Supplementary material, Table S1. Prerequisites required for a model organism and advantages associated with the use of nematodes as bioindicators.

Features of the model organisms
Relatively well-understood development and growth
Genomic research data
Simple body plan
Transparent bodies of embryos and adults
Low costs and wide availability
High number of descendants in short generation time
Easy to rear under controlled and repeatable laboratory conditions
Easy to maintain and grow in a restricted space
Conservation of mechanisms
Generalizability of the results and understanding of biological and ecological consequences
Easy manipulation
No ethical implications
Potential economic benefit
Advantages of marine nematodes as bioindicators
Small size: they can be maintained in small sediment volumes; intensive repeated sampling is possible with minimal interference to the sampling site because the sample size required is small; laboratory experiments are possible under controlled and repeatable conditions.
Cosmopolitan distribution: they occur in all the geographical regions, climatic conditions, and types of environments from pristine to severely polluted.

High abundance and diversity: many individuals and species in small sized samples ensure statistical validity of the data; often, high species diversity suggests a high degree of specificity in the choice of the environment.
Short generation times: most species have short life cycles (i.e., a few days or weeks) so that changes in assemblage composition can be observed in short-term studies.
Direct development: lack of pelagic larvae and direct contact of species with the interstitial water makes them sensitive to changes in local conditions.

Supplementary material, Table S2: Different uses 'tool for which job' of free-living marine nematodes as valuable model organisms (Dipldie: *Diplolaimella dievegantesis*, Diplol spp.: *Diplolaimelloides* spp., Halodi: *Halomonhystera disjuncta*, Litom: *Litoditis marina*, Metop: *Metoncholaimus pristiurus*, Onchca: *Oncholaimus campylocercoides*, Metoal: *Metoncholaimus albidus*, Onch sp. nov: *Oncholaimus* sp. nov., Onchdy: *Oncholaimus dyvae*, StilboAs: Stilbonematinae & Astomonematinae, Enob: *Enoplus brevis*; Terschl: *Terschellingia longicaudata*)

Question: tool for which job?	Dipldie	Diplol spp.	Halodi	Litom	Metop	Onchca	Metoal	Onch sp. nov	Onchdy	StilboAs	Enob	Terschl	Source
Mechanisms underlying osmoregulation				X									25,77
Mechanisms of specification, sympatry mechanisms				X									22
Partioning of ecological niches			X	X									26,27,28,75
Effects of food availiability		X											54
Intraspecific competition in mediating dispersal			X	X									36,69
Co-occurrence of cryptic species			X	X								X	71,72,73,74
Bacterial community stimulation; decomposition of a macrophyte	X	X		X									75,76
Interaction between nematodes and bacteria; Ectosymbiotic associations				X			X		X	X			63,65
Interaction between nematodes and bacteria; Endosymbiotic associations								X	X	X			65,88,90,91
Study of interspecific interactions		X											56,69
Cell lineage in nematode development											X		67
Investigation of genetic diversity and population genetic structure	X											X	94
Toxicity tests:			X	X								X	36,58
1. Cadmium			X	X	X	X							39
2. Heavy metals (e.g. Hg, Cu, Zn, Fe, Pb and Ni)	X		X	X		X							68,99,101
3. Tetrabromodiphenyl ether (BDE-47)					X	X							38,39,40,42
4. Atrazine (LC50)				X									26
5. Crude and diesel motor oil		X		X									24
6. Interactions between Cd and PVC microplastics					X	X							39
7. Interactions between beta-blockers (i.e. Diltiazem and Bisoprolol) and PVC microplastics					X	X							38,81
8. high hydroxychloroquine (HCQ) concentrations exposure					X	X							41
9. Individual and combined PAHs effects					X	X							38,39,40,42
10. Exposure to different concentrations of ciprofloxacin (antibiotic)					X								40
11. Exposure to phenanthrene and chrysene (PAHs) and petroleum compounds		x				X							38,39,40,42,100

12. Long exposure to hydrogen sulphide			X			X							38,39,40,42
13. Sublethal concentrations of sodium dodecyl sulfate (SDS) surfactant	X												68
14. Permethrin (pesticide) and/or Zn into the sediments					X								38,39,40,42
AMPs extraction							X	X					46,47
Exopolymer production involved in the marine sediment stabilization		X											55
Temperature/salinity/pH tolerance, response to global climate/warming changes		X	X	X									25, 29, 30, 35, 36, 69, 77
Mechanism of food selection and phylogenetic position	X												61, 69