

Past and present environmental factors differentially influence genetic and morphological traits of Italian barbels (Pisces: Cyprinidae)

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SUPPLEMENTARY MATERIAL

Table SM1. List and brief description of the environmental variables considered in this study.

	Variable	Description
Sampling site	Latitude	-
	Longitude	-
	Elevation	-
	Distance from headwater	-
	Riverbed substrate	Percentage coverage of rocks, boulders, cobbles, large, medium and fine gravel, sand and silt/clay
	Mesohabitat	Percentage coverage of cascades, large and small steps, rapids, riffles, pools and glides
	Shading	Percentage coverage of shaded water surface
	Plant cover	Percentage of the bottom vegetation cover
	Presence of refuges	Percentage of cover for fishes, in terms of aquatic plants, boulders, submerged woody debris, undercut banks, etc.
	Average depth	Average depth of the wetted riverbed
	Average width	Average width of the wetted riverbed
	LIMeco index	Italian normative index based on the main chemical parameters (dissolved oxygen, ammonia and nitrate nitrogen, and total phosphorus) for the ecological status assessment of rivers <i>sensu</i> Water Framework Directive
	STAR_ICMi index	Italian normative index based on benthic macroinvertebrates for the ecological status assessment of rivers <i>sensu</i> Water Framework Directive
River	Total river length	-
	The quotient among average flow at the river outlet and total basin area (Q/A)	Indicator of the river hydrological regime
Basin	Geology	Percentage coverage of i) alluvial and mixed rocks, ii) claystones, iii) limestones, iv) sandstones, v) chalky-solfifera and evaporitic sediments, vi) lakes and glaciers, vii) lavas, pyro-clasts and ignimbrites, viii) marlstones, ix) ophiolites and green stones, x) sands and conglomerates, xi) travertine, xii) flysch units and turbidites, and xiii) coarse sediments
	Land Use	Percentage coverage of woodland and seminatural land, wetland, cultivated land, and urbanized land
	Temperature	Annual average, minimum and maximum air temperature, and average temperature of August (i.e., the warmest month)
	Precipitation	Annual precipitation and number of dry days

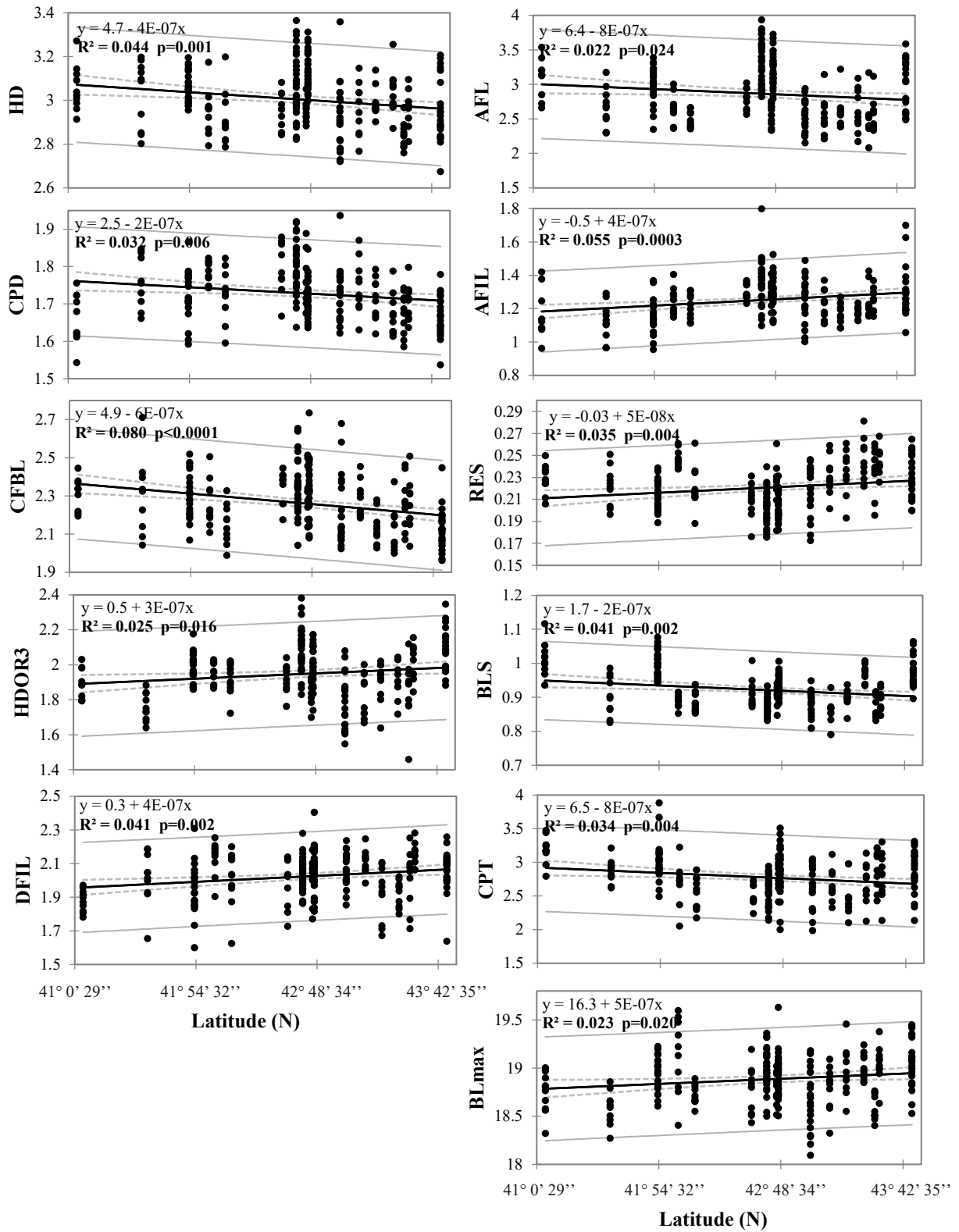


Figure SM1. Significant linear regressions of morphological and functional traits with latitude. HD = head depth, CPD = minimum caudal peduncle depth, CFBL = caudal fin base length, HDOR3 = height of the third dorsal fin branched ray, DFIL = dorsal fin insertion length, AFL = anal fin length, AFIL = anal fin insertion length, RES = relative eye size, BLS = body lateral shape, CPT = caudal peduncle throttling, BLmax = maximum body length.

