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Visual acuity in pelagic fishes and mollusks (vol 92, pg 1, 2013)

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Corrigendum

Corrigendum to “Visual acuity in pelagic fishes and mollusks” [Vis. Res. 92 (2013) 1–9]



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The authors regret that the calculation of the angular full width at half maximum (\angle FWHM) of the point spread function of animal lenses was miscalculated by a factor of two. This implies that the angular resolutions of the animals’ lenses are twice as high as previously thought (i.e., the minimum resolvable angle is half of what is reported). Simply put, the animals’ vision is twice more acute than reported. The changes necessary are:

1. Table 1: All the \angle FWHM values in Table 1 (second column from the right, titled \angle FWHM($^\circ$)) should be exactly half of their published value (see Table 1).
2. Results: All values of \angle FWHM as well as the slope of the \angle FWHM regression in the text should be halved.
3. Fig. 5a: The slope is equal to half of its current value (i.e., $a = 0.14 \cdot 10^{-3}$), the dots as well as the fitted line and its confidence intervals are also different (see Fig. 1).
4. Fig. 5c: The line and its confidence intervals are different (see Fig. 1).
5. Discussion: “These three fish species have narrow \angle FWHM angles (0.2°)” should read: “These three fish species have narrow \angle FWHM angles (0.1°).”
6. Discussion: “...contrast at their retina cutoff frequency than 60%, the general trend...” should read: “...contrast at their retina cutoff frequency than 90%, the general trend...”

Above is the corrected version of Fig. 5.

The authors would like to apologise for any inconvenience caused.

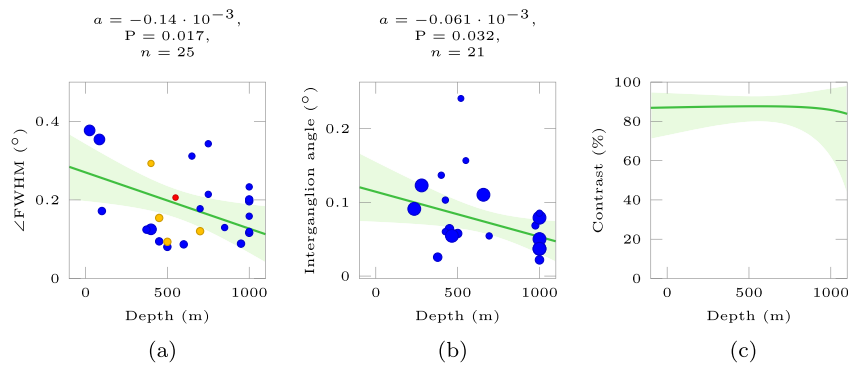


Fig. 1. Corrected figure.

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Table 1

Species	n_{animal}	n_{lens}	R \pm sd (mm)	f \pm sd (mm)	f/# \pm sd	FWHM (μm)	\angle FWHM($^{\circ}$)	Depth (m)
Actinopterygii								
<i>Anoplogaster cornuta</i>	1	2	1.3 \pm 0.01	3.4 \pm 0.61	1.3 \pm 0.22	6.1	0.12	750–2300 ^a
<i>Argyropelecus aculeatus</i>	4	6	1.7 \pm 0.32	3.8 \pm 0.82	1.2 \pm 0.049	6.1	0.13	350–450 ^b
<i>Astronesthes lucifer</i>	1	2	1.4 \pm 0.0088	2.8 \pm 0.062	1 \pm 0.016	6.1	0.12	185–560 ^c
<i>Avocettina infans</i>	2	3	0.92 \pm 0.025	1.5 \pm 0.59	0.82 \pm 0.3	4.3	0.12	600–2000 ^d
<i>Benthosema suborbitale</i>	9	14	1.5 \pm 0.13	3.2 \pm 0.31	1 \pm 0.1	4.3	0.08	400–600 ^e
<i>Caranx bartholomaei</i>	1	1	1.4	2.3	0.81	15	0.38	0–50 ^d
<i>Chauliodus sloani</i>	1	2	1.4 \pm 0.0089	2.9 \pm 0.26	1 \pm 0.086	11	0.23	500–2800 ^f
<i>Cheilopogon</i> sp.	1	1	9.4	-	-	19	-	1–5 ^d
<i>Coccorella atlantica</i>	1	1	1.4	2.1	0.78	13	0.34	500–1000 ^d
<i>Diaphus splendidus</i>	1	1	1.5	-	-	12	-	300–600 ^e
<i>Diplospinus multistriatus</i>	1	2	1.1 \pm 0.0022	2 \pm 0.02	0.94 \pm 0.0076	7.4	0.21	500–1000 ^d
<i>Gonostoma elongatum</i>	3	5	1 \pm 0.23	2 \pm 0.15	1.1 \pm 0.21	4.3	0.13	500–1200 ^g
<i>Idiacanthus antrostomus</i>	1	2	0.97 \pm 0.024	1.9 \pm 0.097	0.96 \pm 0.026	5	0.16	500–2000 ^h
<i>Lepidophanes guentheri</i>	6	6	1.5 \pm 0.55	3.7 \pm 1.1	1 \pm 0.042	14	0.31	400–900 ^e
<i>Malacosteus niger</i>	3	5	1.6 \pm 0.41	3.3 \pm 0.86	1.1 \pm 0.14	7	0.18	500–900 ⁱ
<i>Melanolagus bericoides</i>	2	4	2.6 \pm 0.1	5.5	1	19	0.2	750–1700 ^a
<i>Opisthoproctus soleatus</i>	2	2	2.7 \pm 0.29	6.7 \pm 0.62	1.2 \pm 0.015	11	0.087	500–700 ^d
<i>Regalecus glesne</i>	1	2	0.64 \pm 0.0047	2.1 \pm 0.04	1.6 \pm 0.02	6.1	0.17	0–200 ^d
<i>Saccopharynx</i> sp.	1	2	0.47 \pm 0.0077	-	-	74	-	1000–3000 ^j
<i>Scopeloberyx robustus</i>	1	1	1.3	2.4	0.92	8.6	0.2	750–2300 ^a
<i>Scopelosaurus hoedti</i>	1	2	1.6 \pm 0.0062	3.4 \pm 0.011	1 \pm 0.0072	5.6	0.094	300–600 ^d
<i>Selar crumenophthalmus</i>	1	2	1.4 \pm 0.013	2.5 \pm 0.71	0.89 \pm 0.25	12	0.35	0–170 ^d
<i>Sternoptyx diaphana</i>	12	20	1.2 \pm 0.18	2.7 \pm 0.45	1.1 \pm 0.12	4.3	0.089	700–1200 ^k
<i>Taaningichthys bathyphilus</i>	1	1	1.1	-	-	11	-	1000–1550 ^e
Cephalopoda								
<i>Chiroteuthis</i> sp.	1	2	1.6 \pm 0.095	-	-	130	-	700–800 ^l
<i>Galiteuthis pacifica</i>	1	3	1.1 \pm 0.085	2.2 \pm 0.16	0.99 \pm 0.065	4.3	0.12	600–800 ^l
<i>Illex</i> sp.	2	3	1.4 \pm 0.14	2.4 \pm 0.82	0.89 \pm 0.27	11	0.29	200–600 ^m
<i>Pterygioteuthis microlampus</i>	2	4	1 \pm 0.26	1.7 \pm 0.35	0.84 \pm 0.2	3.5	0.15	300–600 ^l
<i>Sthenoteuthis oualaniensis</i>	1	2	4.3 \pm 0.062	10 \pm 0.4	1.2 \pm 0.063	17	0.093	400–600 ⁿ
Gastropoda								
<i>Pterotrachea coronata</i>	8	10	0.61 \pm 0.043	0.87 \pm 0.38	0.72 \pm 0.32	3.5	0.21	100–1000 ^o

^a Sutton et al., 2008.^b Hopkins and Baird, 1985.^c Parin and Borodulina, 1995.^d www.shbase.org, 2012.^e Gartner et al., 1987.^f Sutton et al., 2008, 2010, Sutton and Hopkins, 1996.^g Sutton et al., 2010.^h Sutton, 2003.ⁱ Sutton, 2005.^j Bertelsen and Nielsen, 1986.^k Hopkins and Baird, 1985, Sutton et al., 2010.^l Young, 1978.^m Roper et al., 1998.ⁿ Young and Hirota, 1998, Dunning, 1998.^o Pafort-van Iersel, 1983.