

Table S1. Spiny dorsal fin-ray kinematic parameters by fish

Parameter	Spine	ΔTime (ms from $t\theta'$ event)			Mean Angle (deg)			Max Angle (deg)		
		Fish A	Fish B	Fish C	Fish A	Fish B	Fish C	Fish A	Fish B	Fish C
max1	SP1	-12.9 ± 8.3	-9.6 ± 4.8	-4.5 ± 4.3	3.3 ± 2.2	3.2 ± 1.7	8.7 ± 1.8	5.6	4.2	10.8
	SP4	-18.4 ± 0.4	-14.9 ± 2.4	-13.4 ± 2.9	1.0 ± 0.5	1.7 ± 0.2	2.2 ± 1.0	1.6	2.0	2.9
	SP7	-10.8 ± 0.3	-9.2 ± 4.5	-9.7 ± 0.9	5.8 ± 0.7	4.4 ± 1.1	8.0 ± 1.1	6.6	5.6	9.1
	SP10	-1.6 ± 3.2	-1.7 ± 1.6	-4.1 ± 1.4	18.9 ± 1.3	20.0 ± 3.0	22.1 ± 4.7	19.9	22.9	27.6
Sweep Events	SP1	-27.7 ± 7.6	-17.1 ± 1.2	-8.0 ± 7.5	--	--	--	--	--	--
	SP4	-30.3 ± 1.9	-24.0 ± 4.8	-23.2 ± 1.7	--	--	--	--	--	--
	SP7	-17.9 ± 1.5	-15.0 ± 3.1	-16.1 ± 2.1	--	--	--	--	--	--
	SP10	-3.5 ± 0.7	-0.5 ± 2.5	-3.6 ± 7.4	--	--	--	--	--	--
max2	SP1	-33.1 ± 7.4	-20.0 ± 6.0	-14.2 ± 11.4	-6.1 ± 1.2	-2.8 ± 2.8	-7.0 ± 3.5	-7.5	-6.0	-11.0
	SP4	-29.2 ± 4.9	-18.6 ± 0.7	-22.3 ± 2.3	-7.9 ± 1.5	-7.2 ± 3.2	-6.0 ± 1.8	-9.5	-10.7	-7.6
	SP7	-11.7 ± 8.6	-11.0 ± 14.1	-20.1 ± 11.3	-10.1 ± 0.6	-6.0 ± 3.6	-6.2 ± 2.5	-10.8	-10.0	-8.7
	SP10	-1.6 ± 7.9	0.6 ± 1.2	0.0 ± 0.4	-16.2 ± 4.2	-17.0 ± 1.2	-25.1 ± 10.3	-19.2	-17.8	-33.4
Span Axis Events	SP1	-4.2 ± 2.2	-4.0 ± 0.5	-2.5 ± 0.4	-16.5 ± 2.9	-18.1 ± 9.2	-20.6 ± 5.8	-19.5	-23.4	-26.0
	SP4	10.9 ± 4.6	0.0 ± 2.5	2.0 ± 2.6	-3.2 ± 1.2	-3.8 ± 1.1	-8.8 ± 3.1	-4.0	-5.0	-12.2
	SP7	1.4 ± 3.8	-2.1 ± 4.9	2.7 ± 2.5	15.9 ± 2.4	13.8 ± 0.2	13.5 ± 0.6	18.3	14.0	14.1
	SP10	0.5 ± 1.6	-1.3 ± 1.3	-2.2 ± 2.0	39.7 ± 1.1	36.2 ± 3.3	35.6 ± 1.2	40.5	38.3	36.7
Span Axis Events	SP1	-3.3 ± 1.3	3.7 ± 9.3	-0.5 ± 1.7	--	--	--	--	--	--
	SP4	13.0 ± 8.2	-6.8 ± 2.9	6.9 ± 3.7	--	--	--	--	--	--
	SP7	-0.6 ± 1.5	2.2 ± 0.7	-2.3 ± 1.8	--	--	--	--	--	--
	SP10	5.2 ± 1.6	2.9 ± 1.2	4.8 ± 2.5	--	--	--	--	--	--
max2	SP1	-6.3 ± 5.5	3.1 ± 5.1	-1.9 ± 2.5	12.8 ± 3.0	10.1 ± 10.9	15.2 ± 2.6	15.4	22.5	18.2
	SP4	2.7 ± 5.7	-6.2 ± 9.0	0.5 ± 8.7	1.8 ± 0.6	3.7 ± 0.9	8.6 ± 5.5	2.5	4.3	14.0
	SP7	-5.7 ± 9.1	-0.3 ± 1.5	-3.0 ± 1.3	-8.1 ± 0.4	-8.3 ± 1.2	-13.6 ± 3.3	-8.6	-9.1	-17.1
	SP10	-4.3 ± 1.7	2.2 ± 0.3	2.5 ± 2.3	-14.0 ± 4.5	-21.8 ± 4.5	-23.8 ± 4.9	-19.2	-24.6	-28.7

	SP1	-26.0 ± 2.6	-23.3 ± 1.2	-24.3 ± 1.5	96.1 ± 1.0	99.7 ± 0.9	108.5 ± 2.4	97.0	100.6	110.8
Max Elevation	SP4	-24.0 ± 2.6	-18.0 ± 4.0	-24.3 ± 0.6	75.9 ± 0.7	81.6 ± 1.7	84.0 ± 1.7	76.6	83.3	85.3
	SP7	-24.7 ± 1.5	-22.0 ± 3.5	-20.3 ± 0.6	59.1 ± 1.2	61.9 ± 1.6	64.5 ± 1.6	60.4	63.5	65.9
	SP10	-18.0 ± 4.6	-15.3 ± 1.2	-23.7 ± 10.0	55.4 ± 1.2	54.1 ± 1.3	57.1 ± 2.1	56.8	55.3	58.9
	<DSP1>	4.7 ± 10.7	-27.3 ± 4.6	-17.0 ± 13.9	--	--	--	--	--	--
Max Areas	<DSp4>	-24.0 ± 4.4	-17.3 ± 4.6	-24.3 ± 0.6	--	--	--	--	--	--
	<DSp7>	-25.3 ± 2.1	-10.0 ± 15.9	-23.0 ± 1.7	--	--	--	--	--	--
	<spD>	-25.3 ± 2.1	-20.7 ± 1.2	-23.0 ± 1.7	--	--	--	--	--	--

Δ Time is the difference in time of a given parameter (individual rows) from the corresponding kinematic event of the Ant-trunk ($t\theta'_{event}$). Mean Angle is the average for all sequences for each fish. Max Angle is the maximal angle of the parameter that was achieved by the fish, observed in any sequence. For Δ Time and Mean Angle, values are mean \pm 1 s.d. See text for details. n=3 sequences for each fish.

Table S2. Soft dorsal fin-ray kinematic parameters by fish

Parameter	Fin-Ray	ΔTime (ms from t0'event)			Mean Angle (deg)			Max Angle (deg)		
		Fish A	Fish B	Fish C	Fish A	Fish B	Fish C	Fish A	Fish B	Fish C
max1	DSp10	-9.5 ± 0.4	-5.9 ± 0.6	-7.3 ± 1.9	-0.6 ± 0.3	-1.5 ± 0.5	-0.9 ± 0.2	-1.0	-2.1	-1.2
	DRy2	-0.8 ± 1.3	-0.8 ± 1.8	-2.8 ± 1.9	-4.4 ± 1.0	-5.1 ± 2.0	-1.4 ± 1.0	-5.5	-7.0	-2.0
	DRy5	4.4 ± 1.3	2.4 ± 2.8	3.6 ± 0.9	-13.4 ± 2.2	-12.7 ± 3.7	-7.1 ± 1.0	-15.9	-16.9	-7.8
	DRy8	4.4 ± 1.3	4.1 ± 1.1	4.6 ± 0.2	-27.2 ± 3.6	-24.4 ± 4.3	-16.4 ± 0.8	-31.1	-29.0	-17.3
	DRy12	-0.5 ± 0.9	0.8 ± 1.4	0.9 ± 0.7	-25.7 ± 3.2	-28.2 ± 3.7	-30.6 ± 1.1	-29.0	-30.5	-31.4
Sweep Events	DSp10	-14.1 ± 0.8	-9.5 ± 2.1	-12.1 ± 0.4	--	--	--	--	--	--
	DRy2	-3.9 ± 1.7	-3.4 ± 0.7	-7.1 ± 3.3	--	--	--	--	--	--
	DRy5	1.6 ± 0.7	1.1 ± 0.7	0.2 ± 1.0	--	--	--	--	--	--
	DRy8	2.8 ± 0.6	2.7 ± 1.1	1.9 ± 0.6	--	--	--	--	--	--
	DRy12	0.4 ± 0.6	0.1 ± 1.4	-0.1 ± 0.9	--	--	--	--	--	--
max2	DSp10	-18.7 ± 0.2	-14.8 ± 2.0	-15.3 ± 1.9	6.4 ± 1.8	7.8 ± 0.7	12.1 ± 2.3	7.5	8.6	14.8
	DRy2	-8.2 ± 1.3	-7.8 ± 0.6	-7.4 ± 3.1	16.5 ± 1.6	18.1 ± 2.5	21.2 ± 3.2	17.4	20.7	24.9
	DRy5	-4.4 ± 1.0	-4.5 ± 0.6	-4.0 ± 2.8	36.0 ± 4.8	37.9 ± 4.1	40.7 ± 4.2	39.2	42.6	45.2
	DRy8	-2.2 ± 1.2	-2.8 ± 0.4	-1.0 ± 2.8	51.3 ± 5.0	50.4 ± 6.5	52.2 ± 2.5	54.6	57.6	54.9
	DRy12	-3.1 ± 1.6	-2.9 ± 3.2	0.7 ± 1.0	44.4 ± 2.6	48.0 ± 14.0	40.6 ± 1.1	47.3	62.5	41.9
Span Axis Events	DSp10	-1.8 ± 1.1	0.0 ± 2.2	-0.6 ± 1.2	-10.0 ± 0.7	-6.8 ± 5.4	-11.9 ± 4.0	-10.7	-12.4	-16.5
	DRy2	1.8 ± 0.1	0.4 ± 0.9	0.1 ± 1.5	-10.6 ± 0.5	-9.8 ± 3.8	-12.4 ± 1.9	-10.9	-12.7	-14.5
	DRy5	2.2 ± 0.4	4.7 ± 1.9	5.8 ± 1.1	-11.0 ± 0.2	-12.3 ± 2.2	-18.3 ± 2.6	-11.1	-14.8	-20.0
	DRy8	9.4 ± 1.6	7.0 ± 3.6	9.7 ± 0.7	-8.4 ± 1.1	-12.1 ± 8.3	-14.0 ± 4.5	-9.4	-21.6	-17.0
	DRy12	2.4 ± 1.3	3.9 ± 1.5	1.9 ± 4.9	16.5 ± 3.7	14.6 ± 3.7	6.3 ± 2.5	20.8	18.8	9.2
max1	DSp10	-3.0 ± 0.8	-2.8 ± 0.6	-3.3 ± 0.2	--	--	--	--	--	--
	DRy2	0.9 ± 0.4	-1.1 ± 0.5	-1.5 ± 0.2	--	--	--	--	--	--
	DRy5	2.5 ± 1.3	3.8 ± 0.8	4.9 ± 0.6	--	--	--	--	--	--
	DRy8	6.8 ± 2.2	6.0 ± 0.3	8.5 ± 2.9	--	--	--	--	--	--
	DRy12	1.7 ± 0.6	1.9 ± 0.5	1.1 ± 1.5	--	--	--	--	--	--
max2	DSp10	-7.0 ± 7.1	-6.7 ± 7.0	-0.4 ± 9.1	11.9 ± 3.7	14.7 ± 1.7	15.7 ± 1.0	15.7	16.7	16.5
	DRy2	2.7 ± 6.5	-4.0 ± 5.5	0.0 ± 8.1	17.8 ± 2.2	20.1 ± 0.7	15.3 ± 6.0	20.3	20.7	21.0
	DRy5	3.2 ± 4.1	-2.0 ± 2.3	1.2 ± 3.5	24.0 ± 2.5	18.0 ± 3.2	17.2 ± 0.7	26.8	20.9	18.0

	DRy8	1.0 ± 0.3	0.7 ± 0.8	2.9 ± 3.8	24.7 ± 4.5	23.4 ± 3.1	23.9 ± 6.6	28.1	26.9	27.8
	DRy12	-2.6 ± 3.2	-4.1 ± 0.5	-3.2 ± 3.6	-28.9 ± 4.8	-24.0 ± 2.8	-25.0 ± 4.9	-32.7	-27.2	-29.6
Max Elevation	DSp10	3.0 ± 8.9	4.3 ± 13.1	-6.0 ± 7.0	51.6 ± 1.1	53.2 ± 0.9	52.1 ± 1.5	52.9	54.1	53.8
	DRy2	-0.3 ± 12.6	3.7 ± 10.8	0.0 ± 8.7	42.7 ± 3.1	48.8 ± 0.4	45.6 ± 2.1	46.3	49.2	48.0
	DRy5	5.0 ± 14.7	11.0 ± 1.7	2.7 ± 8.1	37.6 ± 3.0	41.9 ± 2.1	37.4 ± 1.4	39.7	44.3	39.0
	DRy8	13.7 ± 0.6	11.7 ± 0.6	8.0 ± 9.8	33.2 ± 3.7	36.8 ± 2.4	32.4 ± 3.4	35.6	38.7	34.6
	DRy12	11.7 ± 23.0	-6.3 ± 5.5	-8.0 ± 2.6	-13.0 ± 1.9	-5.5 ± 1.0	-9.4 ± 1.7	-11.7	-4.4	-8.0
Max Areas	<DSp10>	17.0 ± 5.2	10.3 ± 14.4	6.0 ± 7.9	--	--	--	--	--	--
	<DRy2>	7.0 ± 1.0	6.3 ± 0.6	6.7 ± 2.5	--	--	--	--	--	--
	<DRy5>	6.3 ± 7.4	7.0 ± 4.6	8.0 ± 4.6	--	--	--	--	--	--
	<DRy8>	11.7 ± 24.7	17.7 ± 7.8	-6.7 ± 9.1	--	--	--	--	--	--
	<sfD>	7.7 ± 6.7	3.0 ± 5.6	8.7 ± 5.9	--	--	--	--	--	--

See Table S1 for the description of Δ Time, Mean Angle and Max Angle. See text for the description of the parameters. n = 3 sequences per fish.

Table S3. Anal fin-ray kinematic parameters by fish

Parameter	Fin-Ray	ΔTime (ms from tθ'event)			Mean Angle (deg)			Max Angle (deg)		
		Fish A	Fish B	Fish C	Fish A	Fish B	Fish C	Fish A	Fish B	Fish C
Sweep Events	ASp3	-10.2 ± 1.7	-9.2 ± 0.3	-8.5 ± 0.7	-1.0 ± 0.3	-1.3 ± 0.3	-0.8 ± 0.3	-1.2	-1.4	-1.0
	ARy2	-0.3 ± 0.8	-1.3 ± 0.9	0.0 ± 0.8	-5.3 ± 1.2	-3.0 ± 0.3	-4.0 ± 1.7	-6.7	-3.2	-5.9
	ARy5	2.9 ± 0.3	1.7 ± 0.2	2.9 ± 0.7	-12.3 ± 0.7	-7.0 ± 1.3	-10.0 ± 0.9	-13.1	-8.5	-10.8
	ARy8	2.6 ± 0.5	2.3 ± 0.1	3.4 ± 0.9	-24.9 ± 1.6	-16.0 ± 5.5	-21.7 ± 2.1	-26.7	-19.7	-23.1
	ARy12	-1.3 ± 1.1	1.0 ± 0.8	0.7 ± 1.1	-17.5 ± 5.4	-20.1 ± 4.2	-22.0 ± 9.9	-23.3	-24.5	-33.3
Span Axis Events	ASp3	-14.5 ± 0.7	-13.0 ± 1.7	-15.2 ± 1.7	--	--	--	--	--	--
	ARy2	-3.8 ± 0.8	-4.9 ± 1.6	-4.0 ± 0.2	--	--	--	--	--	--
	ARy5	0.4 ± 0.5	-1.4 ± 1.1	-0.1 ± 1.0	--	--	--	--	--	--
	ARy8	0.9 ± 0.6	0.4 ± 1.3	1.1 ± 1.2	--	--	--	--	--	--
	ARy12	-2.0 ± 1.1	-1.0 ± 1.9	-0.4 ± 1.4	--	--	--	--	--	--
max1	ASp3	-16.0 ± 1.2	-15.3 ± 2.5	-15.5 ± 1.8	8.2 ± 0.8	6.4 ± 1.2	5.3 ± 1.7	8.7	7.1	6.9
	ARy2	-1.6 ± 2.7	-4.6 ± 3.6	-4.6 ± 4.4	24.7 ± 7.0	25.9 ± 2.9	23.2 ± 1.0	29.1	28.4	24.0
	ARy5	-3.5 ± 0.7	-3.5 ± 1.8	-3.7 ± 3.5	45.5 ± 9.7	40.9 ± 7.1	34.6 ± 4.0	52.1	45.2	38.5
	ARy8	-2.2 ± 0.9	-1.9 ± 1.3	-2.6 ± 2.9	60.0 ± 6.6	50.1 ± 5.0	45.9 ± 6.0	65.4	55.6	52.9
	ARy12	-3.0 ± 2.3	-2.1 ± 1.7	-5.0 ± 2.4	52.2 ± 5.3	45.6 ± 6.4	42.4 ± 2.7	57.0	51.9	45.4
max2	ASp3	-2.0 ± 1.4	-2.5 ± 1.7	-2.5 ± 0.8	-10.2 ± 1.6	-3.3 ± 3.2	-6.2 ± 1.5	-12.0	-6.9	-7.2
	ARy2	-0.8 ± 1.4	-1.7 ± 1.2	-2.0 ± 0.3	-14.6 ± 1.7	-7.5 ± 2.0	-8.3 ± 2.2	-16.6	-9.2	-10.1
	ARy5	6.3 ± 0.8	5.0 ± 1.2	4.1 ± 0.4	-14.8 ± 0.9	-18.4 ± 2.6	-17.3 ± 0.8	-15.8	-20.7	-18.0
	ARy8	11.9 ± 2.1	7.2 ± 2.0	6.6 ± 0.3	-5.5 ± 1.3	-16.4 ± 3.4	-12.9 ± 4.3	-6.4	-19.6	-16.6
	ARy12	-0.4 ± 0.8	-0.6 ± 1.9	1.6 ± 0.9	22.8 ± 4.8	8.4 ± 11.3	11.7 ± 5.1	28.3	21.5	17.5
tr	ASp3	-4.3 ± 1.2	-6.4 ± 2.6	-5.0 ± 0.4	--	--	--	--	--	--
	ARy2	-1.1 ± 0.5	-4.4 ± 1.1	-4.1 ± 1.3	--	--	--	--	--	--
	ARy5	4.3 ± 1.5	3.7 ± 0.4	2.7 ± 0.9	--	--	--	--	--	--
	ARy8	7.6 ± 2.4	7.1 ± 1.9	4.0 ± 0.6	--	--	--	--	--	--
	ARy12	0.4 ± 1.0	-4.8 ± 1.7	-1.1 ± 1.2	--	--	--	--	--	--
max2	ASp3	-3.7 ± 7.4	-3.1 ± 2.4	-6.3 ± 5.2	20.8 ± 10.6	21.9 ± 1.1	13.6 ± 4.8	28.6	22.7	18.8
	ARy2	-4.7 ± 3.5	-5.9 ± 3.5	-4.8 ± 6.0	17.1 ± 6.7	26.7 ± 1.5	14.2 ± 5.5	23.4	28.3	19.2
	ARy5	-2.2 ± 1.0	-1.1 ± 1.2	-1.3 ± 2.9	19.4 ± 2.7	16.4 ± 4.1	19.2 ± 3.0	22.4	21.0	22.6

	ARy8	0.2 ± 1.6	-0.2 ± 1.3	1.0 ± 2.6	11.4 ± 4.8	12.4 ± 3.2	18.4 ± 3.9	16.9	14.7	22.7
	ARy12	-4.8 ± 1.6	-4.7 ± 0.7	-3.1 ± 4.3	-30.9 ± 3.5	-34.1 ± 10.1	-22.9 ± 10.4	-33.7	-45.6	-34.9
Max Elevation	ASp3	$-4.3 + 11.6$	-9.7 ± 2.5	2.0 ± 11.4	57.9 ± 6.8	57.6 ± 4.1	65.7 ± 2.5	65.4	60.5	67.7
	ARy2	$12.3 + 3.5$	7.0 ± 10.4	3.3 ± 11.0	48.4 ± 4.0	52.5 ± 3.5	53.3 ± 3.1	52.8	54.7	55.5
	ARy5	$11.7 + 2.5$	6.3 ± 8.1	4.0 ± 7.9	45.1 ± 5.1	48.0 ± 5.6	48.2 ± 4.2	50.6	53.3	51.0
	ARy8	$12.3 + 1.5$	8.3 ± 8.1	6.0 ± 7.9	29.8 ± 5.9	35.5 ± 2.2	39.4 ± 4.3	36.1	36.8	42.3
	ARy12	$7.7 + 17.9$	8.3 ± 20.8	-2.0 ± 6.1	-10.2 ± 2.6	9.0 ± 14.3	0.7 ± 4.0	-7.9	24.9	3.3
Max Areas	<ASp1>	$-5.0 + 10.4$	-7.0 ± 6.1	8.7 ± 16.6	--	--	--	--	--	--
	<ARy2>	$12.3 + 3.5$	10.3 ± 6.7	-2.7 ± 7.2	--	--	--	--	--	--
	<ARy5>	$1.7 + 13.9$	-0.3 ± 7.6	1.3 ± 5.5	--	--	--	--	--	--
	<ARy8>	$-2.3 + 2.5$	-3.0 ± 1.7	-1.3 ± 1.5	--	--	--	--	--	--
	<sfA>	$-2.3 + 11.6$	-9.7 ± 8.0	-1.3 ± 3.2	--	--	--	--	--	--

See Table S1 for the description of Δ Time, Mean Angle and Max Angle. See text for the description of the parameters. n = 3 sequences per fish.

Table S4. Kendall's W and Friedman's χ^2 for spiny dorsal fin-ray kinematic parameters

Parameters	Δ Time			Mean Angle			Max Angle			
	W	χ^2	P-value	W	χ^2	P-value	W	χ^2	P-value	
Sweep Events	max1	0.91	8.20	0.017	0.91	8.20	0.017	0.91	8.20	0.017
	tr	0.91	8.20	0.017	--	--	--	--	--	--
	max2	0.73	6.60	0.075	0.64	5.80	0.148	0.64	5.80	0.148
Span Axis Events	max1	0.78	7.00	0.054	1.00	9.00	0.002	1.00	9.00	0.002
	tr	0.24	0.53	0.608	--	--	--	--	--	--
	max2	0.29	2.60	0.524	1.00	9.00	0.002	1.00	9.00	0.002
Max Elevation	0.66	5.90	0.115	1.00	9.00	0.002	1.00	9.00	0.002	
Max Area< r >	0.11	0.67	0.944	--	--	--	--	--	--	

Δ Time is the difference in time of a given parameter (individual rows) from the corresponding kinematic event of the Ant-trunk ($t\theta'$ event). Mean Angle is the average for all sequences for each fish. Max Angle is the maximal angle of the parameter that was achieved by the fish, observed in any sequence. See text for a description of the parameters. Significant analyses with P-values less than their adjusted α -levels are indicated in bold. For Sweep, Span Axis and Elevation, $df=2, 3$; for Area, $df=2, 2$.

Table S5. Kendall's W and Friedman's χ^2 for soft dorsal fin-ray kinematic parameters

Parameters	Δ Time			Mean Angle			Max Angle			
	W	χ^2	P-value	W	χ^2	P-value	W	χ^2	P-value	
Sweep Events	max1	0.96	11.47	0.001	0.96	11.47	0.001	0.96	11.47	0.001
	tr	1.00	12.00	<0.001	--	--	--	--	--	--
	max2	0.96	11.47	0.001	0.96	11.47	0.001	0.89	10.67	0.004
Span Axis Events	max1	0.96	11.47	0.001	0.87	10.40	0.001	0.73	8.80	0.038
	tr	1.00	12.00	<0.001	--	--	--	--	--	--
	max2	0.82	9.87	0.015	0.89	10.67	0.004	0.96	11.47	0.001
Max Elevation	0.69	8.27	0.056	1.00	12.00	<0.001	1.00	12.00	<0.001	
Max Area $\langle r \rangle$	0.15	1.35	0.781	--	--	--	--	--	--	

See Table S4 for the description of Δ Time, Mean Angle and Max Angle. See text for a description of the parameters. Significant analyses with P-values less than their adjust α -levels are indicated in bold. For Sweep, Span Axis and Elevation, $df=2, 4$; for Area, $df=2, 3$.

Table S6. Kendall's W and Friedman's χ^2 for anal fin-ray kinematic parameters

Parameters	Δ Time			Mean Angle			Max Angle			
		W	χ^2	P-value	W	χ^2	P-value	W	χ^2	P-value
Sweep Events	max1	0.95	11.44	0.001	0.97	11.59	<0.001	0.97	11.59	<0.001
	tr	0.95	11.44	0.001	--	--	--	--	--	--
	max2	0.69	8.27	0.056	1.00	12.00	<0.001	1.00	12.00	<0.001
Span Axis Events	max1	1.00	12.00	<0.001	0.87	10.40	0.005	0.78	9.33	0.026
	tr	0.96	11.47	0.001	--	--	--	--	--	--
	max2	0.82	9.87	0.015	0.60	7.20	0.117	0.56	6.67	0.163
Max Elevation		0.63	7.52	0.083	1.00	12.00	<0.001	1.00	12.00	<0.001
Max Area</r>		0.20	1.80	0.727	--	--	--	--	--	--

See Table S4 for the description of Δ Time, Mean Angle and Max Angle. See text for a description of the parameters. Significant analyses with P-values less than their adjust α -levels are indicated in bold. For Sweep, Span Axis and Elevation, $df=2, 4$; for Area, $df=2, 3$.

Table S7. Multigroup *W*for soft dorsal vs. anal fin-ray kinematic parameters

Parameters		ΔTime			Mean Angle			Max Angle		
		<i>W</i>	Z	P-value	<i>W</i>	Z	P-value	<i>W</i>	Z	P-value
Sweep Events	max1	0.93	5.57	<0.001	0.96	5.73	<0.001	0.96	5.73	<0.001
	tr	0.97	5.80	<0.001	--	--	--	--	--	--
	max2	N/A	N/A	N/A	0.97	5.80	<0.001	0.93	5.60	<0.001
Span Axis Events	max1	0.97	5.80	<0.001	0.87	5.20	0.000	N/A	N/A	N/A
	tr	0.97	5.80	<0.001	--	--	--	--	--	--
	max2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Max Elevation		N/A	N/A	N/A	1.00	6.00	<0.001	1.00	6.00	<0.001
Max Area</r>		N/A	N/A	N/A	--	--	--	--	--	--

See Table S4 for the description of ΔTime, Mean Angle and Max Angle. See text for a description of the parameters. Between group analyses were not performed for parameters in which one or both fin groups did not have a significant position effect, indicated by N/A. Significant analyses with *P*-values less than their adjust α -levels are indicated in bold.