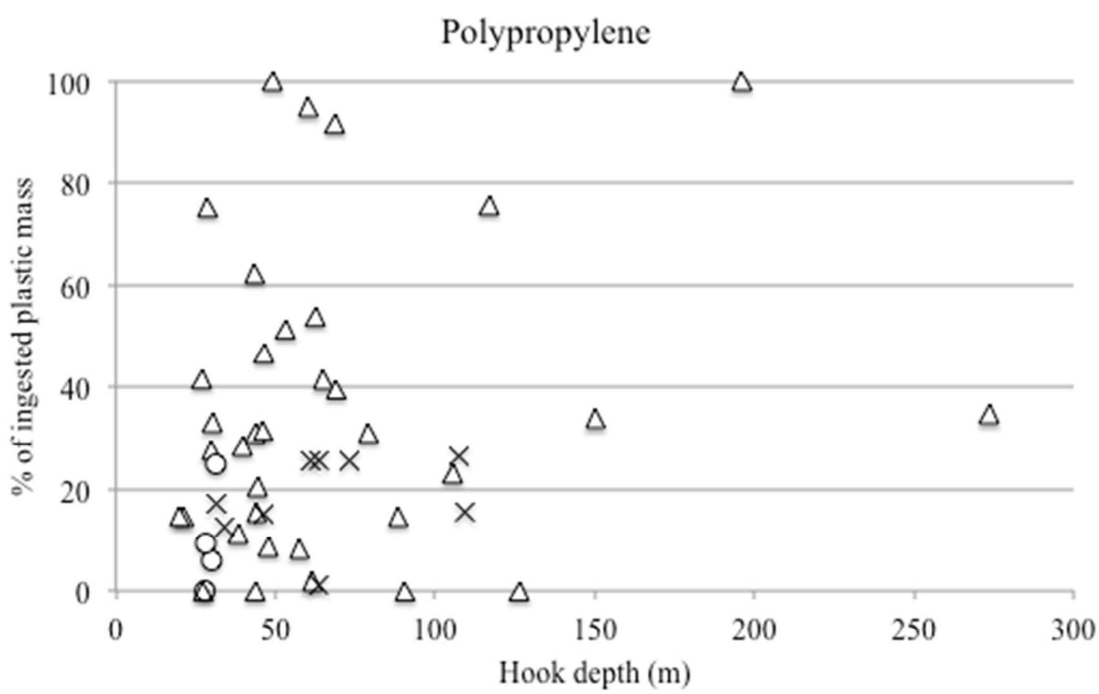
B.


Polyvinyl chloride
% of ingested plastic mass
Hook depth (m)
0
20
40
60
0
50
100
150
200
250
300

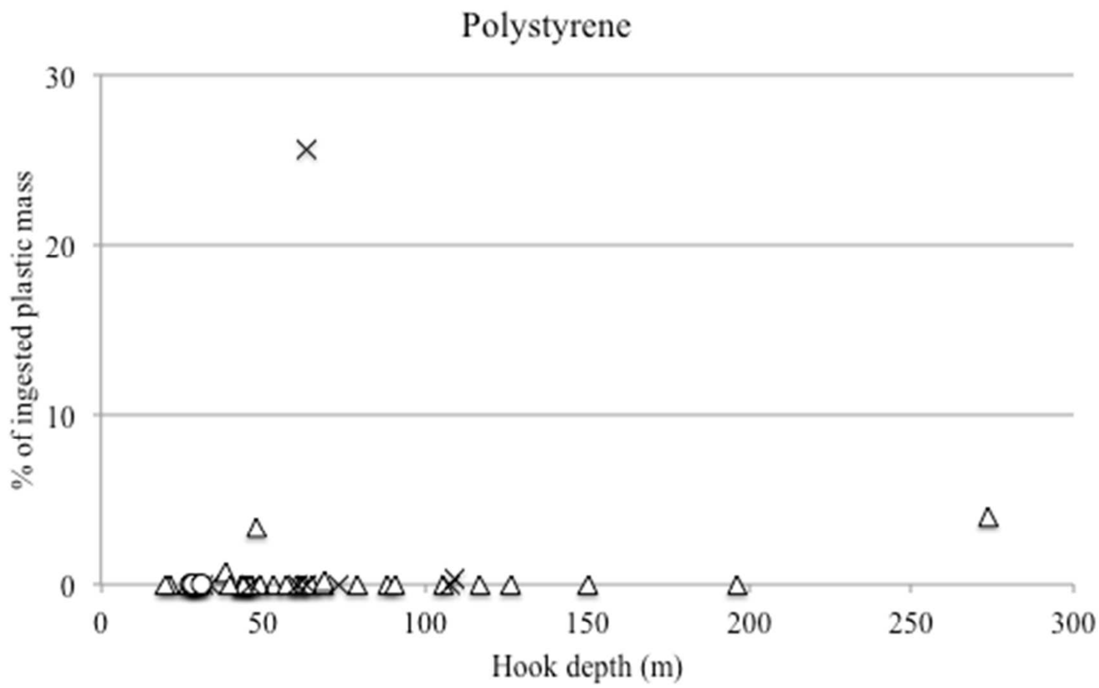
C.


Low-density polyethylene
% of ingested plastic mass
Hook depth (m)
0
20
40
60
80
100
0
50
100
150
200
250
300

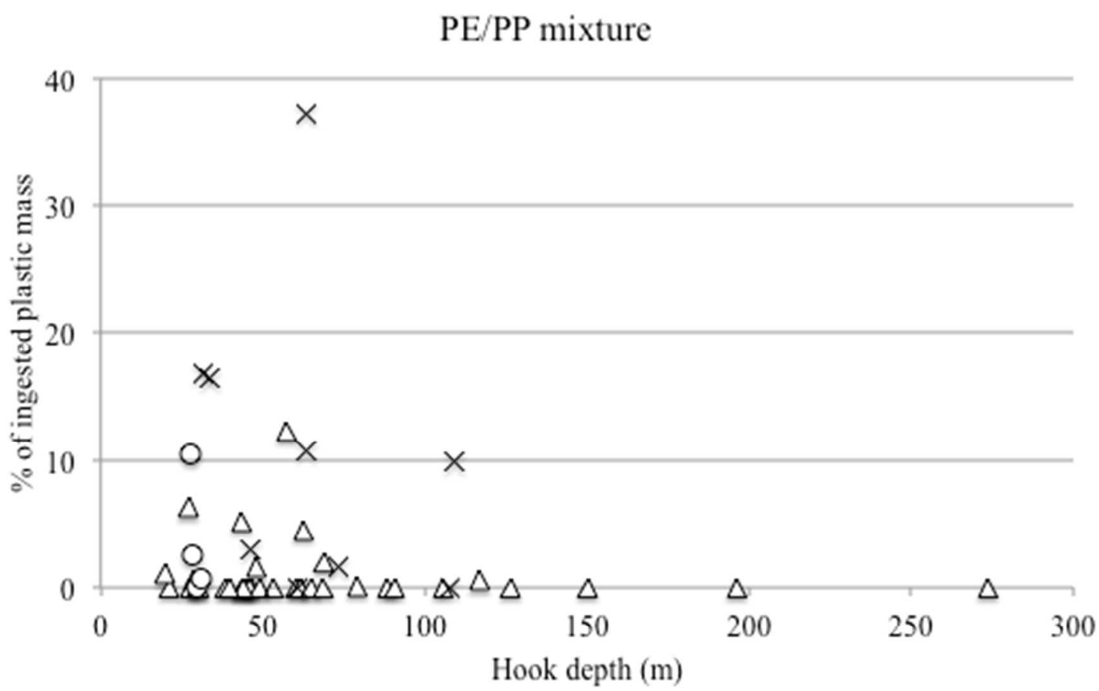
D.


Polypropylene
% of ingested plastic mass
Hook depth (m)
0
20
40
60
80
100
0
50
100
150
200
250
300

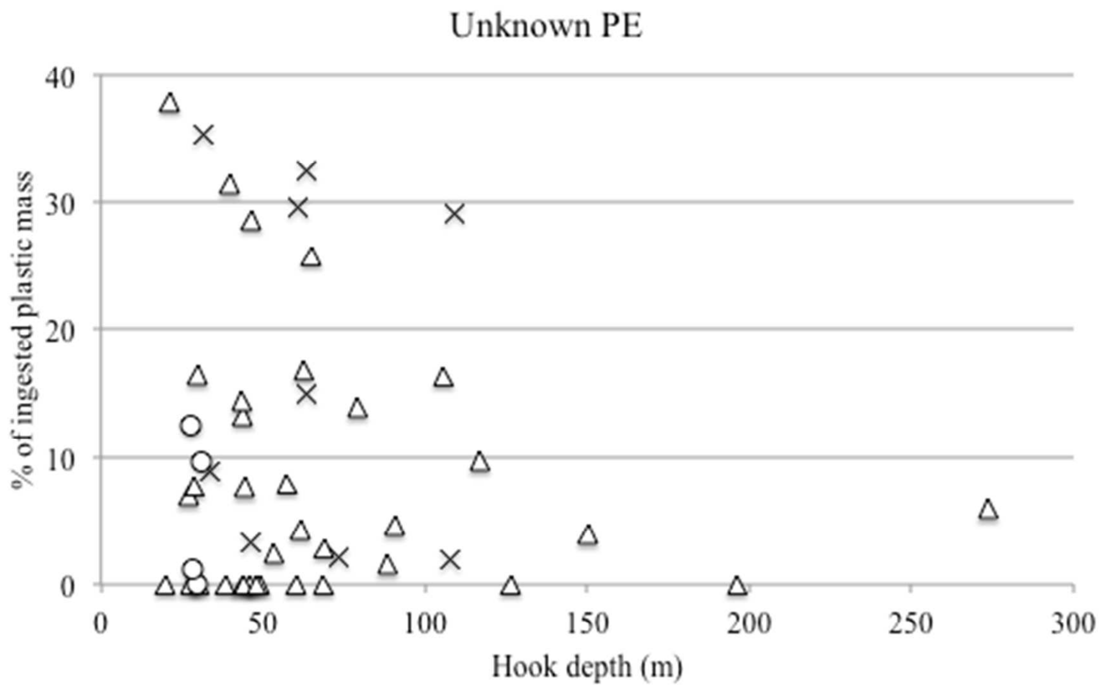
E.


Polystyrene
% of ingested plastic mass
30
20
10
0
0
50
100
150
200
250
300
Hook depth (m)

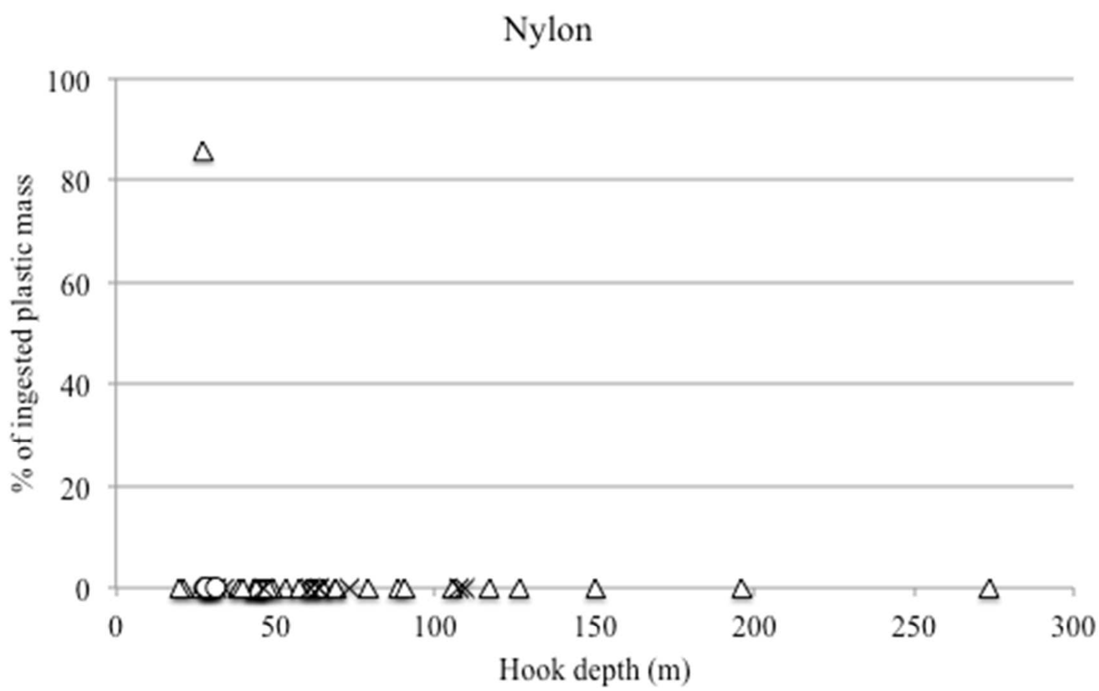
F.


PE/PP mixture
% of ingested plastic mass
40
30
20
10
0
0
50
100
150
200
250
300
Hook depth (m)

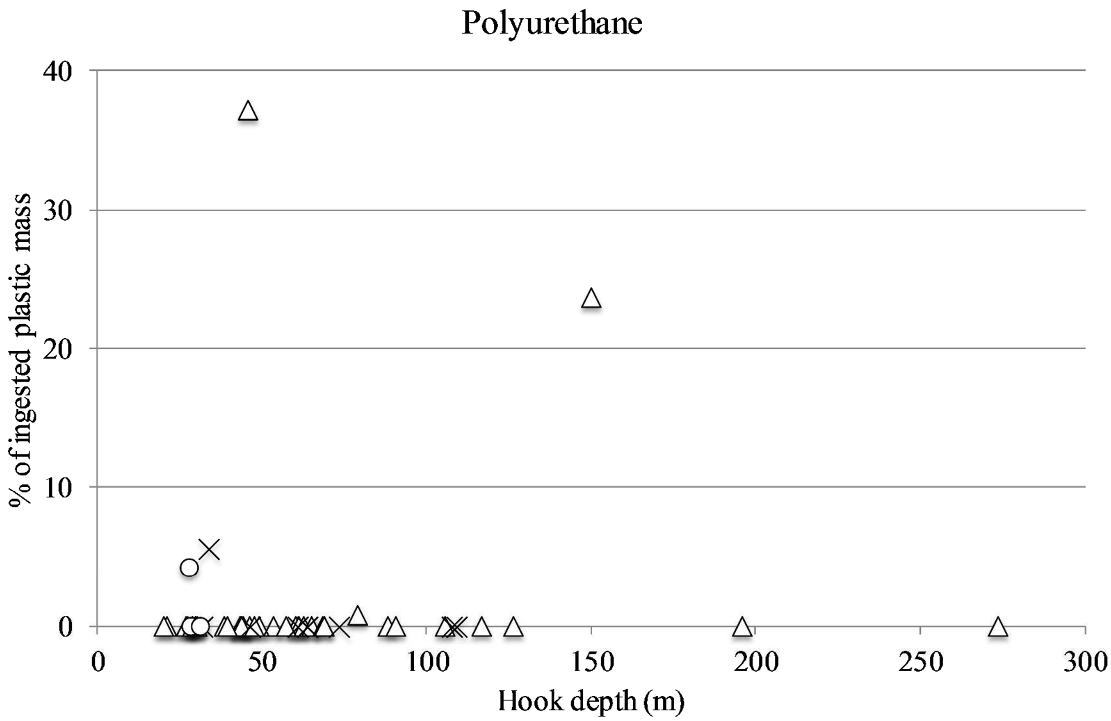
G.


Unknown PE
% of ingested plastic mass
Hook depth (m)
0
10
20
30
40
0
50
100
150
200
250
300

H.


Nylon
% of ingested plastic mass
Hook depth (m)
0
20
40
60
80
100
0
50
100
150
200
250
300

I.



J.

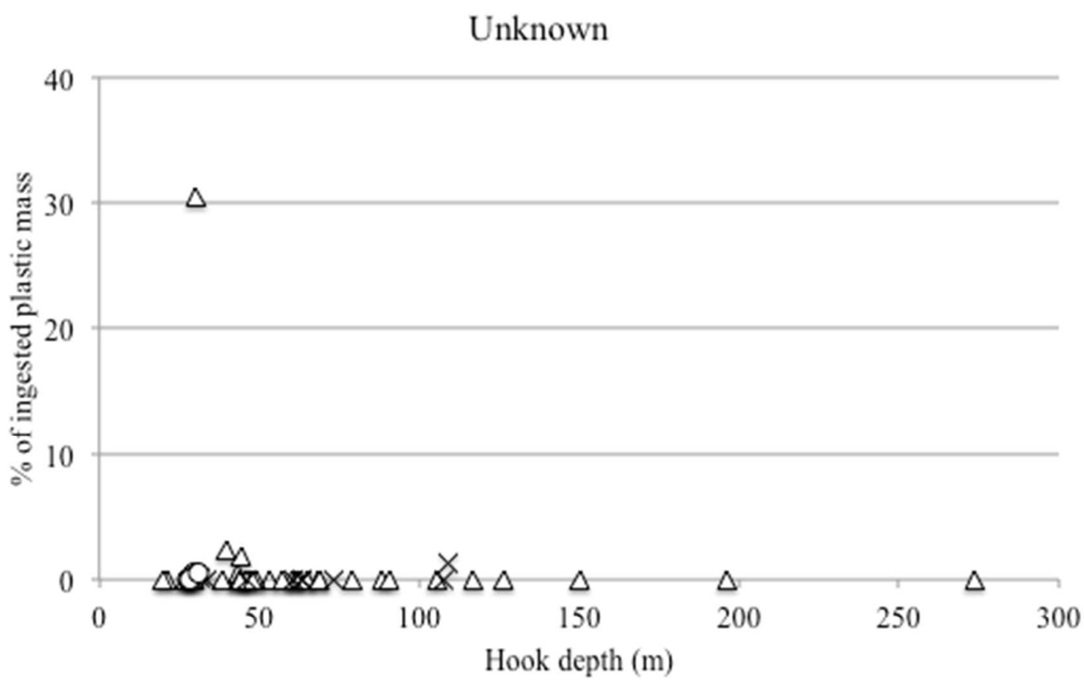


Figure S4. Percent of ingested plastic mass of a) high-density polyethylene (HDPE), b) polyvinyl chloride (PVC), c) low-density polyethylene (LDPE), d) polypropylene (PP), e) polystyrene (PS), f) PE/PP mixture, g) unknown polyethylene (PE), h) nylon, i) polyurethane, and j) unknown in olive ridley (Δ, n = 35), green (X, n = 9), and loggerhead (O, n = 4) sea turtles captured at different hook depths (m).

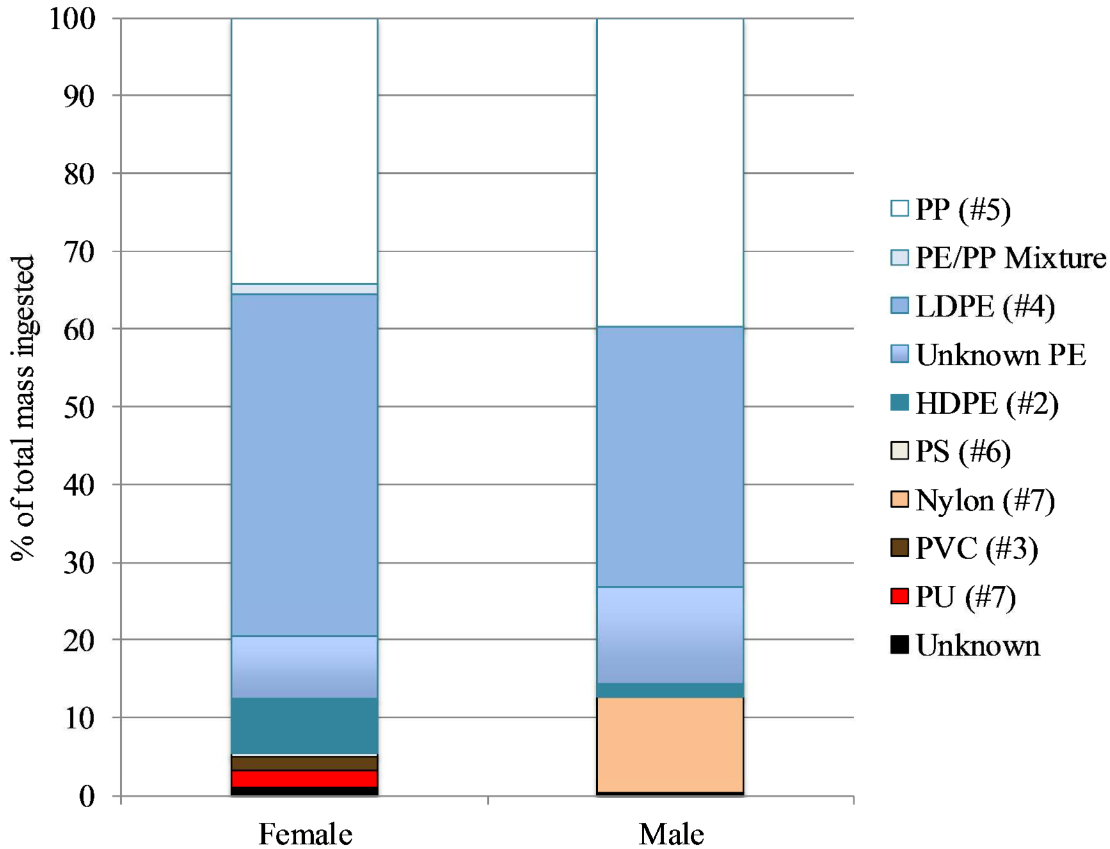


Figure S5. Average percent mass of ingested polymers by female (n = 30) and male (n = 7) olive ridley sea turtles. Based solely on chemical density, polymers that would float in seawater are bordered in blue, those that would sink in black. No significant difference was observed with MRPP (p = 0.571). Error bars are not shown. Polypropylene (PP), PE/PP mixture, low-density polyethylene (LDPE), unknown polyethylene (unknown PE), high-density polyethylene (HDPE), polystyrene (PS), nylon, polyvinyl chloride (PVC), polyurethane (PU), and unknown plastic pieces.

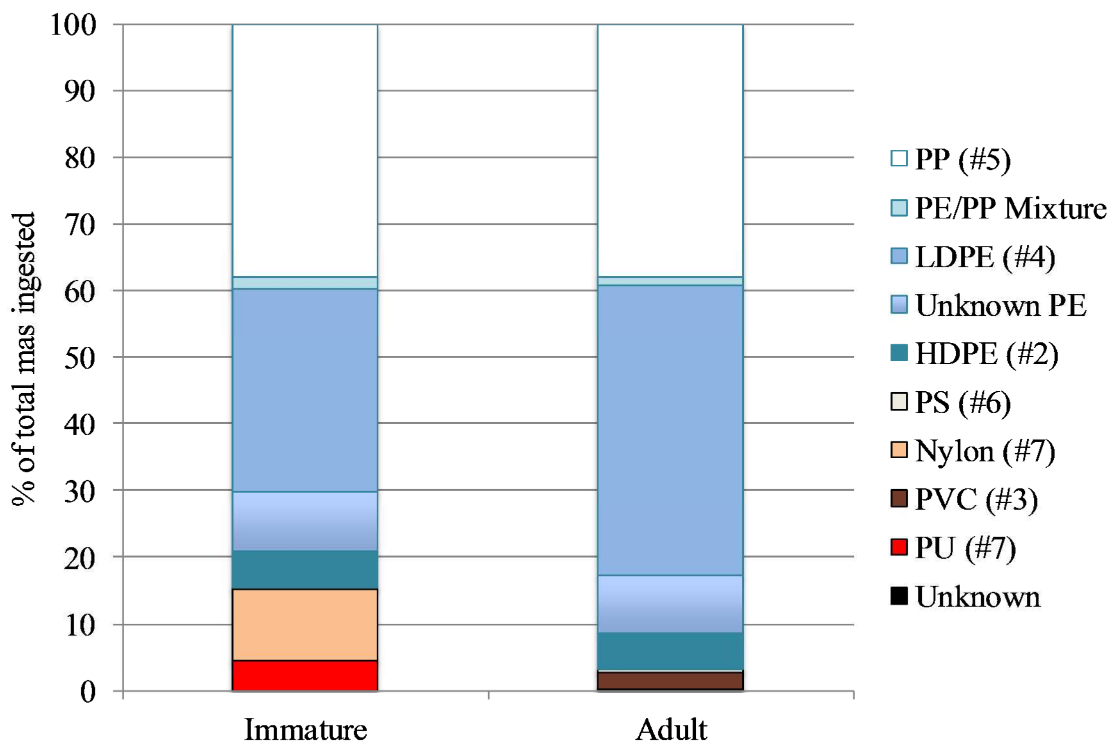


Figure S6. Average percent mass of ingested polymers by immature (n = 8) and adult (n = 22) olive ridley sea turtles. Based solely on chemical density, polymers that would float in seawater are bordered in blue, those that would sink in black. No significant difference was observed with MRPP (p = 0.479). Error bars are not shown. Polypropylene (PP), PE/PP mixture, low-density polyethylene (LDPE), unknown polyethylene (unknown PE), high-density polyethylene (HDPE), polystyrene (PS), nylon, polyvinyl chloride (PVC), polyurethane (PU), and unknown plastic pieces.

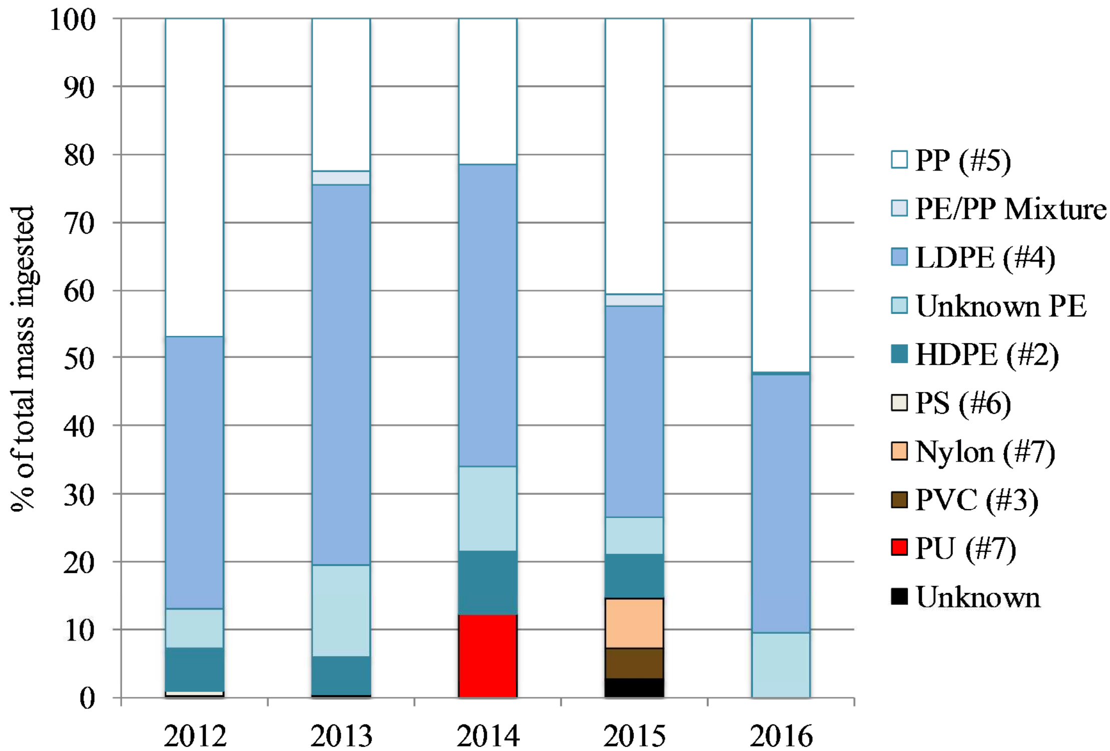
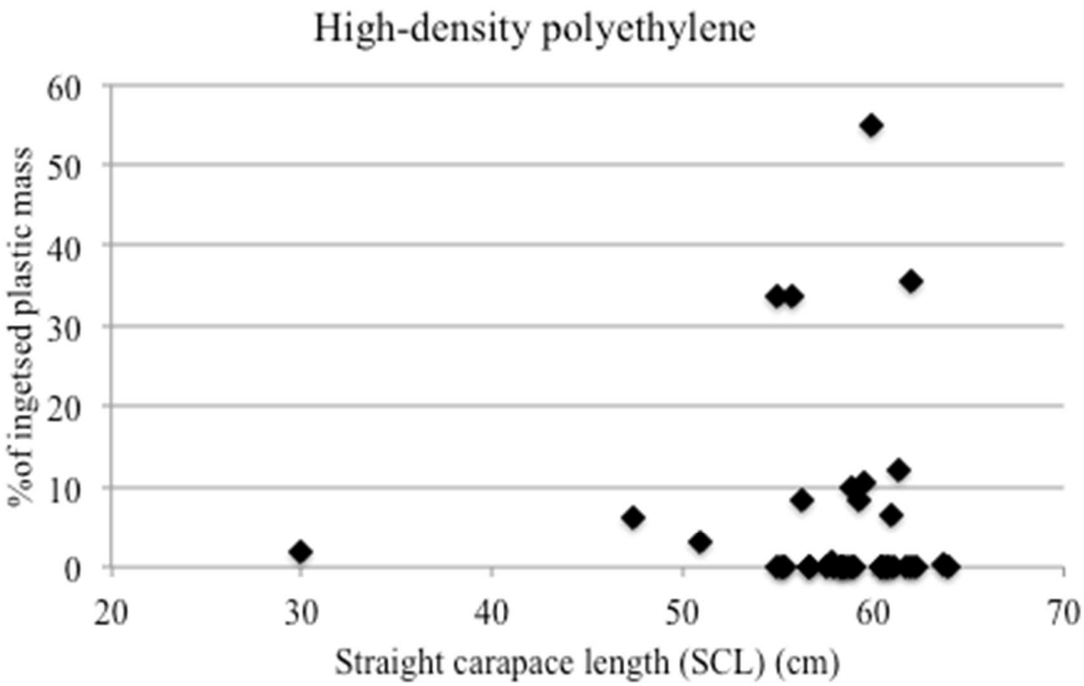
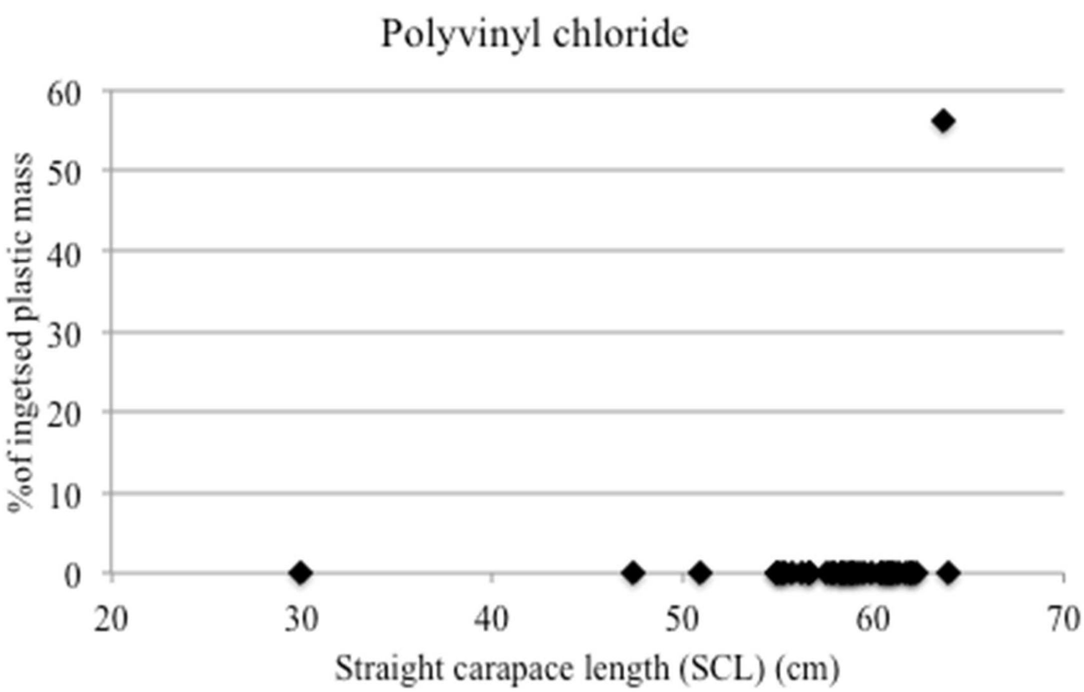


Figure S7. Average percent mass of ingested polymers by olive ridley sea turtles caught in 2012 (n = 7), 2013 (n = 10), 2014 (n = 5), 2015 (n = 11), and 2016 (n = 4). Based solely on chemical density, polymers that would float in seawater are bordered in blue, those that would sink in black. No significant difference was observed with MRPP (p = 0.463). Error bars are not shown. Polypropylene (PP), PE/PP mixture, low-density polyethylene (LDPE), unknown polyethylene (unknown PE), high-density polyethylene (HDPE), polystyrene (PS), nylon, polyvinyl chloride (PVC), polyurethane (PU), and unknown plastic pieces.

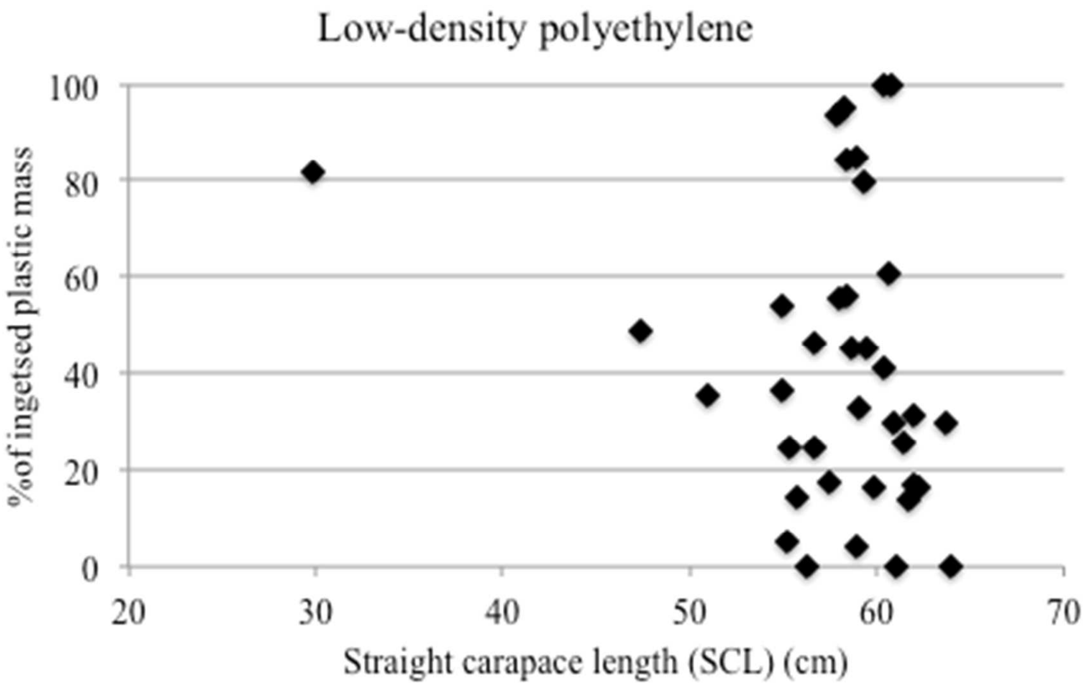
A.


High-density polyethylene
%of ingetsed plastic mass
60
50
40
30
20
10
0
20
30
40
50
60
70
Straight carapace length (SCL) (cm)

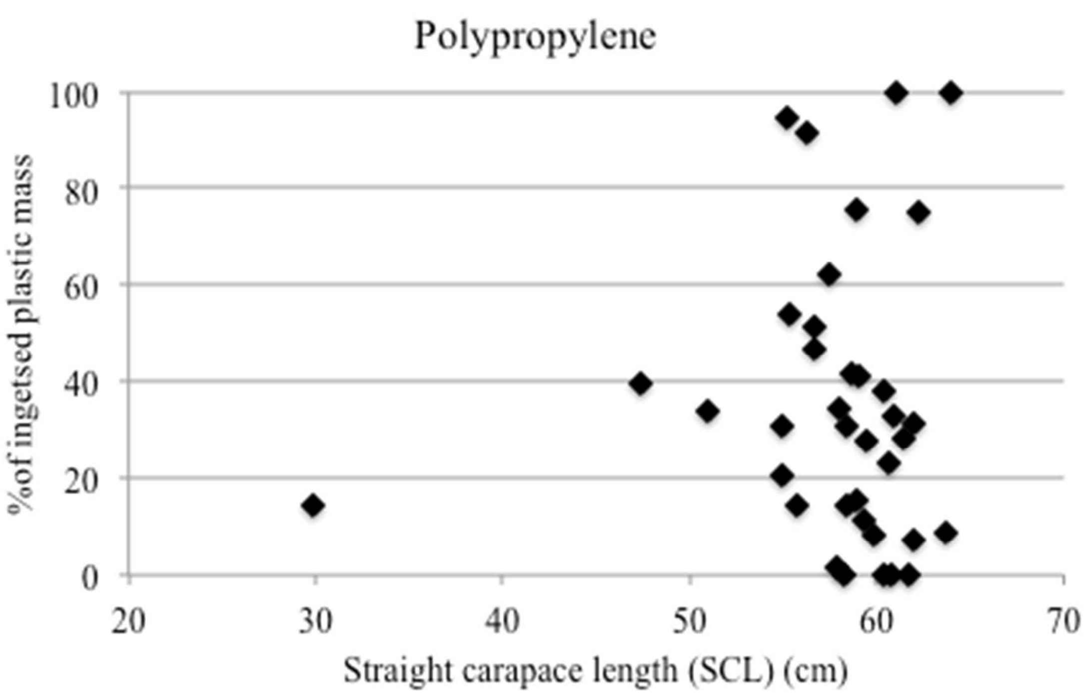
B.


Polyvinyl chloride
%of ingetsed plastic mass
60
50
40
30
20
10
0
20
30
40
50
60
70
Straight carapace length (SCL) (cm)

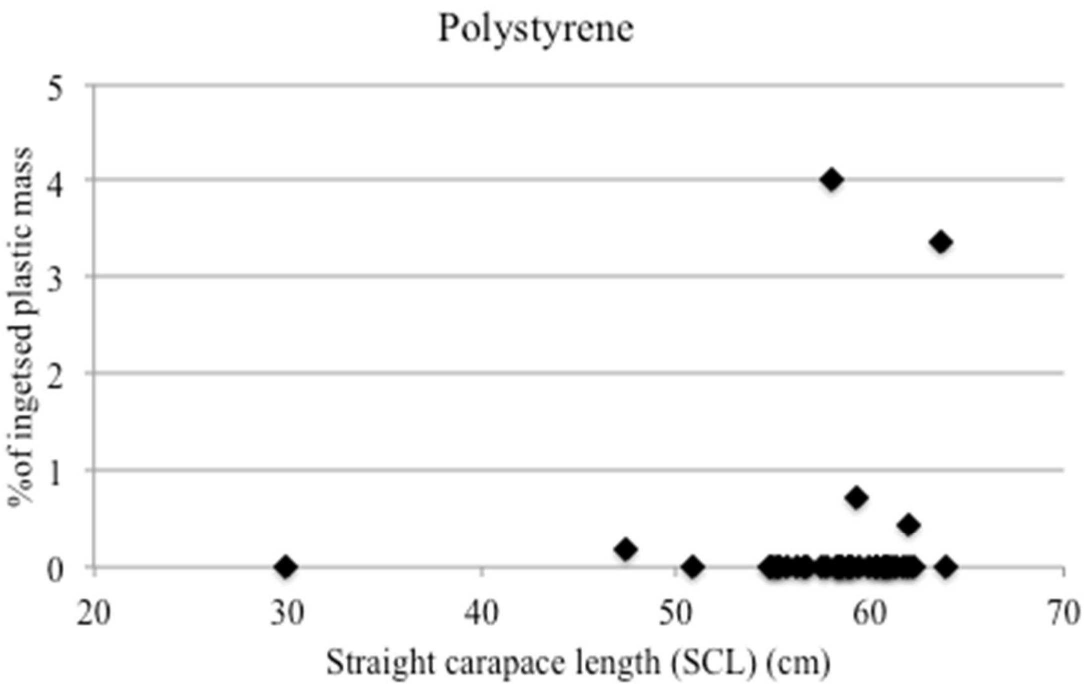
C.


Low-density polyethylene
%of ingetsed plastic mass
Straight carapace length (SCL) (cm)
0
20
40
60
80
100
20
30
40
50
60
70

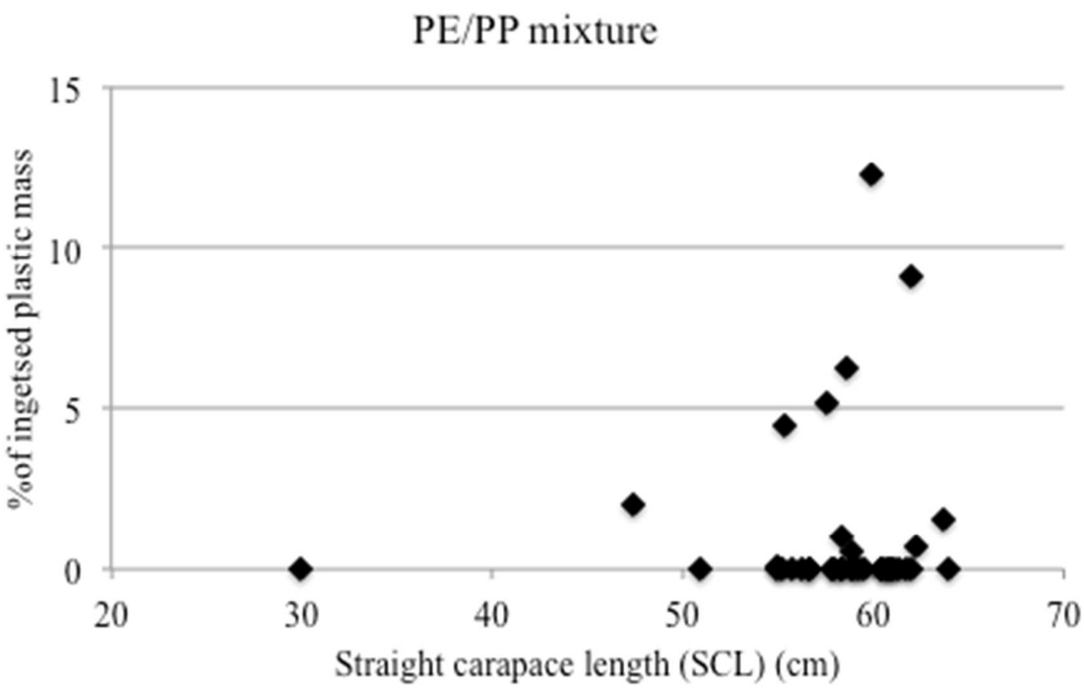
D.


Polypropylene
%of ingetsed plastic mass
Straight carapace length (SCL) (cm)
0
20
40
60
80
100
20
30
40
50
60
70

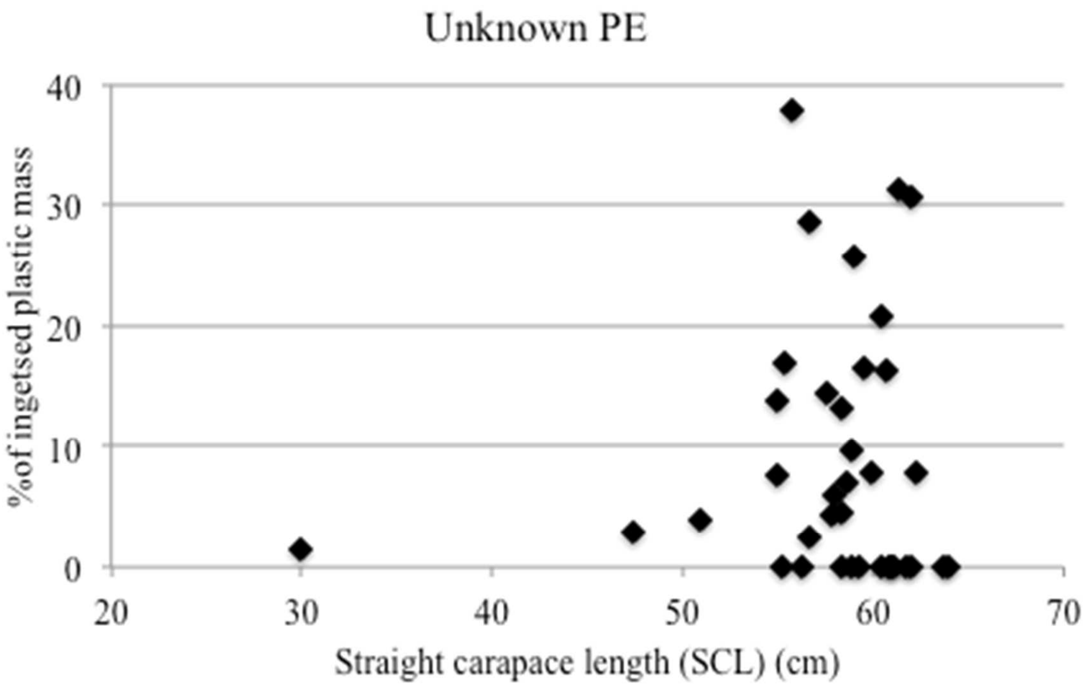
E.


Polystyrene
%of ingetsed plastic mass
0
1
2
3
4
5
20
30
40
50
60
70
Straight carapace length (SCL) (cm)

F.

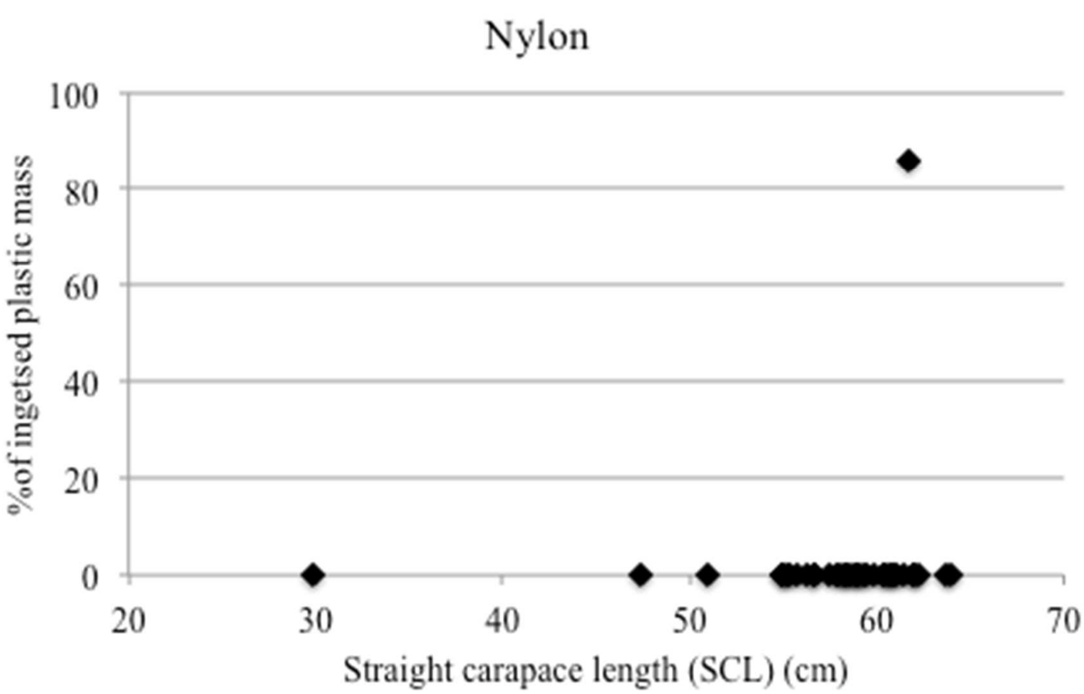

PE/PP mixture
%of ingetsed plastic mass
0
5
10
15
20
30
40
50
60
70
Straight carapace length (SCL) (cm)

G.



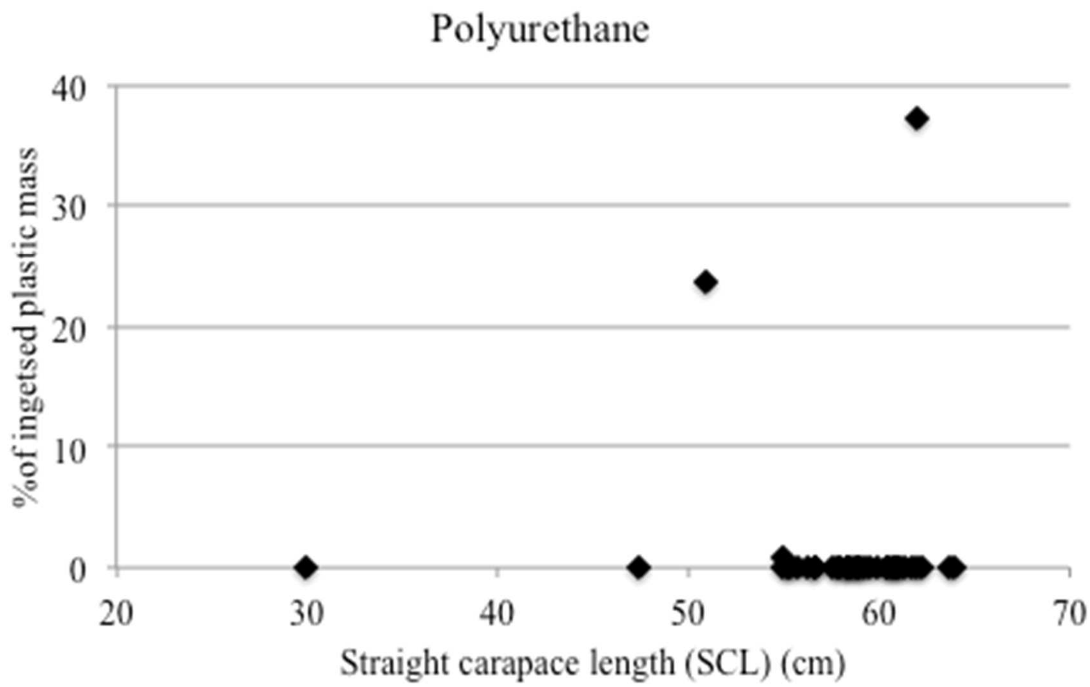
Unknown PE
40
30
20
10
0
%of ingetsed plastic mass
20
30
40
50
60
70
Straight carapace length (SCL) (cm)

H.



Nylon
100
80
60
40
20
0
%of ingetsed plastic mass
20
30
40
50
60
70
Straight carapace length (SCL) (cm)

I.



J.

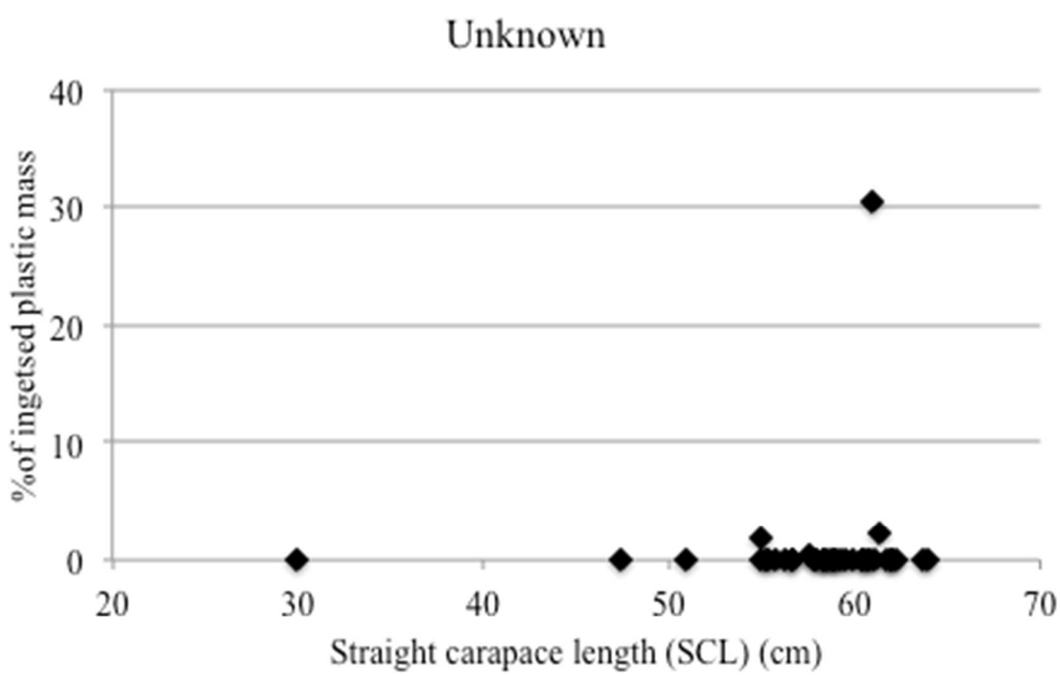
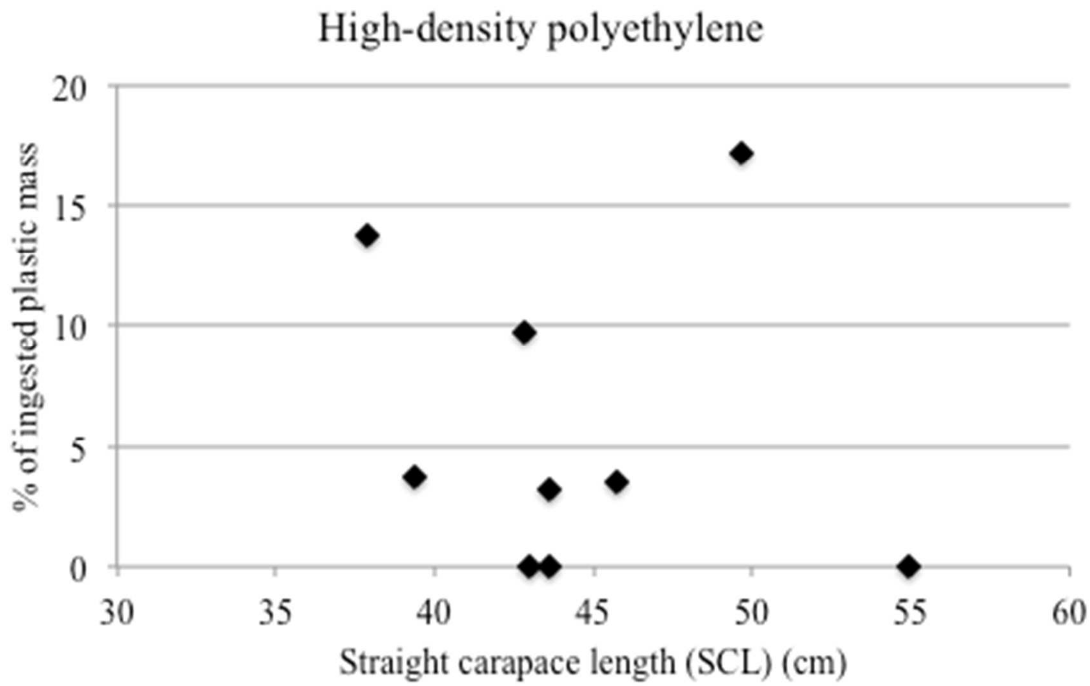
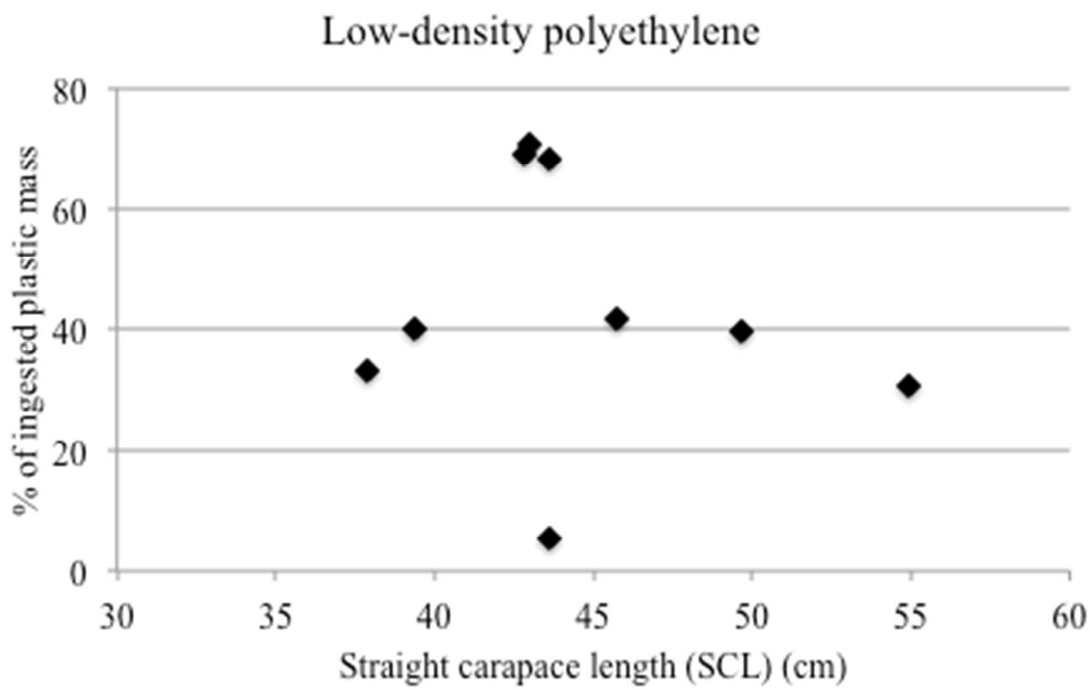


Figure S8. Percent of ingested plastic mass of a) high-density polyethylene (HDPE), b) polyvinyl chloride (PVC), c) low-density polyethylene d) polypropylene (PP), e) polystyrene (PS), f) PE/PP mixture, g) unknown polyethylene (PE), h) nylon, i) polyurethane (PU), and j) unknown in olive ridley (n = 37) sea turtles with varying straight carapace lengths (cm).

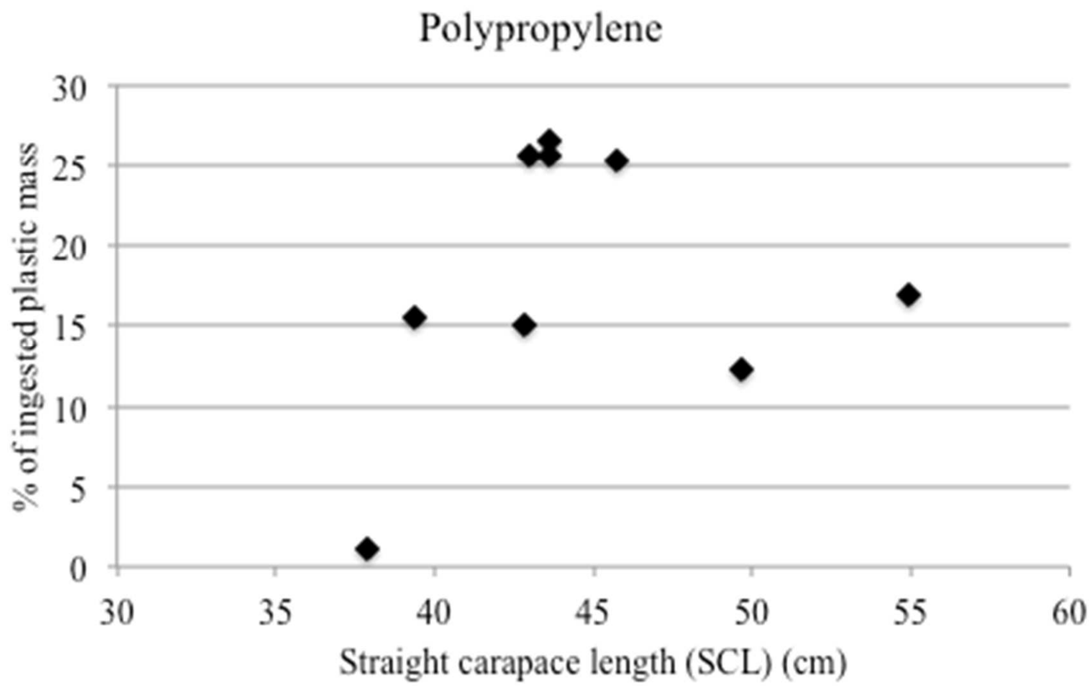
A.


High-density polyethylene
% of ingested plastic mass
0
5
10
15
20
30
35
40
45
50
55
60
Straight carapace length (SCL) (cm)

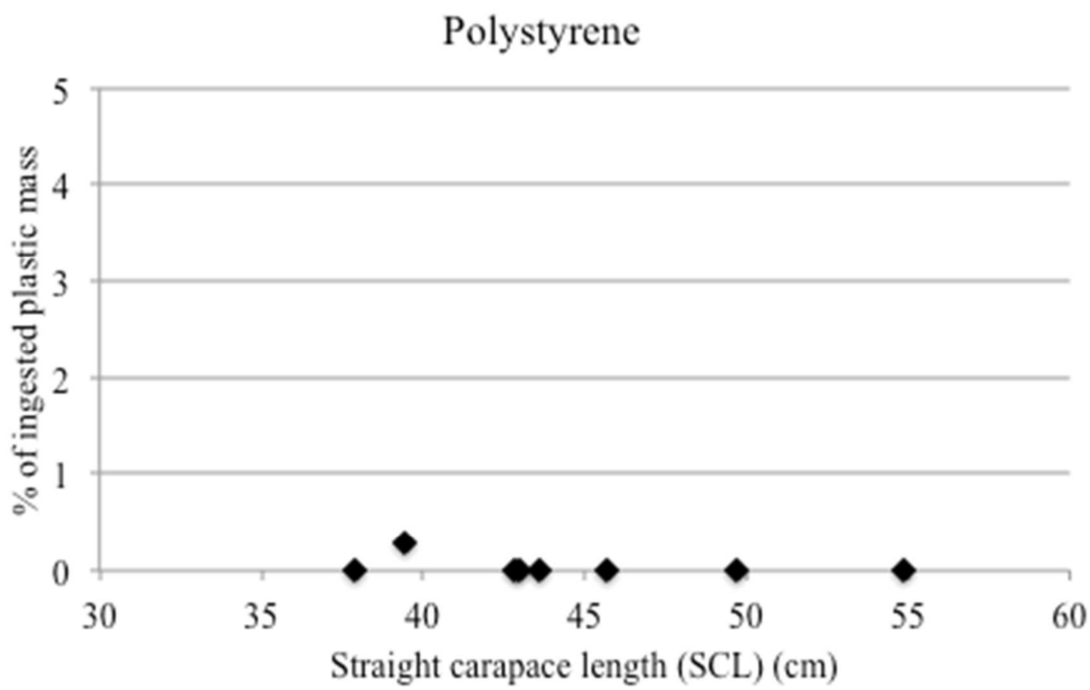
B.


Low-density polyethylene
% of ingested plastic mass
0
20
40
60
80
30
35
40
45
50
55
60
Straight carapace length (SCL) (cm)

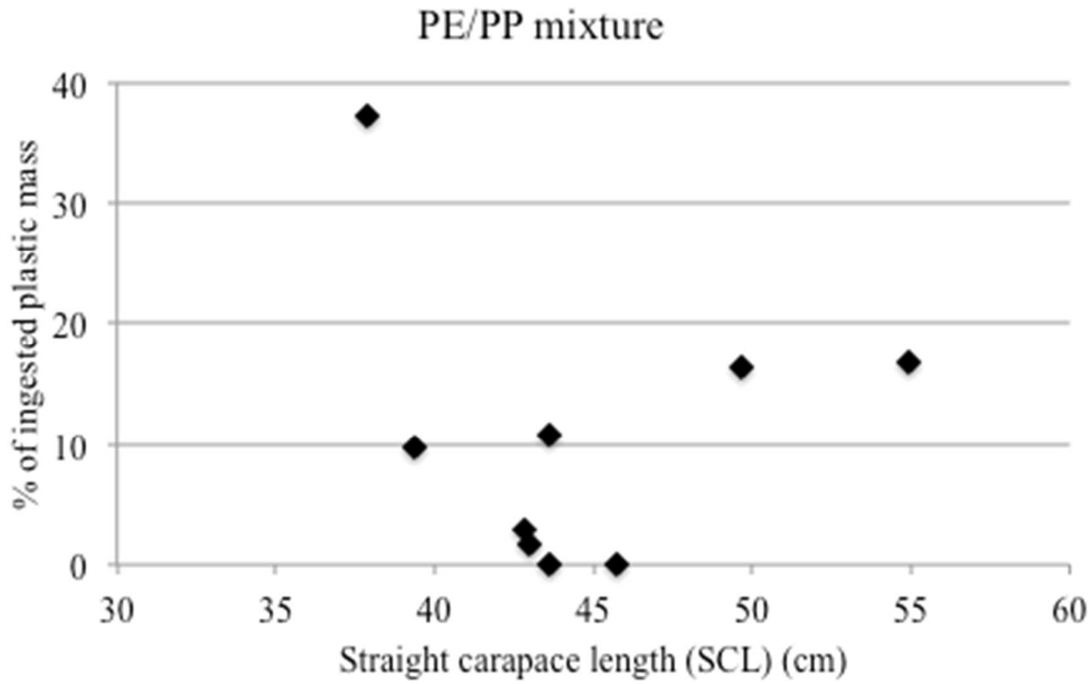
C.


Polypropylene
% of ingested plastic mass
0
5
10
15
20
25
30
30
35
40
45
50
55
60
Straight carapace length (SCL) (cm)

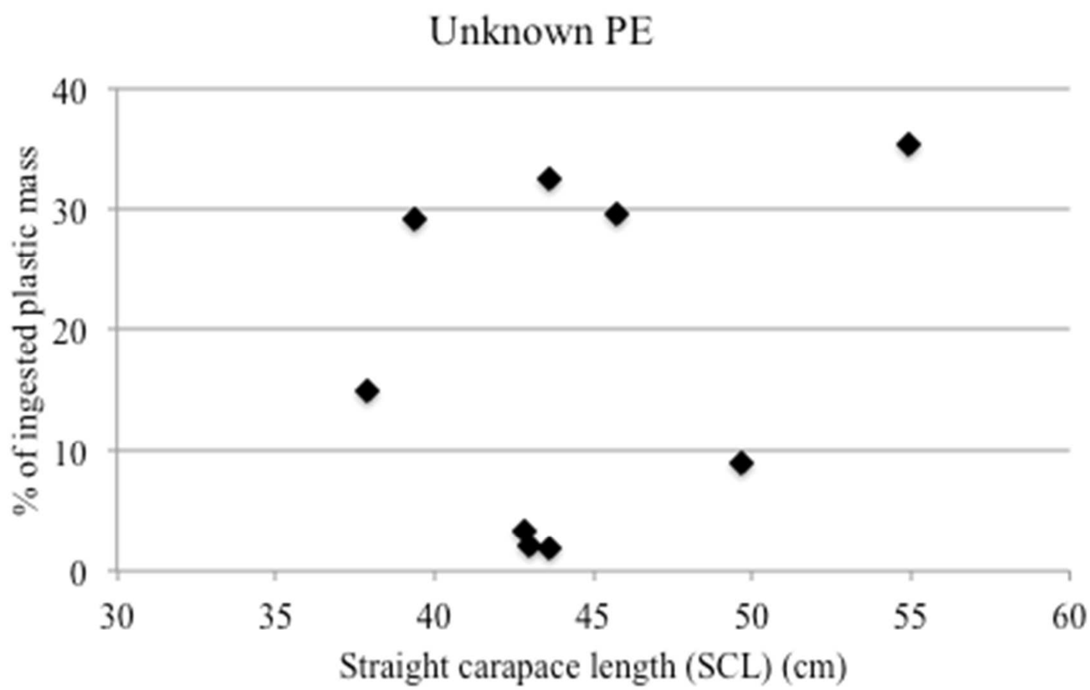
D.


Polystyrene
% of ingested plastic mass
0
1
2
3
4
5
30
35
40
45
50
55
60
Straight carapace length (SCL) (cm)

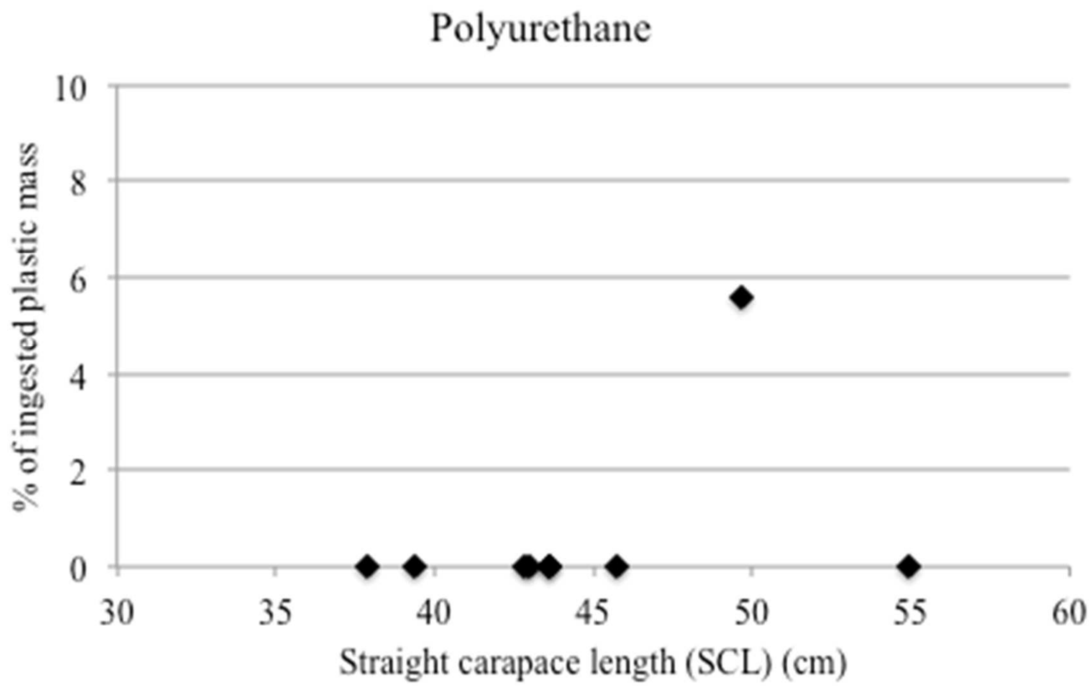
E.


PE/PP mixture
% of ingested plastic mass
Straight carapace length (SCL) (cm)
0
10
20
30
40
30
35
40
45
50
55
60

F.


Unknown PE
% of ingested plastic mass
Straight carapace length (SCL) (cm)
0
10
20
30
40
30
35
40
45
50
55
60

G.



H.

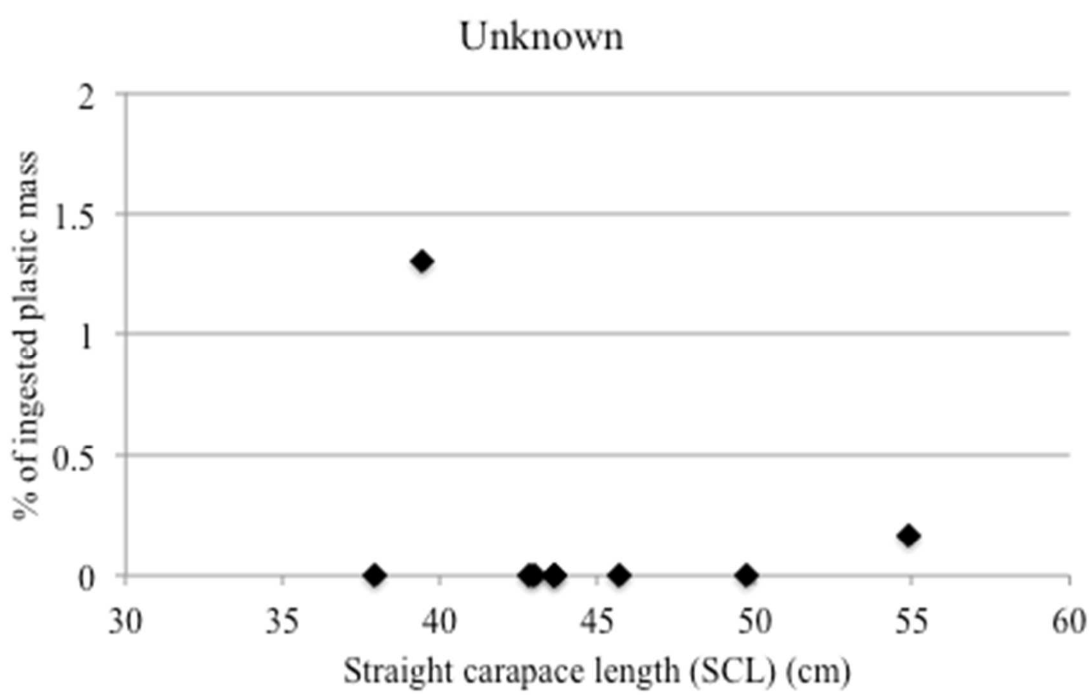
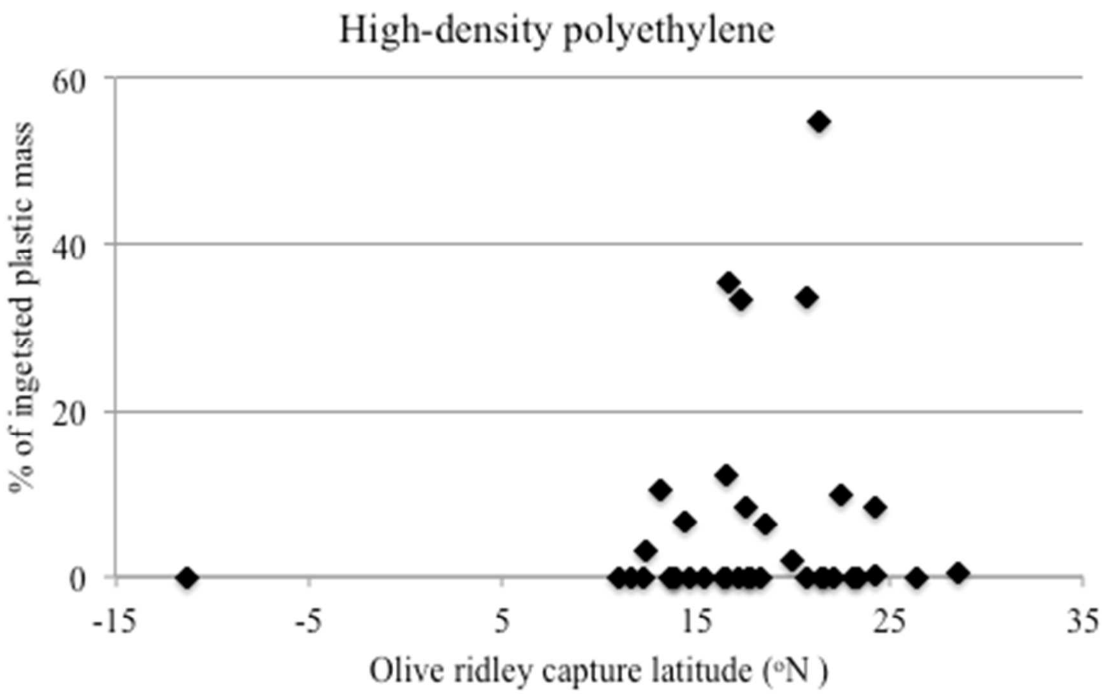
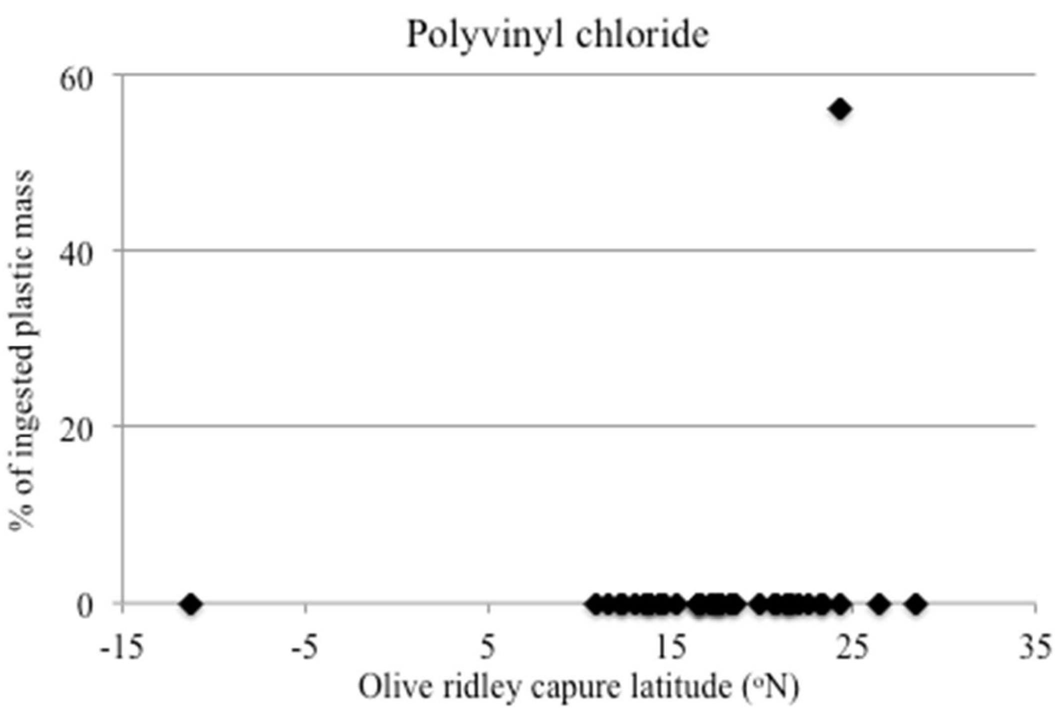


Figure S9. Percent of ingested plastic mass of a) high-density polyethylene (HDPE), b) low-density polyethylene c) polypropylene (PP), d) polystyrene (PS), e) PE/PP mixture, f) unknown polyethylene (PE), g) polyurethane (PU), and h) unknown in green (n = 9) sea turtles with varying straight carapace lengths (cm).

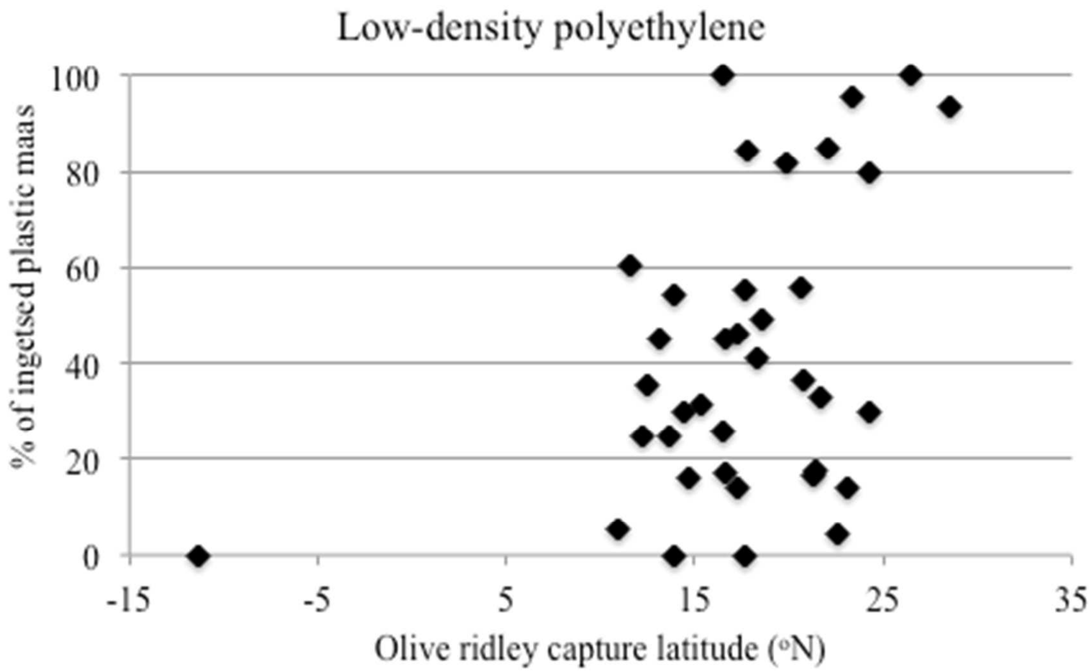
A.


High-density polyethylene
% of ingetsted plastic mass
60
40
20
0
-15
-5
5
15
25
35
Olive ridley capture latitude (ºN)

B.

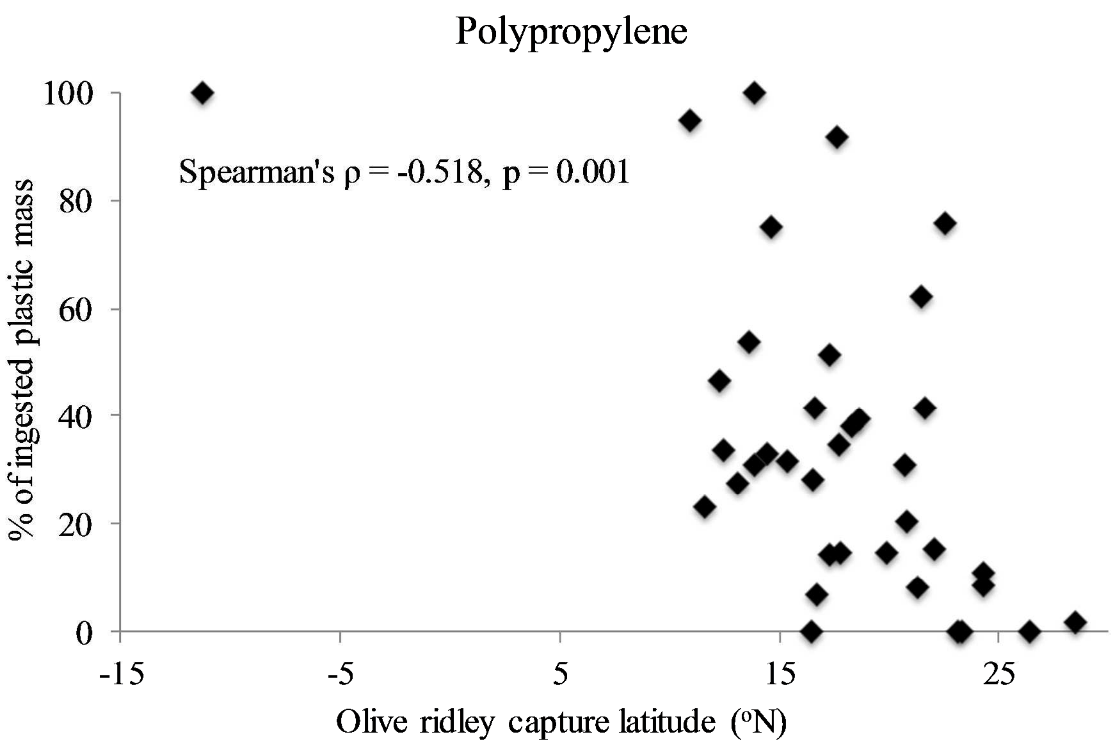

Polyvinyl chloride
% of ingested plastic mass
60
40
20
0
-15
-5
5
15
25
35
Olive ridley capure latitude (ºN)

C.



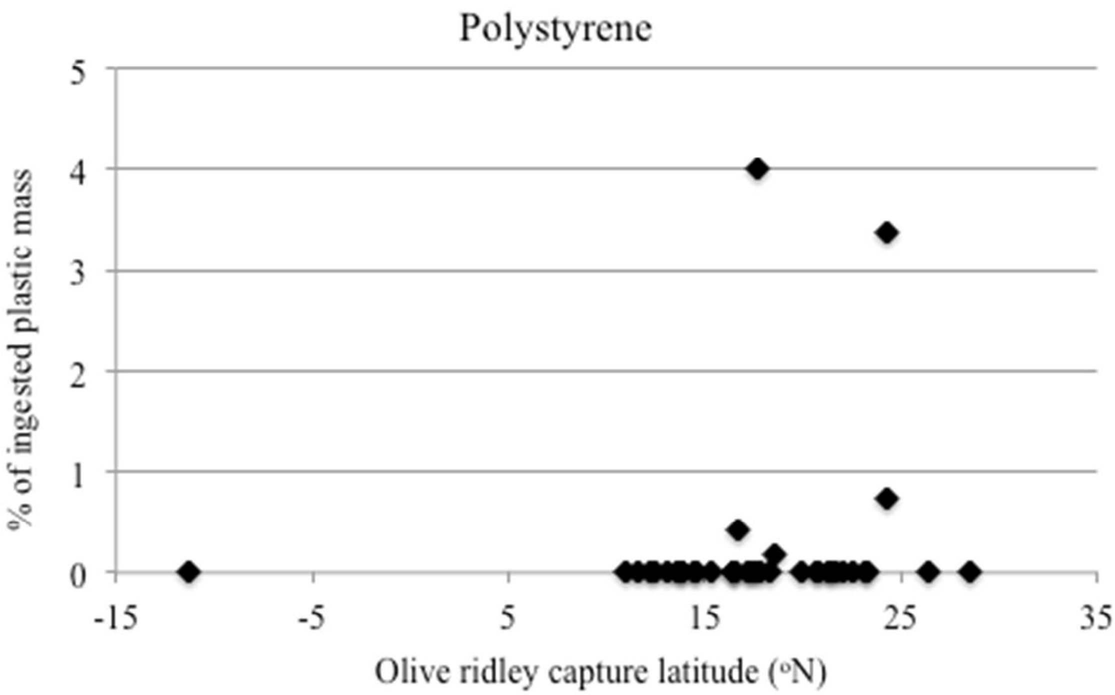
Low-density polyethylene
% of ingetsed plastic maas
100
80
60
40
20
0
-15
-5
5
15
25
35
Olive ridley capture latitude (°N)

D.

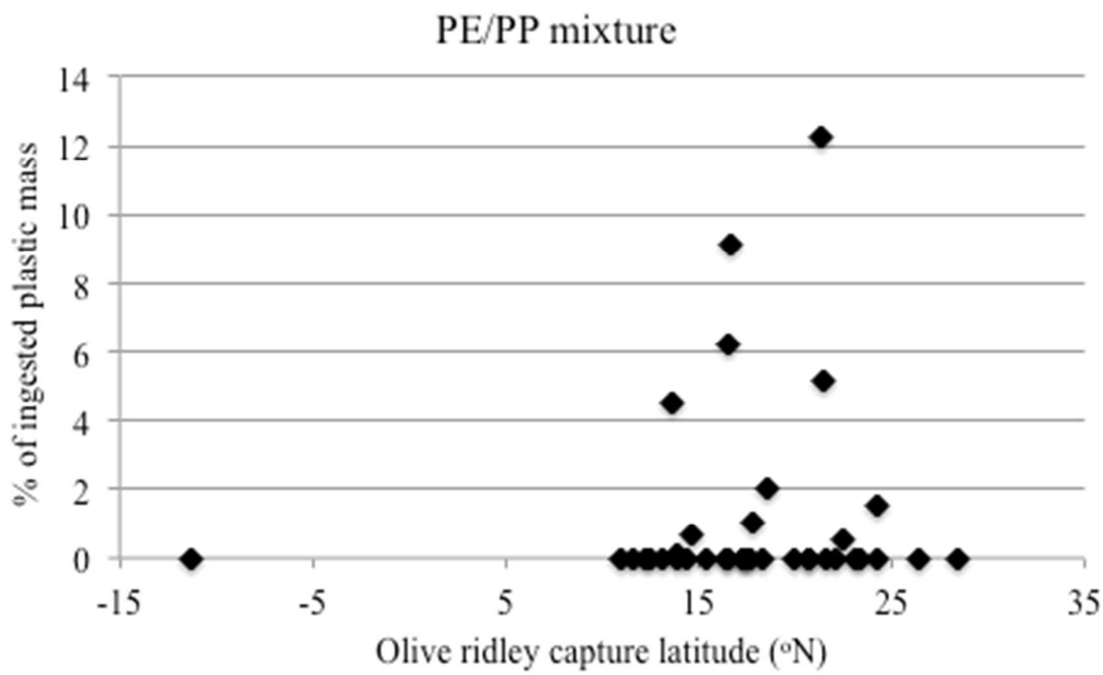


Polypropylene
Spearman's ρ = -0.518, p = 0.001
% of ingested plastic mass
100
80
60
40
20
0
-15
-5
5
15
25
Olive ridley capture latitude (°N)

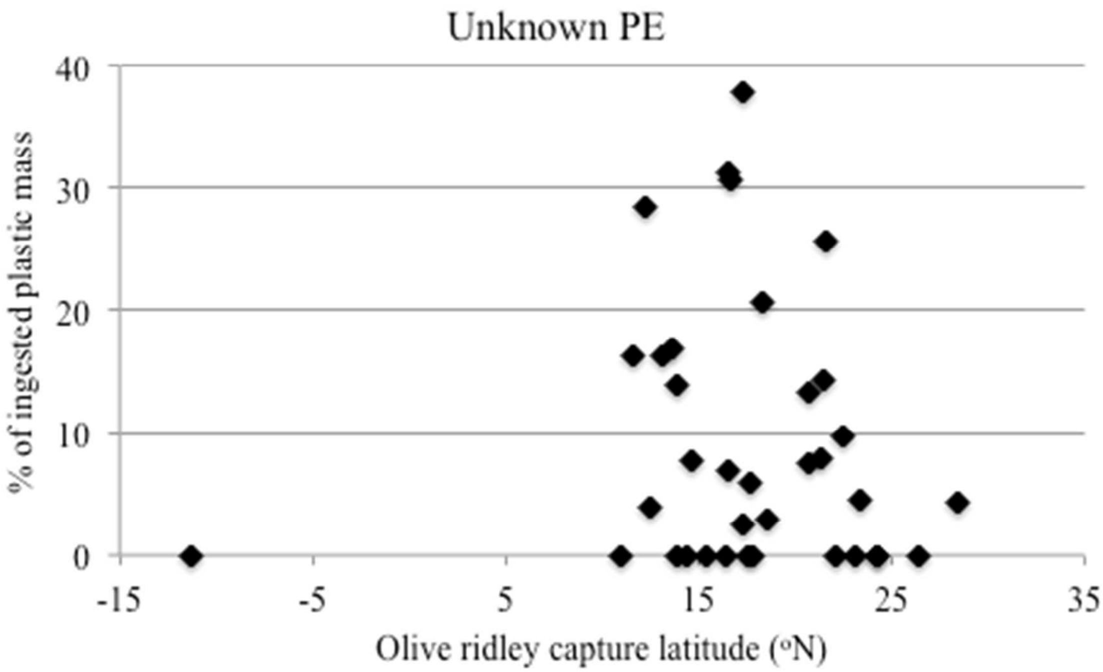
E.


Polystyrene
% of ingested plastic mass
5
4
3
2
1
0
-15
-5
5
15
25
35
Olive ridley capture latitude (ºN)

F.

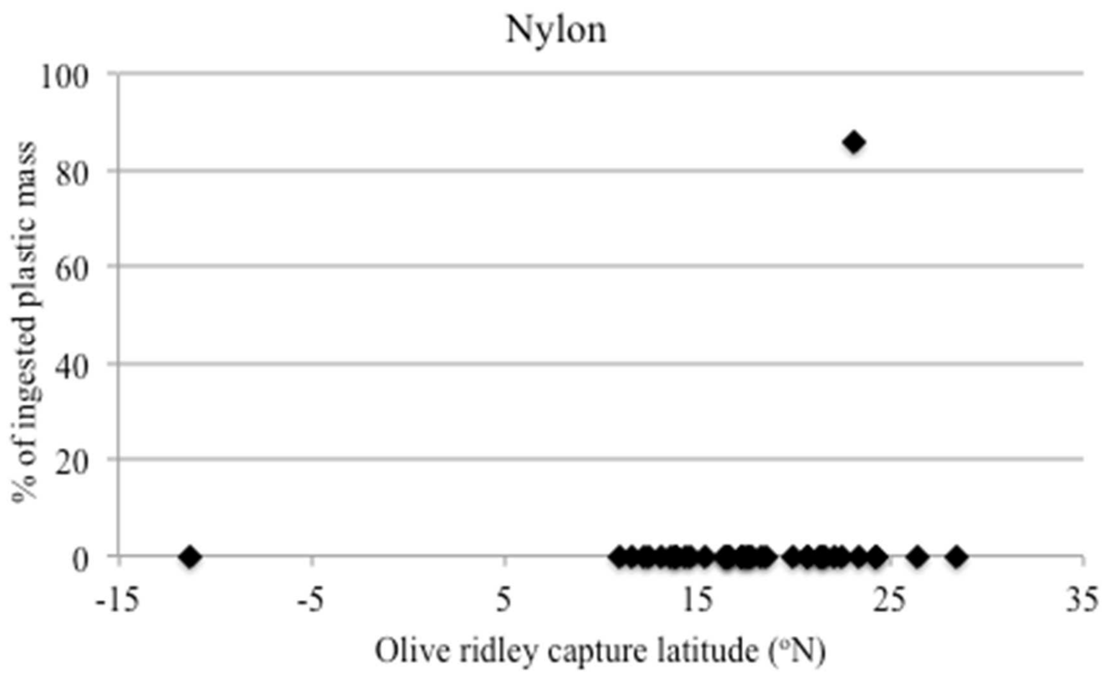

PE/PP mixture
% of ingested plastic mass
14
12
10
8
6
4
2
0
-15
-5
5
15
25
35
Olive ridley capture latitude (ºN)

G.



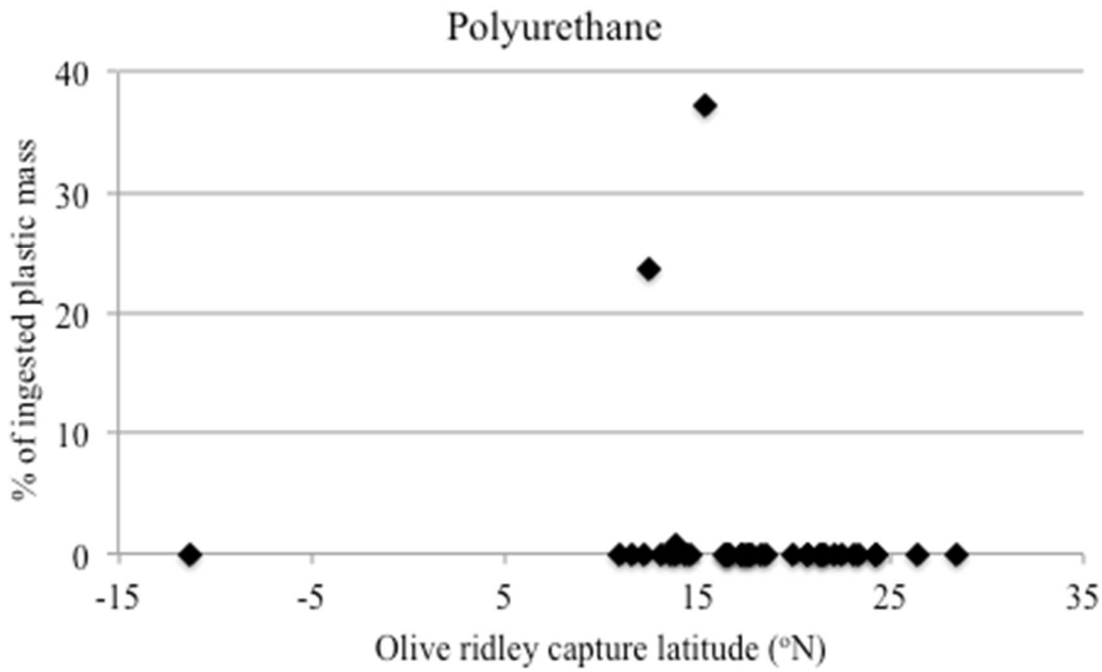
Unknown PE
% of ingested plastic mass
Olive ridley capture latitude (°N)
40
30
20
10
0
-15
-5
5
15
25
35

H.



Nylon
% of ingested plastic mass
Olive ridley capture latitude (°N)
100
80
60
40
20
0
-15
-5
5
15
25
35

I.



J.

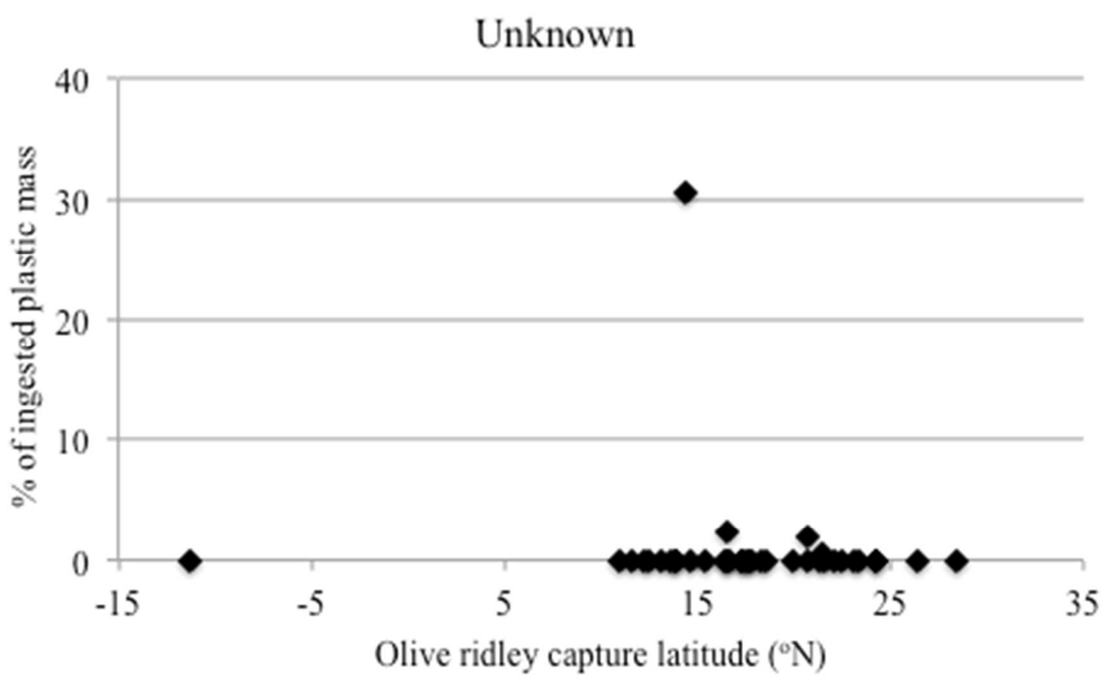
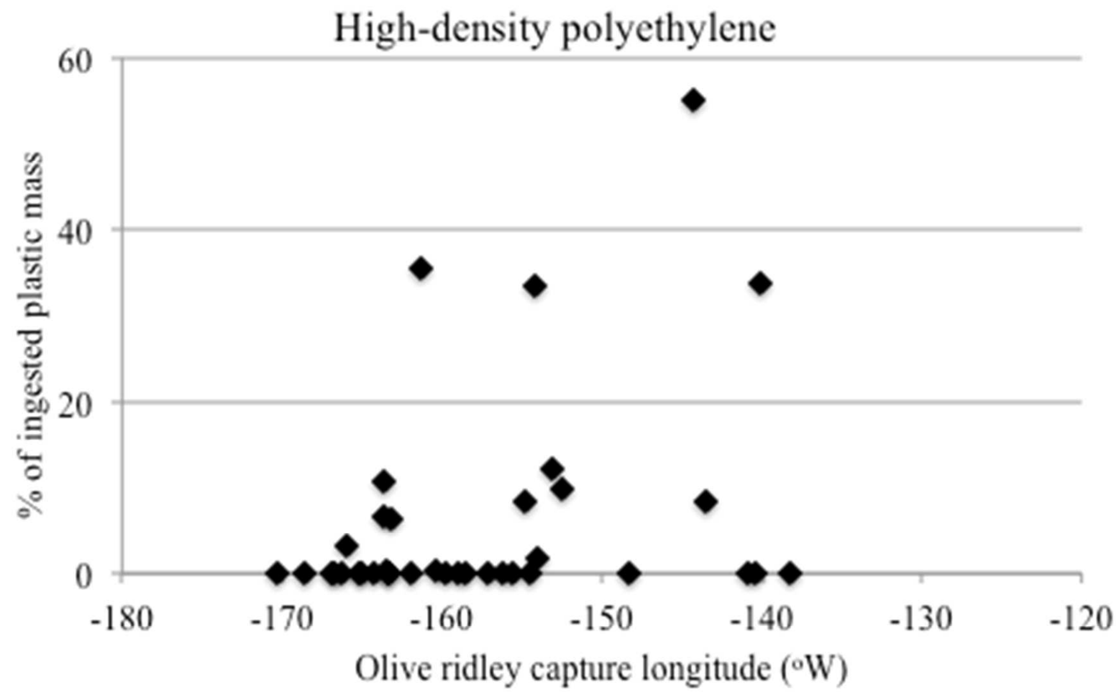
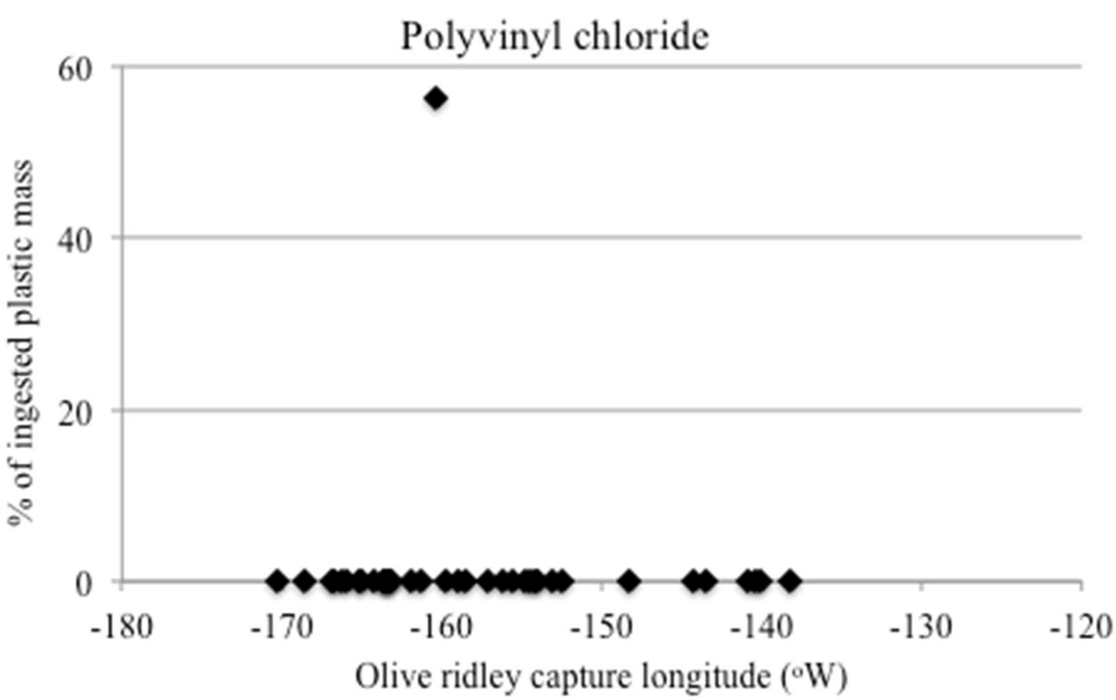


Figure S10. Percent of ingested plastic mass of a) high-density polyethylene (HDPE), b) polyvinyl chloride (PVC), c) low-density polyethylene, d) polypropylene (PP) e) polystyrene (PS), f) PE/PP mixture, g) unknown polyethylene (PE), h) nylon, i) polyurethane (PU), and j) unknown in olive ridley (n = 37) sea turtles with varying capture latitudes (°N).

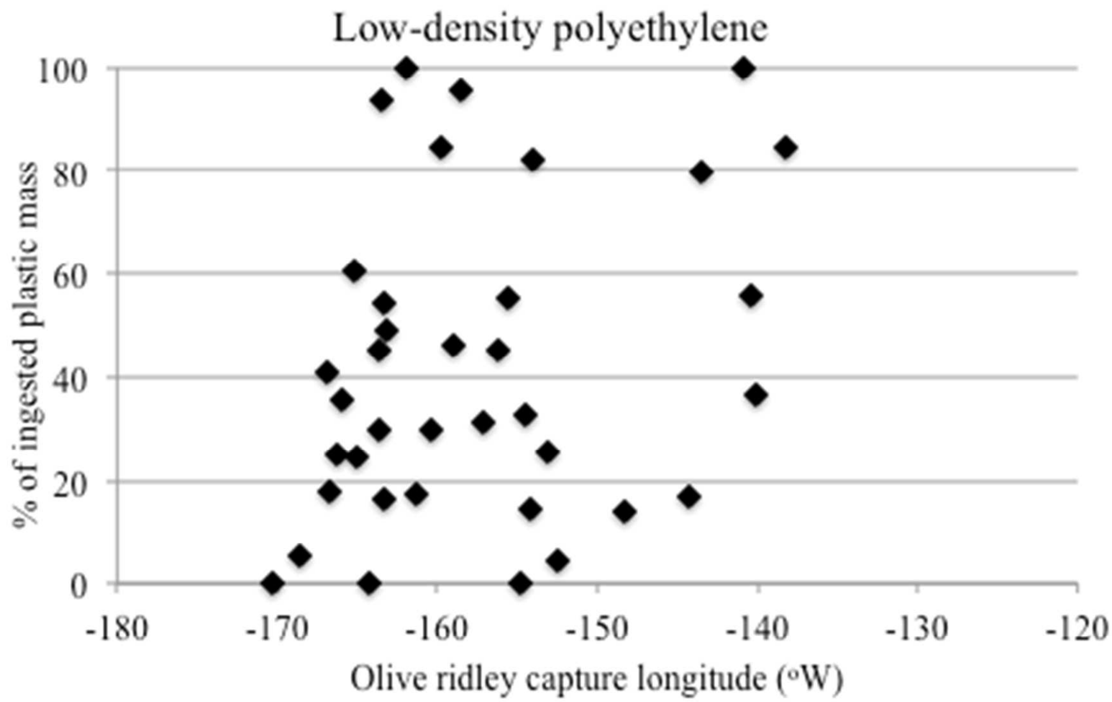
A.



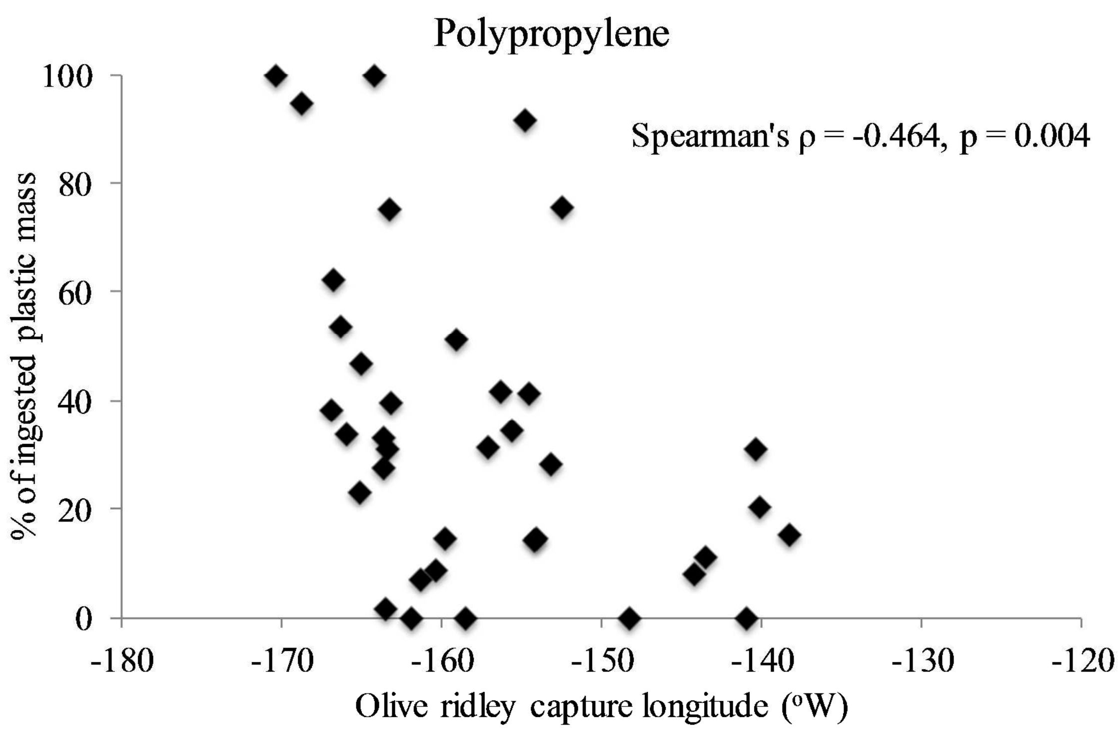
B.



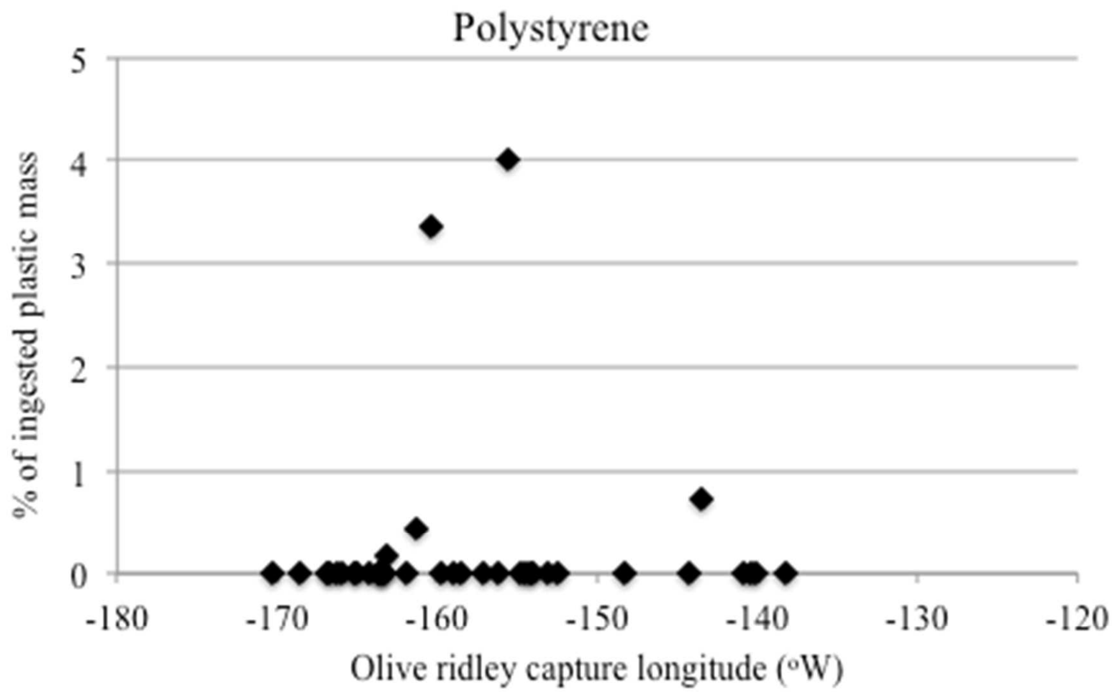
C.


Low-density polyethylene
100
80
60
40
20
0
% of ingested plastic mass
-180
-170
-160
-150
-140
-130
-120
Olive ridley capture longitude (°W)

D.

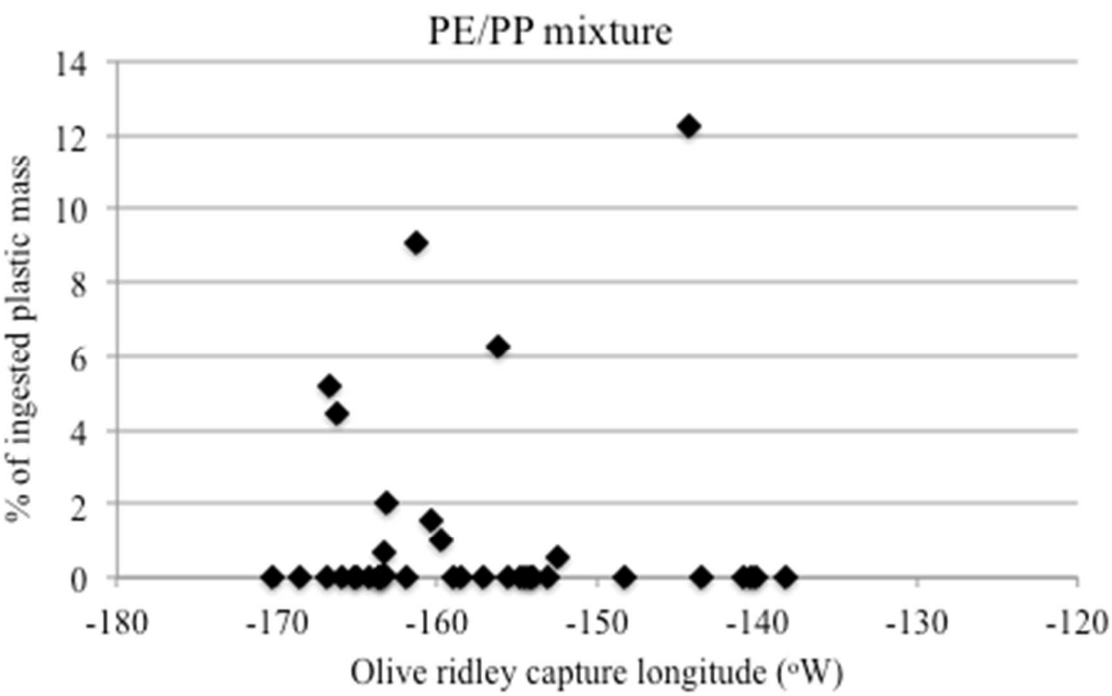

Polypropylene
Spearman's ρ = -0.464, p = 0.004
100
80
60
40
20
0
% of ingested plastic mass
-180
-170
-160
-150
-140
-130
-120
Olive ridley capture longitude (°W)

E.



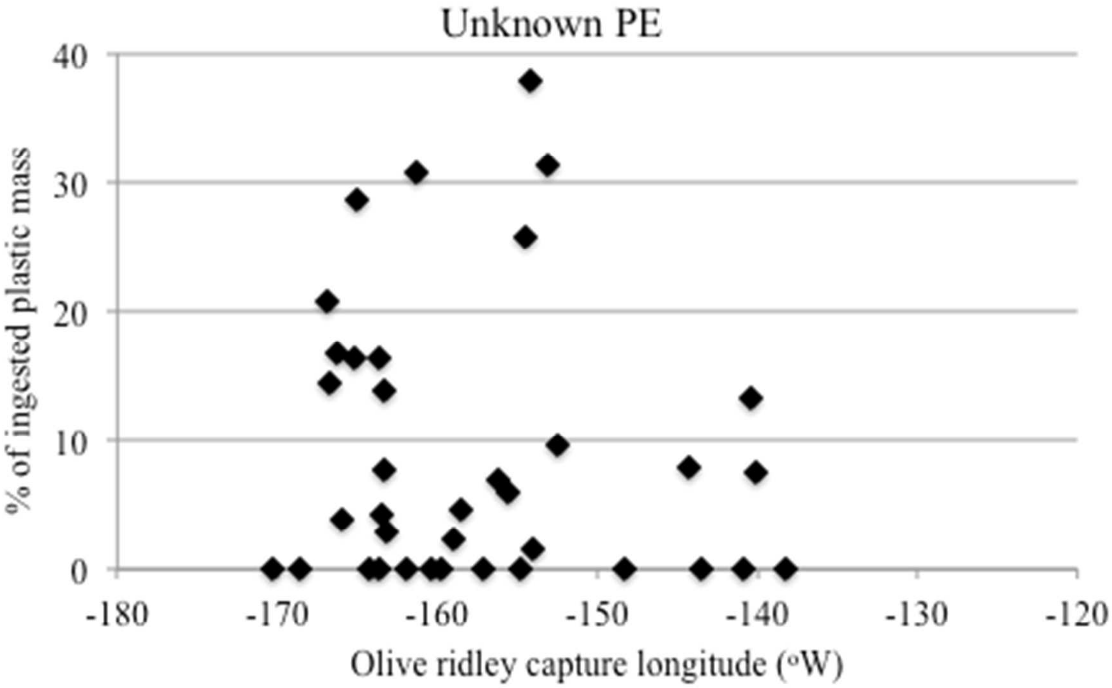
Polystyrene
5
4
3
2
1
0
% of ingested plastic mass
-180
-170
-160
-150
-140
-130
-120
Olive ridley capture longitude (°W)

F.

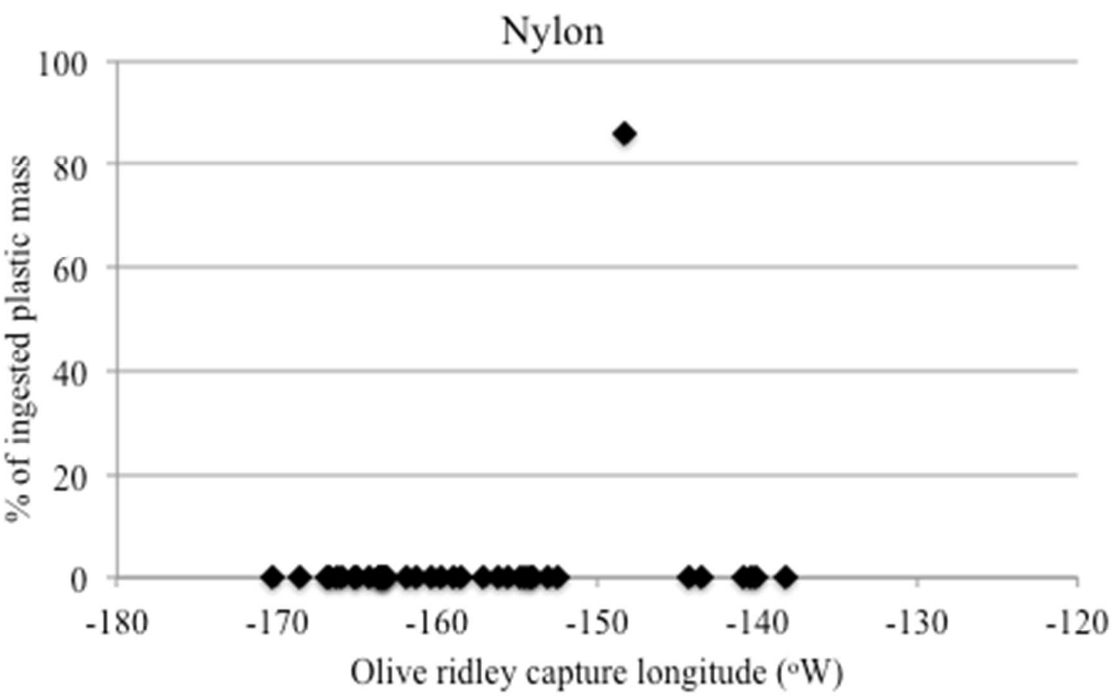


PE/PP mixture
14
12
10
8
6
4
2
0
% of ingested plastic mass
-180
-170
-160
-150
-140
-130
-120
Olive ridley capture longitude (°W)

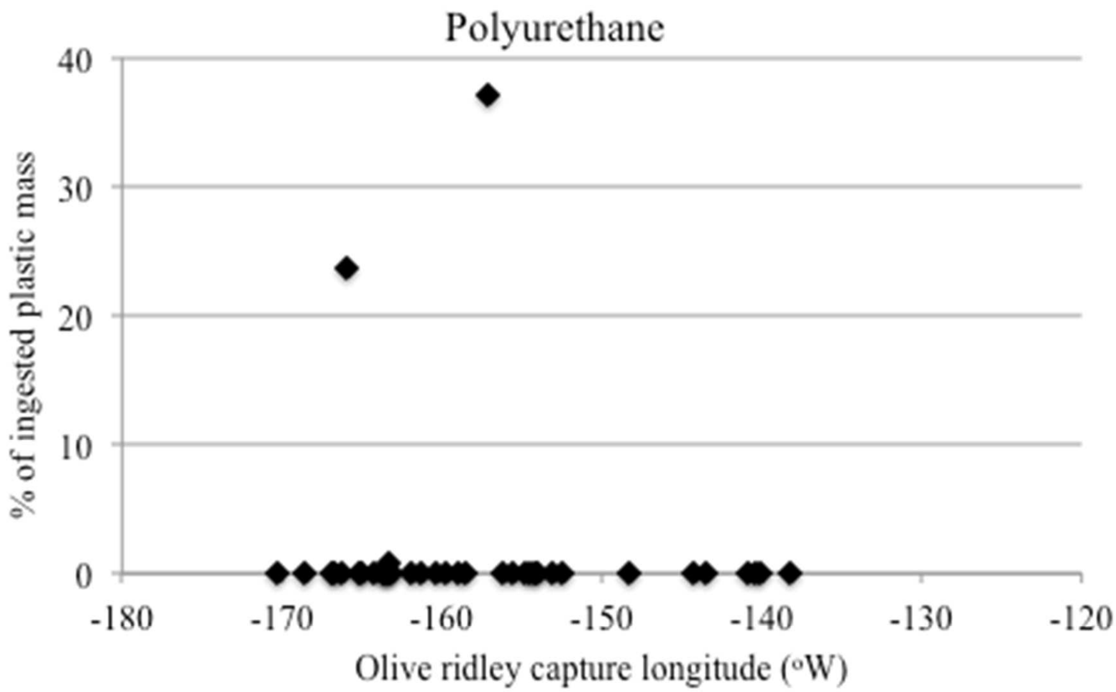
G.


Unknown PE
% of ingested plastic mass
0
10
20
30
40
-180
-170
-160
-150
-140
-130
-120
Olive ridley capture longitude (°W)

H.


Nylon
% of ingested plastic mass
0
20
40
60
80
100
-180
-170
-160
-150
-140
-130
-120
Olive ridley capture longitude (°W)

I.



J.

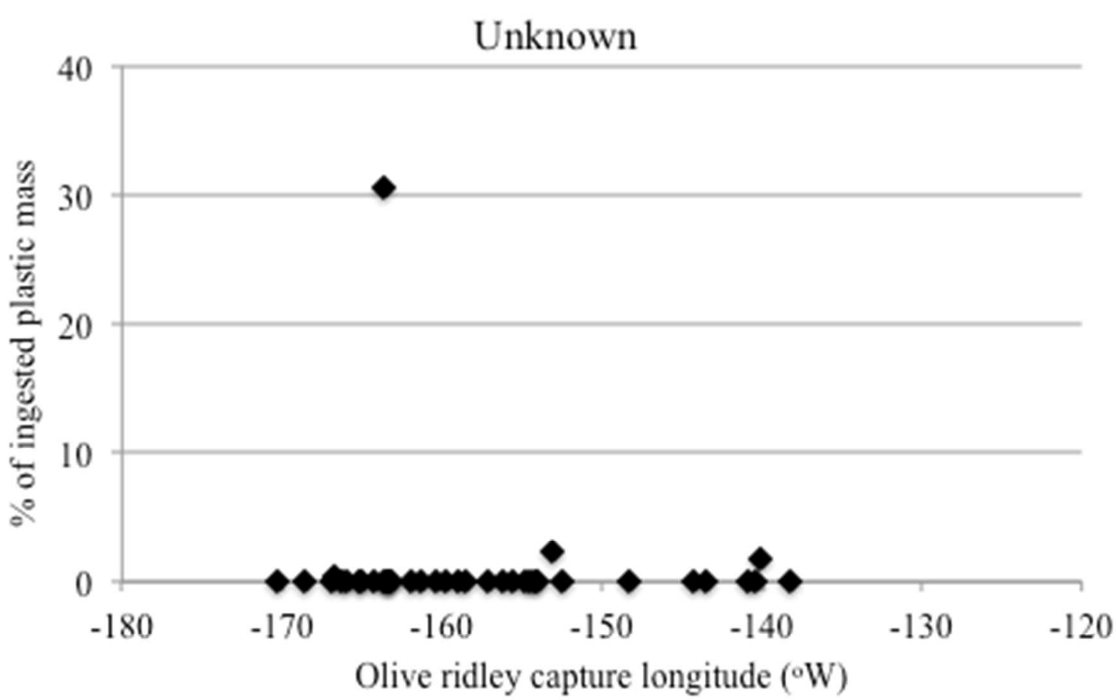
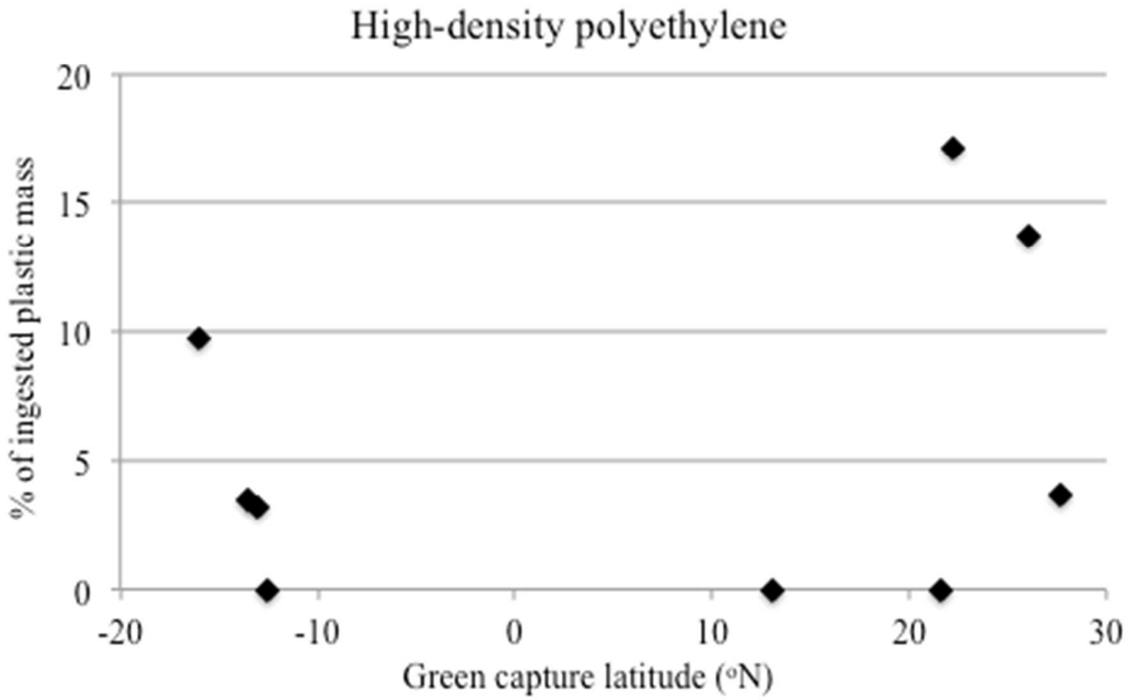
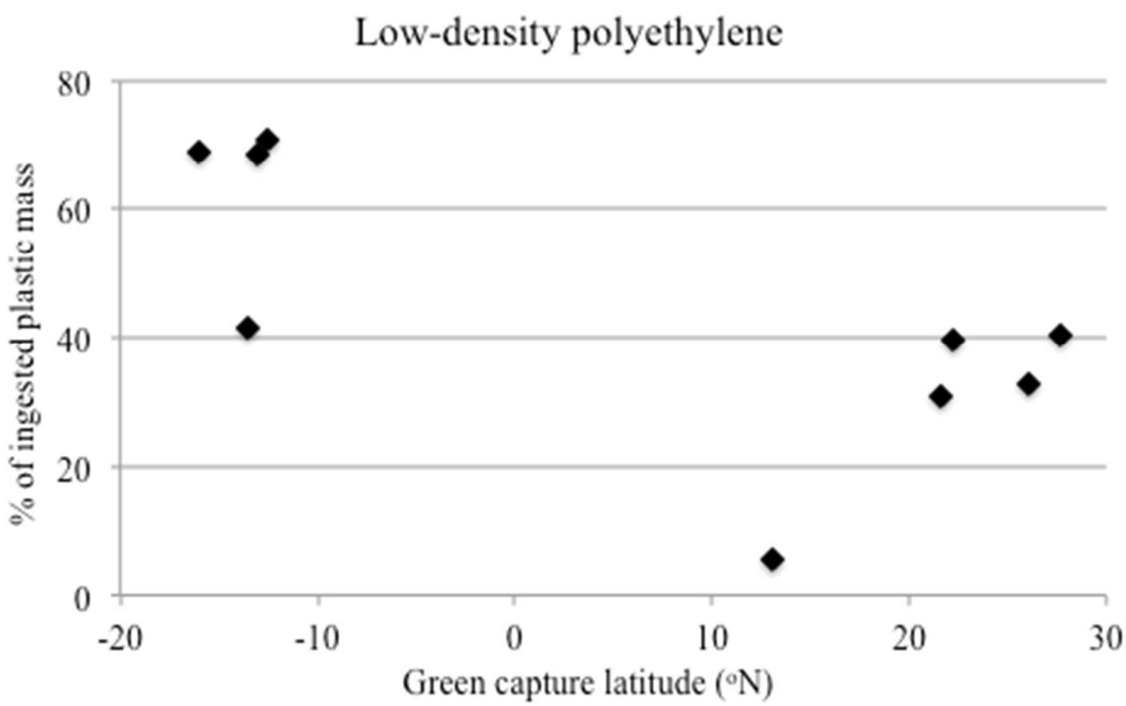


Figure S11. Percent of ingested plastic mass of a) high-density polyethylene (HDPE), b) polyvinyl chloride (PVC), c) low-density polyethylene, d) polypropylene (PP), e) polystyrene (PS), f) PE/PP mixture, g) unknown polyethylene (PE), h) nylon, i) polyurethane (PU), and j) unknown in olive ridley (n = 37) sea turtles with varying capture longitudes (°W).

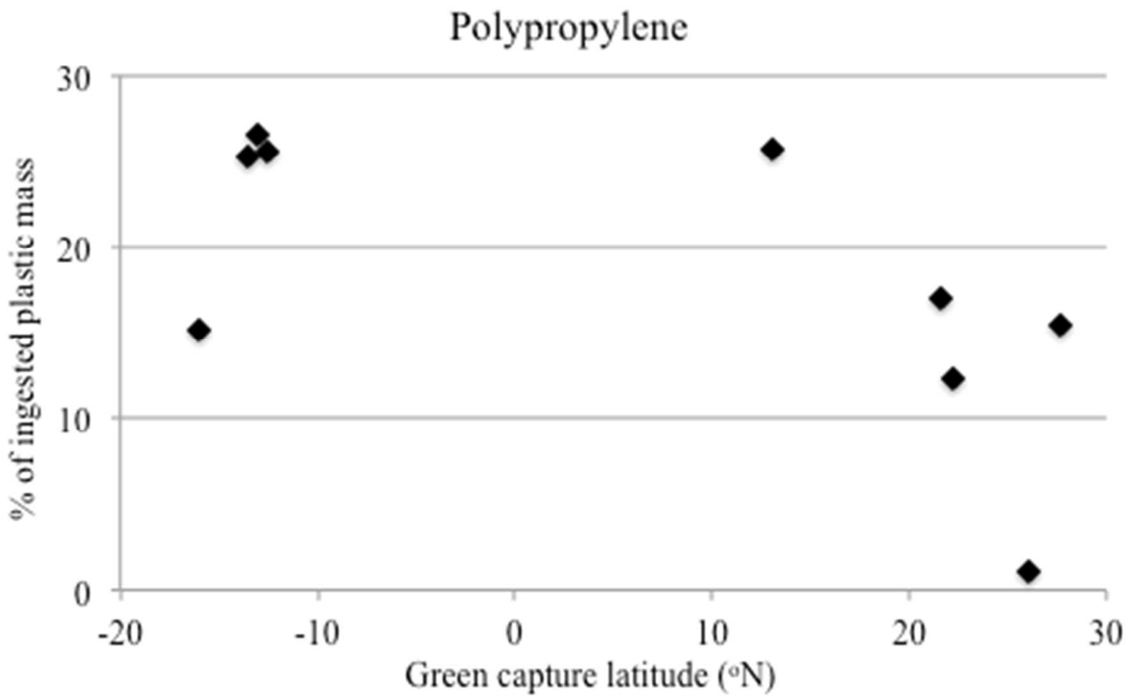
A.



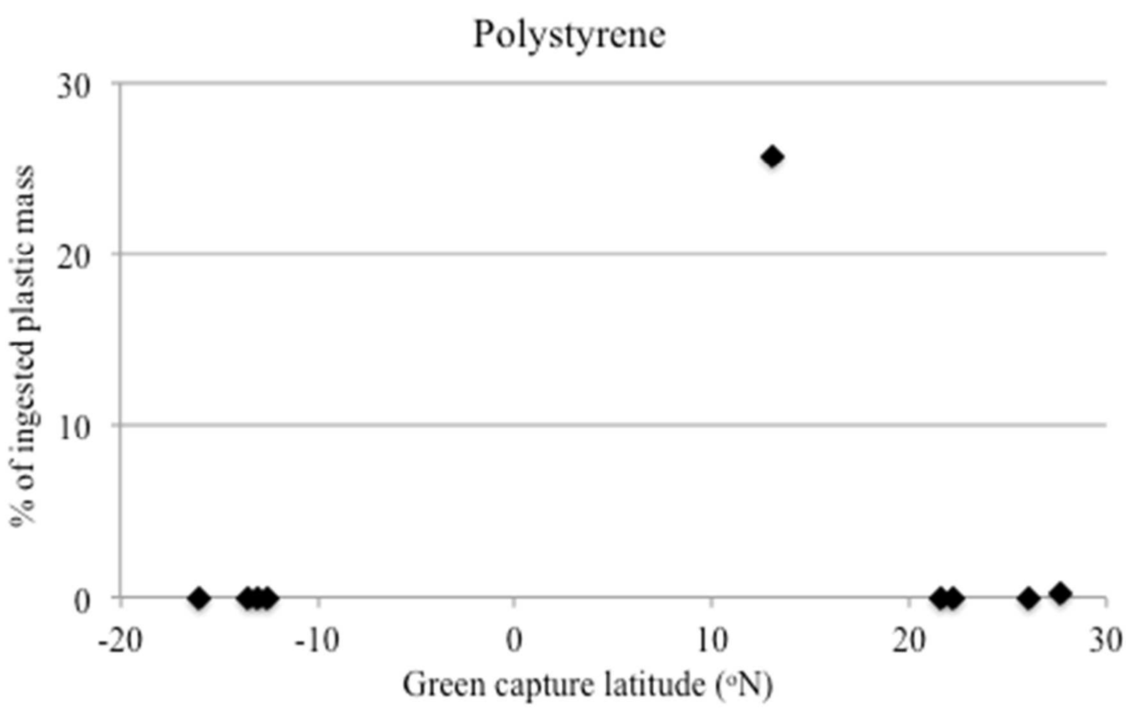
B.



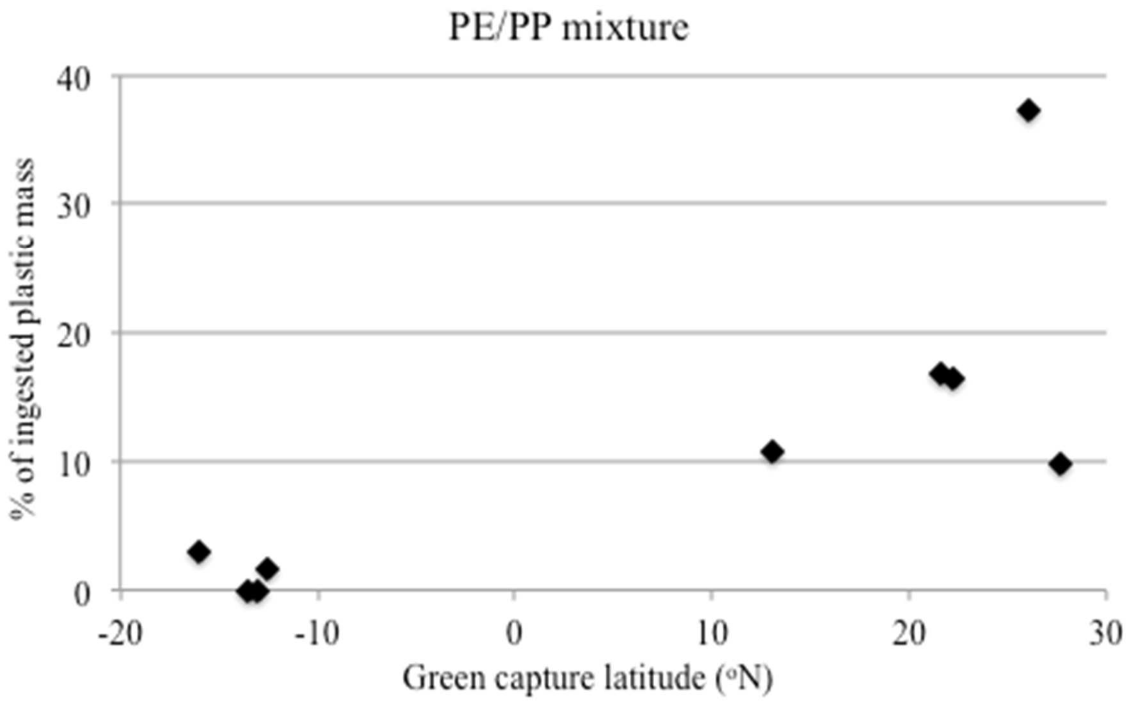
C.


Polypropylene
30
20
10
0
-20
-10
0
10
20
30
% of ingested plastic mass
Green capture latitude (°N)

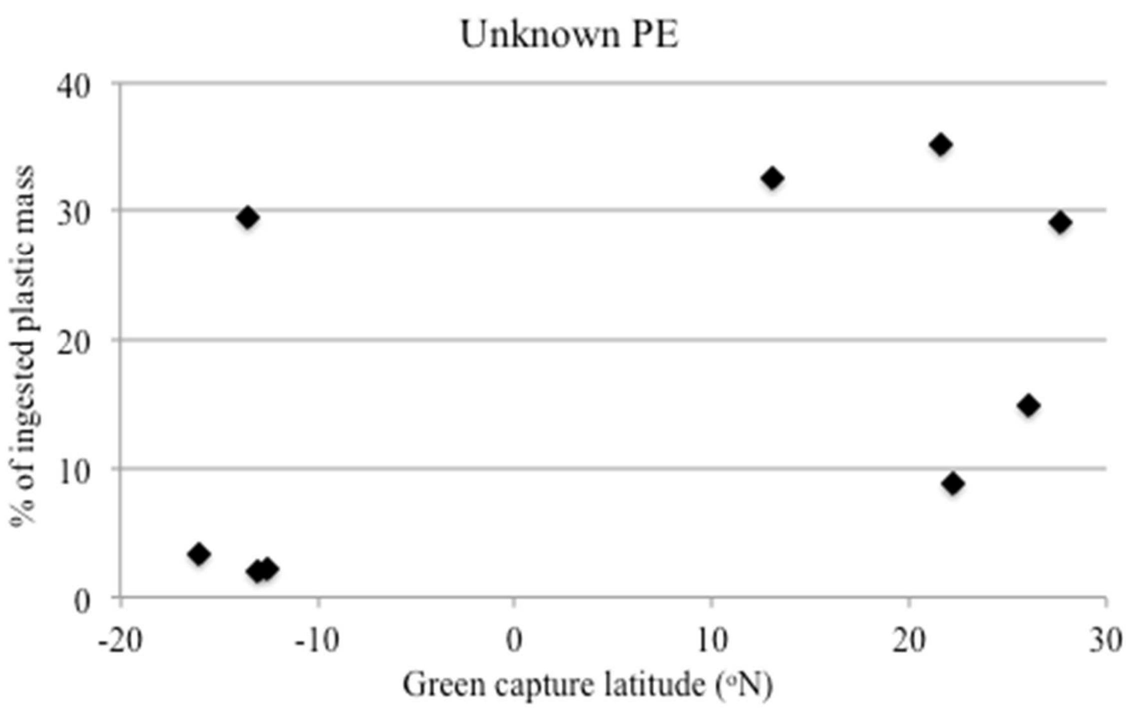
D.


Polystyrene
30
20
10
0
-20
-10
0
10
20
30
% of ingested plastic mass
Green capture latitude (°N)

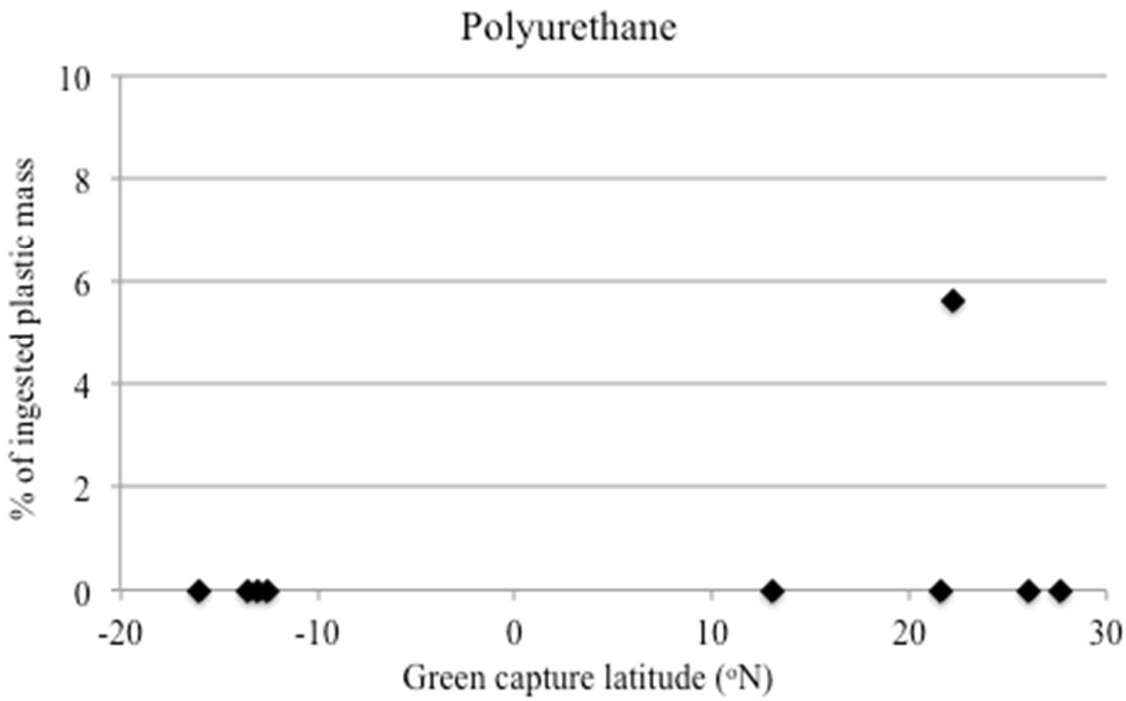
E.


PE/PP mixture
% of ingested plastic mass
40
30
20
10
0
-20
-10
0
10
20
30
Green capture latitude (°N)

F.


Unknown PE
% of ingested plastic mass
40
30
20
10
0
-20
-10
0
10
20
30
Green capture latitude (°N)

G.



H.

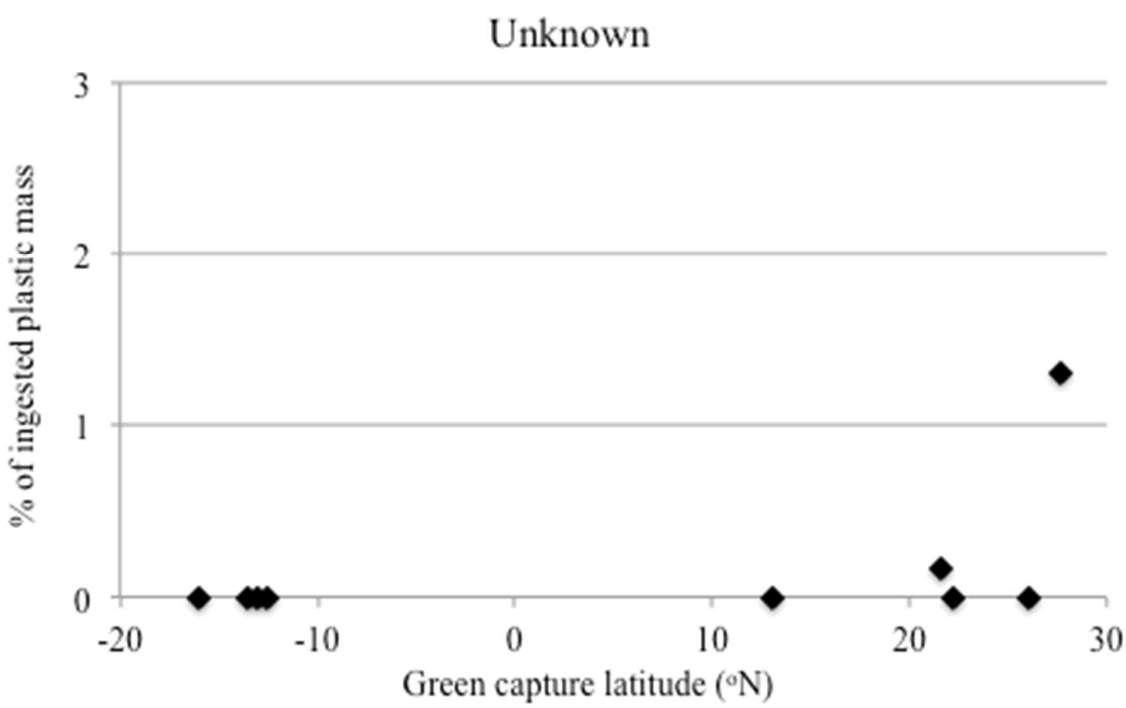
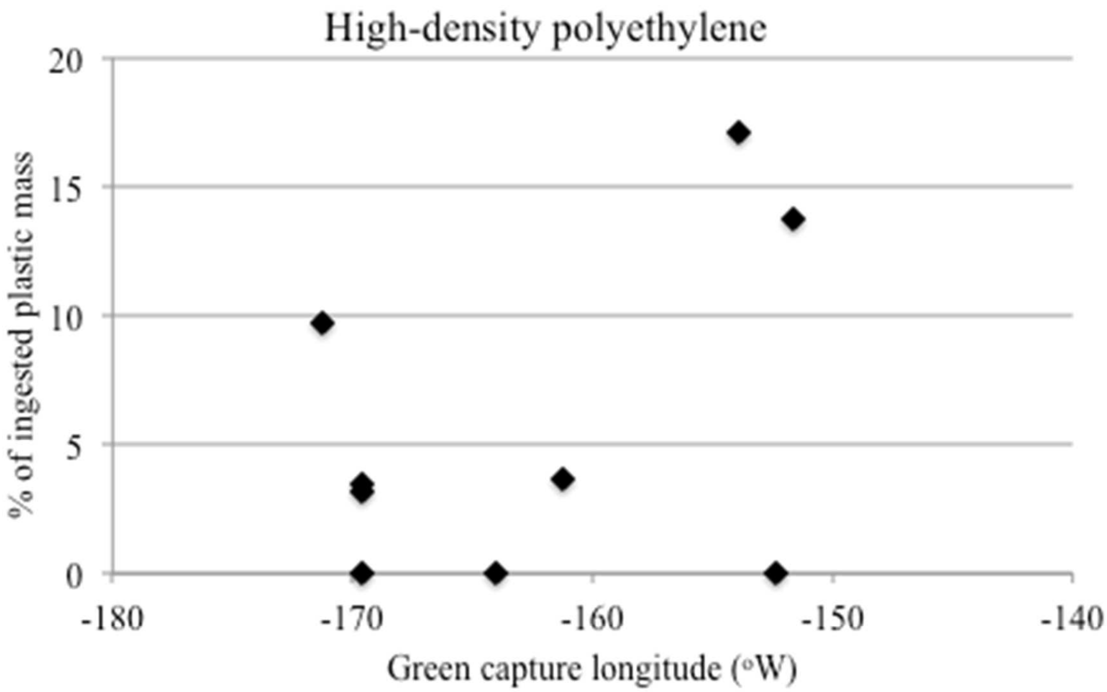
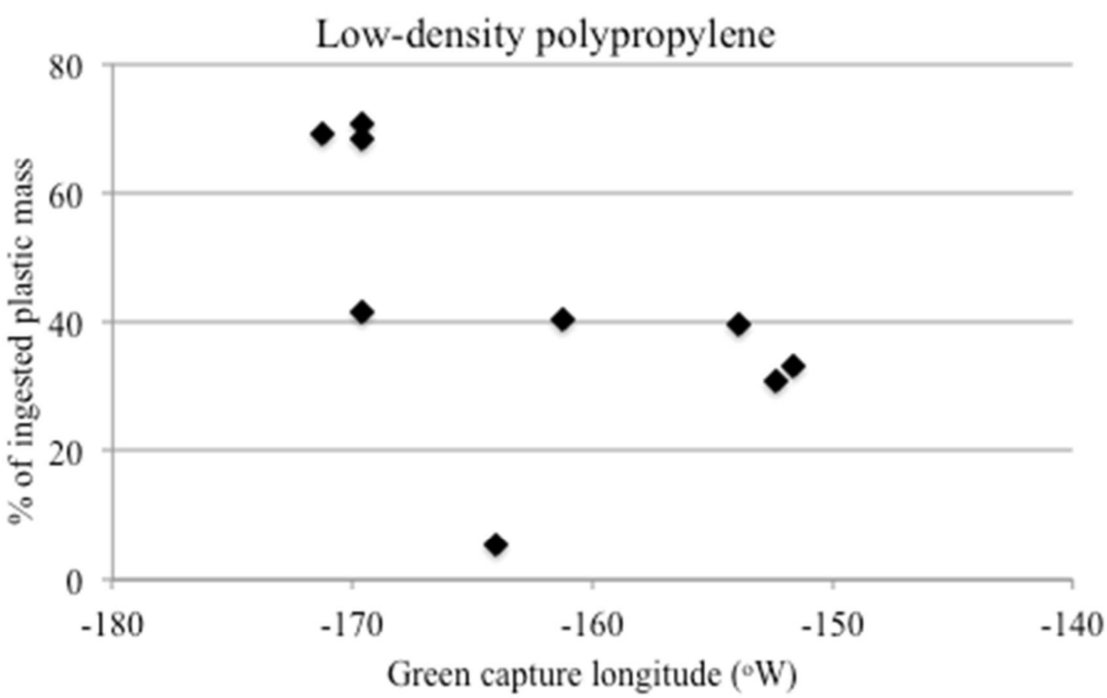


Figure S12. Percent of ingested plastic mass of a) high-density polyethylene (HDPE), b) low-density polyethylene, c) polypropylene (PP), d) polystyrene (PS), e) PE/PP mixture, f) unknown polyethylene (PE), g) polyurethane (PU), and h) unknown in green (n = 9) sea turtles with varying capture latitudes (°N).

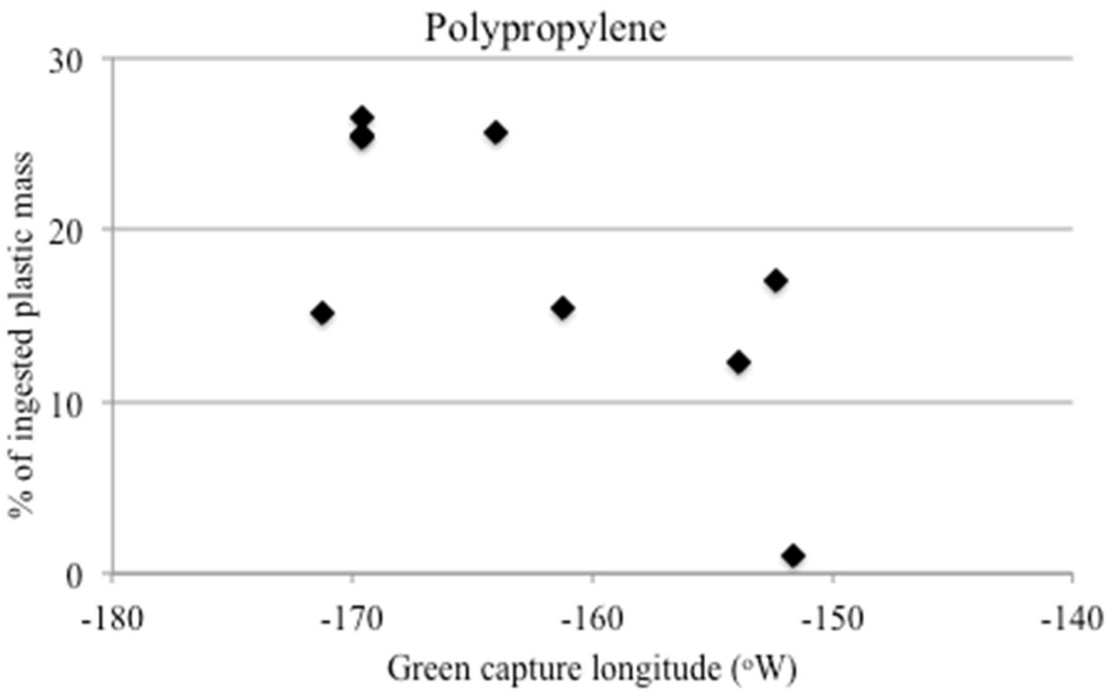
A.


High-density polyethylene
20
15
10
5
0
-180
-170
-160
-150
-140
% of ingested plastic mass
Green capture longitude (°W)

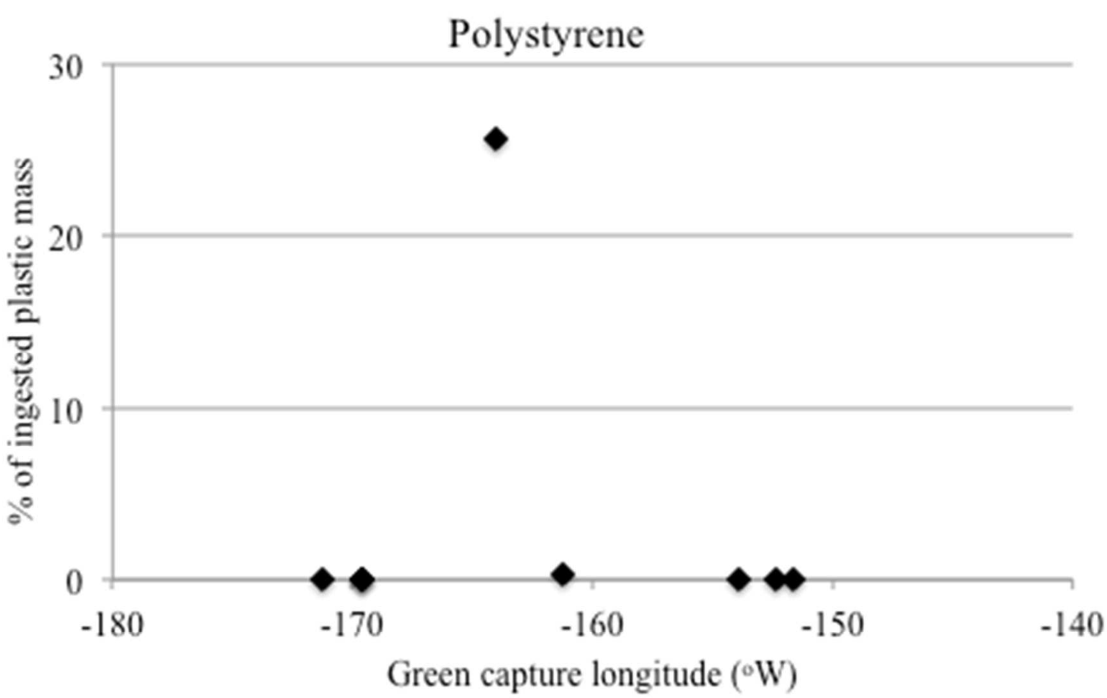
B.


Low-density polypropylene
80
60
40
20
0
-180
-170
-160
-150
-140
% of ingested plastic mass
Green capture longitude (°W)

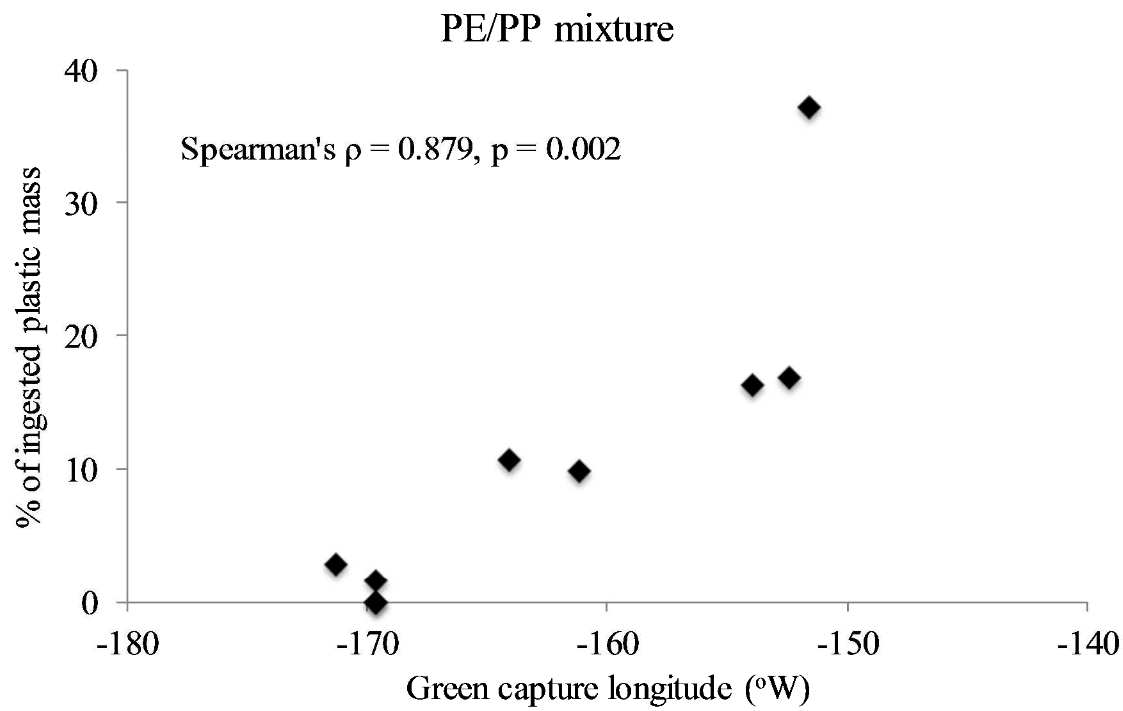
C.


Polypropylene
30
20
10
0
% of ingested plastic mass
-180
-170
-160
-150
-140
Green capture longitude (°W)

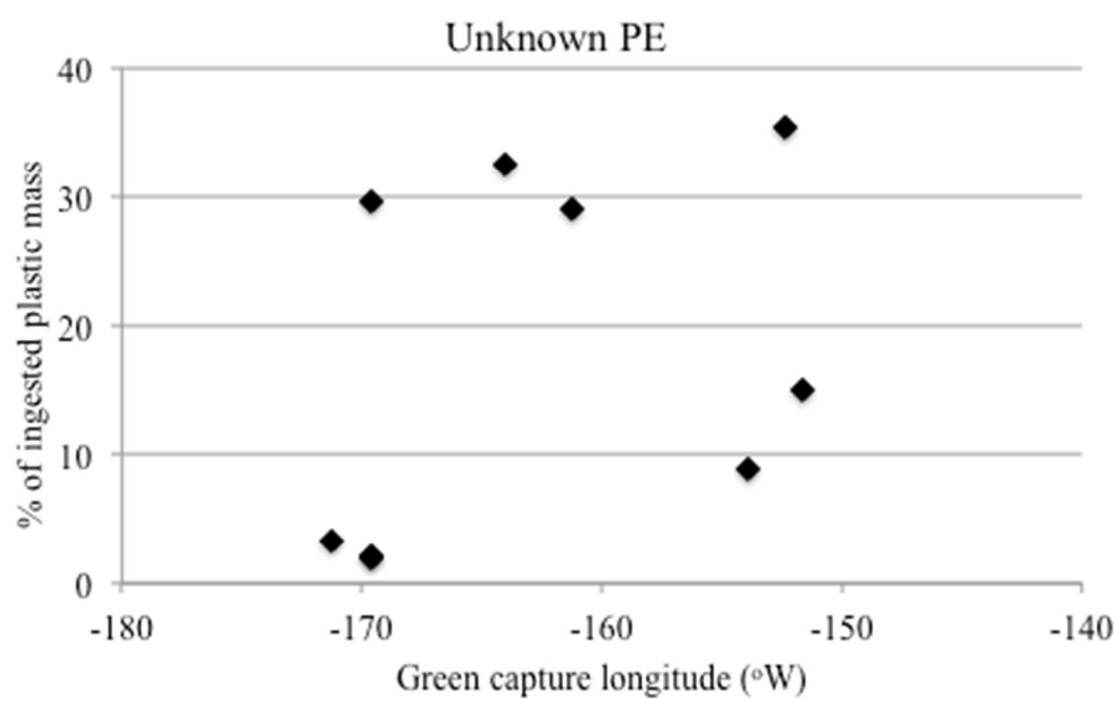
D.


Polystyrene
30
20
10
0
% of ingested plastic mass
-180
-170
-160
-150
-140
Green capture longitude (°W)

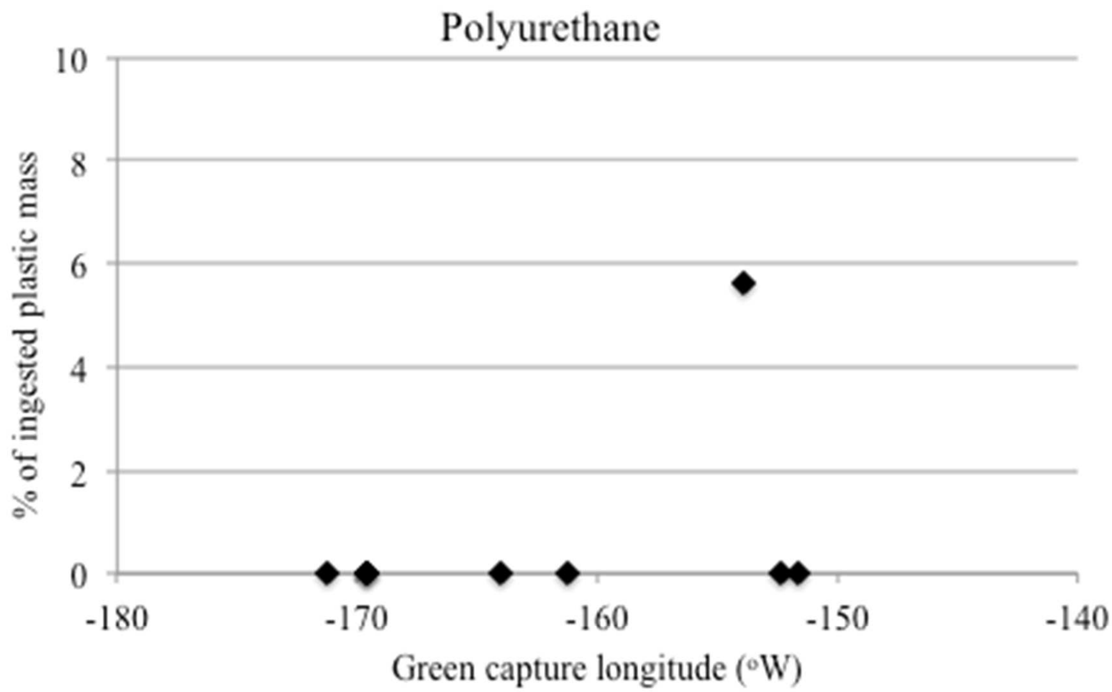
E.


PE/PP mixture
Spearman's ρ = 0.879, p = 0.002
% of ingested plastic mass
40
30
20
10
0
-180
-170
-160
-150
-140
Green capture longitude (°W)

F.


Unknown PE
% of ingested plastic mass
40
30
20
10
0
-180
-170
-160
-150
-140
Green capture longitude (°W)

G.



H.

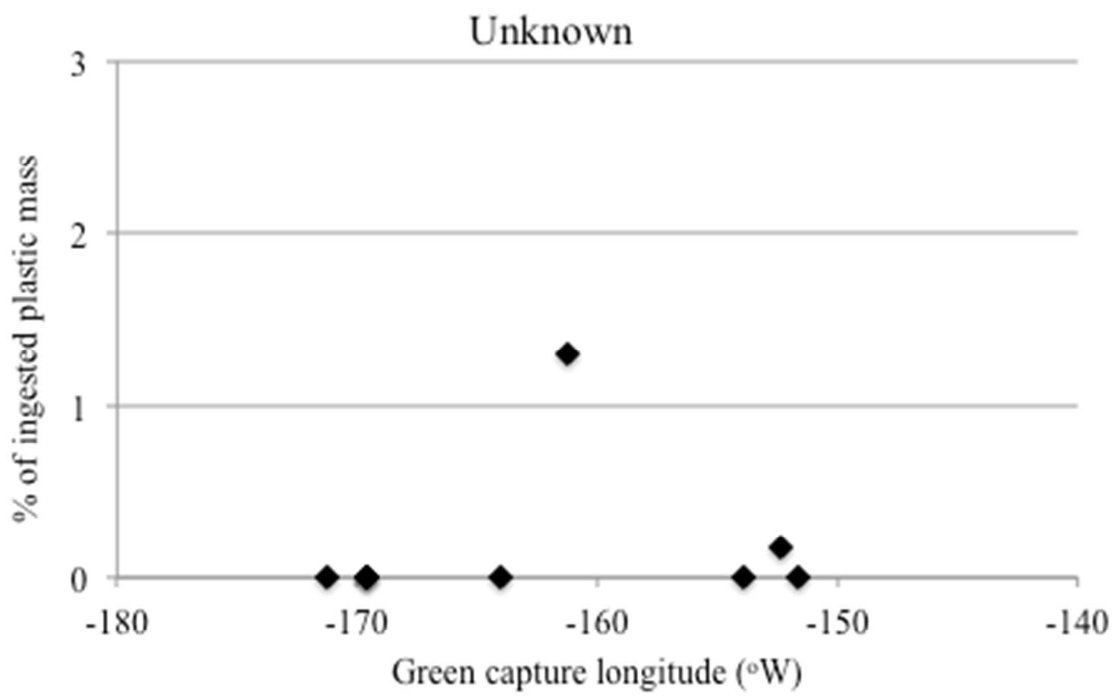


Figure S13. Percent of ingested plastic mass of a) high-density polyethylene (HDPE), b) low-density polyethylene, c) polypropylene (PP), d) polystyrene (PS), e) PE/PP mixture, f) unknown polyethylene (PE), g) polyurethane (PU), and h) unknown in green (n = 9) sea turtles with varying capture longitudes (^{o}W).

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2. Ito, R. Y.; Dollar, R. A.; Kawamoto, K. E., The Hawaii-based Longline Fishery for Swordfish, *Xiphias gladius*. In *Biology of Fisheries of Swordfish, Xiphias gladius*, Barrett, I.; Sosa-Nishizaki, O.; Bartoo, N., Eds. U.S. Department of Commerce: Seattle, Washington, 1998; pp 77-88.
3. Boggs, C. H.; Ito, R., Hawaii's pelagic fisheries. *Marine Fisheries Review* **1993,** *55*, (2), 69-82.
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