The superhydrophilic surface which overcomes drag enhancing effect while remaining outgoing anti-oil fouling property underwater

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The superhydrophilic surface is researched because of its various usage such as self-cleaning, oil/water separation, anti-fouling and bubble generation reaction. However for its real life usage, the superhydrophilic surface has the drag enhancing issure whihc is critical problem as energy consumption point of view. Thus, combining bubble generation ability of superhydrophilic surface and drag reduction effect of bubble, we fabricate superhydrophilic surface with anti-oil fouling ability and drag reducing effect. Before bubble generation for each surface, the superhydrophobic surface has the highst drag reducing effect. When the bubble is generated on the surface, the fine and even bubble layer on the superhydrophilic surface showed drag reducing ratio of 20% compare to the flat surface. Thus, this surface could be used for ship, liquid transprot system and heat exchangers for drag reducing ability with anti-fouling ability for long term stability surface.